The Governance of Biodiversity in Kakamega Forest, Kenya

A dissertation submitted
to the
Faculty of Spatial Planning
Technical University Dortmund

by

Judy Wambui Kariuki
July 2008

In partial fulfilment of the requirements
for the degree of
Doctor rerum politicarum (Dr. rer. pol.)

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Declaration

I hereby declare that this doctoral dissertation is the result of an independent investigation. Where it is indebted to the work of others, acknowledgements have duly been made.

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Dortmund, July 2008

Abstract

Kenya derives enormous economic, social and cultural benefits from its biological resources. However, it is clear that Kenyaôs biodiversity is under threat. An expanding population is putting severe pressure on the environment. Impoverished people with no alternative means of a livelihood are forced to use natural resources unsustainably. Natural habitats continue to be cleared and converted. Land is degraded and water polluted; ecosystems are damaged and their functions impaired. An urgent need therefore arises for the identification of sites and habitats that are the most important, most threatened and which require urgent action for conservation. Kakamega Forest stands out prominently as one of them.

The view taken in this study is that the sectoral approach to natural resource management in Kenya is a serious hindrance to biodiversity conservation. It produces problems of co-ordination of policies, jurisdictional overlaps, conflicts and at times bureaucratic inertia. It ignores the fact that ecosystems cannot easily be partitioned into independent units, but must be treated as a functional whole. Approaching the subject from an institutional perspective, the study seeks to explore the role of property rights institutions in creating enabling incentives and disincentives for the governance of biodiversity. Institutional change in Kenya has not effectively harmonised the formal and informal property rights. Whereas formal property-rights institutions have frequently been changed, the informal cultural institutions have been slow to change thus unable to cope with the new developments. Kenya, like most other developing countries, has been caught up in a multiple, intricate institutional system, which is highly disconnected and disadvantageous to most spheres of the economy. It therefore becomes evident that despite the wide range of legislation for environmental management in Kenya, biodiversity degradation persists. This is more the result of institutional weaknesses and failures of co-ordination than of legislative inadequacies. Consequently policies are rendered impotent. Interpreting the problem as one of policy failure, more institutional changes are undertaken, making an already bad situation worse. Precisely, at one point in time, Kenya had 77 legislation articles dealing with the governance of biodiversity; overlapping on the already existing cultural institutions. To bridge the various sectors dealing with biodiversity, the Environmental Management and Coordination Act (EMCA) came to force in the year 2000. Although it may still be early to judge the impact of the Act, it is evident that biodiversity degradation is still persistent. Nonetheless, evidence shows that institutions do not work in isolation but hand in hand with other factors contributing to the persistent loss of biodiversity. However, the scope of this study is limited to property institutions related challenges.

The relevant data for this study has been collected from two main sources, key informant interviews and a desktop review of secondary materials on biodiversity conservation in Kenya. The study draws from international experience in the management of biodiversity. Based on various case studies, the role of institutions in the governance of biodiversity is explored in detail, and principles for institutional performance discussed. The institutional framework for biodiversity conservation in Kenya is presented, evaluated and analysed exposing various gaps that are appropriately filled based on the already elaborated case studies. A reconciled institutional network is then proposed as a way forward for biodiversity conservation in Kenya, based on the experiences of Kakamega Forest. This is undertaken within the scope of the umbrella multidisciplinary and international project, BIOTA Africa.

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List of Acronyms

BMBF: Federal Ministry of education and research

CBD: Convention on Biological Diversity

CPR: Common Pool Resource

DEC: District Environmental Committee

EIA: Environmental Impact Assessment

FD: Forest Department

ICDP: Integrated Conservation and Development Projects

KWS: Kenya Wildlife service

LUP: Land Use Planning

MAB: Man and Biosphere

NEAP: National Environmental Action Plan report

NEC: The National Environmental Council

NEMA: The National Environmental Management Authority

NES: National Environment Secretariat

NGOs: Non-Governmental Organizations

NIE: New Institutional Economics

PCC: The Public Complaints Committee

PLUP: Participatory Land Use Planning

PPP: Parks and Peoples Project

1 Introduction

Decades have seen the state of biodiversity to where it is today; centuries may witness its restoration. Nonetheless, the world is not about to shrink back from making a difference in this bad state. Climatic changes, desertification, deforestation, threats from the ozone, however reflect not the same view.

Arguing from an optimistic point of view, but acknowledging the urgency of arming up against the very enemies of biodiversity, this study critically evaluates the role of institutions in the current state of biodiversity. In decision VI/26 (Convention for Biological Diversity 1992), the Conference of the Parties adopted the Strategic Plan for the Convention on Biological Diversity. In its mission statement, the Parties committed themselves to a more effective and coherent implementation of the three objectives of the Convention, ñ*to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on earth.***ò** Four years to the target date, biodiversity degradation can still be witnessed in many parts of the world. Efforts put towards reversing the situation may be evident especially in adopting new policies favourable to the governance of biodiversity. However, it is one thing adopting policies and another implementing them. Having realized the value of biodiversity, ratifying to the relevant international conventions has not been debatable for most nations. It is only when they get home that the bite proves a little bit too big to chew. Many reasons ranging from poverty, population increase, politics, conflicts between formal/informal institutions etc. have been given for this failure. The institutionsô element captures the attention of this study.

Pursuing the Parties home after the CBD (1992), many documentaries have been produced as CBD labours to make its vision real. In one of them, (UNEP/CBD/COP/3/24 1996:4), the relevant principles relating to creation of institutional incentives through formal and informal institutions are extensively covered. Based on Northôs (1990:90) definition of institutions as ñrules of the gameò, the CBD document advocates for the creation of an enabling institutional environment for sustainable management of biodiversity. Upholding the same definition of institutions, this study evaluates to what extent the challenge has been taken back home in Kakamega Forest, Kenya. Defining the problem and seeking the answer within New Institutional Economics (NIE), a critical look into the issue is hereby engaged.

1.1 Theoretical Focus: A brief

The theory of New Institutionalism, from which the discourse NIE is based, derives from an understanding of human behaviour as not being strictly rational as advocated for by old institutionalism. It advocates for cognitive, cultural explanations, and an interest in supraindividual units of analysis that cannot be reduced to aggregations or direct consequences of individual attributes or motives. In so doing, New Institutionalism focuses less on local activities but adopts a multi-disciplinary approach in explaining decisions. The origins of actor's preferences are considered, along with the feedback between actors' interests and the institutions they comprise (DiMaggio and Powell 1991:10). This combination sheds light on why institutions exist and what role they play in the functioning of societies (North 1990:27, Williamson 1985).

Based on this principle, this study argues that formal institutions are sometimes short of the fact that societies have there own perspective towards issues. The fact that no community ruled at a vacuum before the establishment of central governments is an issue that should be considered in all avenues of development. Unless policies identify with the societyôs perspective, they are sure to fail on the ground. Although the society may not protest openly against such policies, practically, they will render them slippery. However, this may not be deliberate. They are just doing things the way they know best. Although subject to change, social constraints take a longer time; much longer than formal constraints that can be changed constantly as need be. In the case of biodiversity, communities have been the custodians of biodiversity ecosystems for centuries. They had no written rules. However, based on the social constraints or to what is referred to as informal institutions, they did if effectively. Bringing in written laws, policies and regulations did not capture the expected response. Formal institutions needed to identify with the already existing social constraints if implementation was to be ensured. It is in the view of this study that there still is room for this to be achieved.

A theoretical review running the first two chapters of this publication gets us into the depth of this debate. It identifies the various ideal institutional pillars for the governance of biodiversity. A further chapter puts the reader into the African scene before narrowing down to the context case, Kakamega Forest.

1.2 The significance of Kakamega Forest

Kakamega Forest is one of the ecological hotspots in Kenya. Lying 00°17ôN, 34°53ôE at an altitude of 1550-1650 m. in Western Province, Kakamega Forest is designated a forest reserve and partially a national reserve (Bennun and Njoroge, 2000:242). It is the easternmost outlier of the Congo Basin tropical forest, now a fragmented remainder of the original forest. Bird Life International in collaboration with Nature Kenya, among other actors, has identified Kakamega Forest as one of the important bird areas. It is also home to many other species of fauna and flora (Ibid). As a catchment area, Kakamega Forest feeds rivers Yala and Isiukhu that drain into Lake Victoria making it a source of likelihood for many.

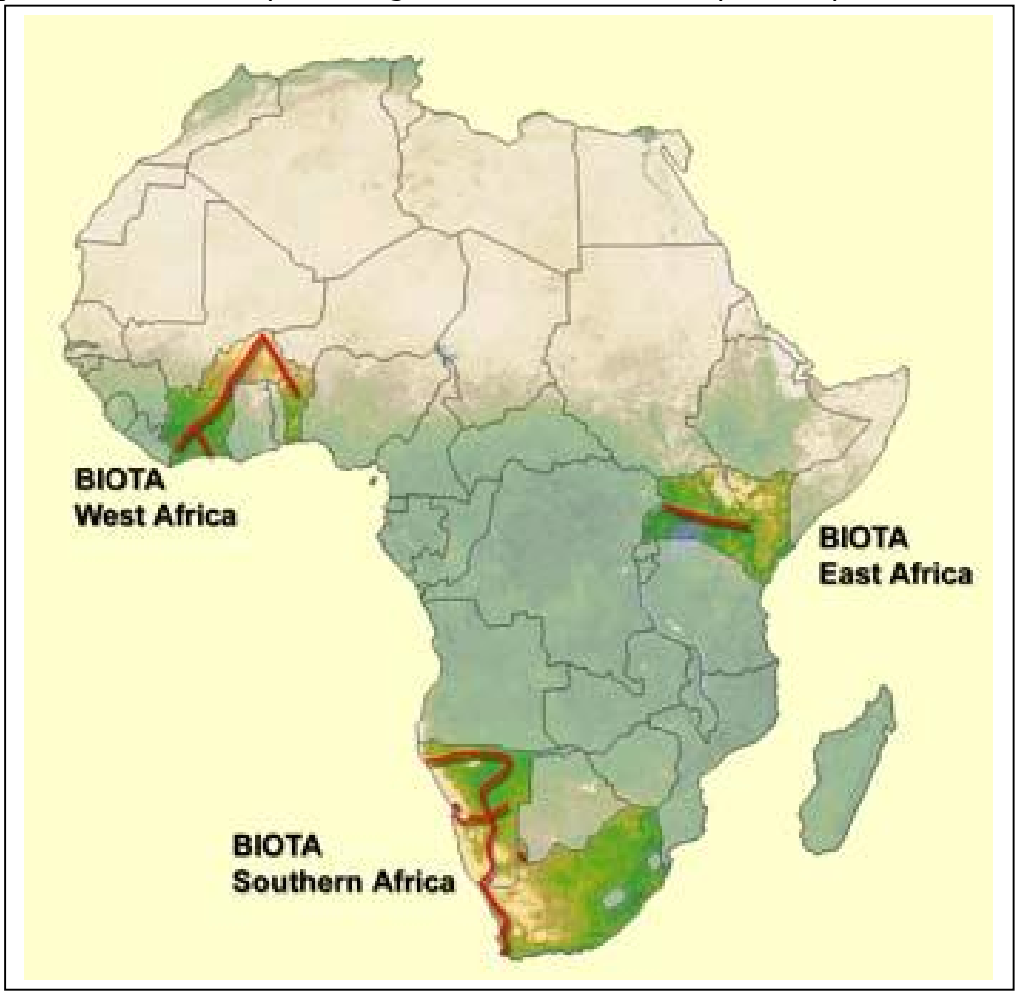
Kakamega Forest is relatively less disturbed compared to other Kenyan forests. If stereotypes are a kind of institutions to go by, the Luhya people who neighbour the forest are said to be admirably contentable but incredibly unambitious. However Bennun and Njoroge, (2000:242) may not be as contentable. They evidently report that Kakamega is a complex and fragmented forest that has been under attack from within and without for many years. Logging and clear felling of indigenous forest to give way for plantations was rampant during the colonial era till the 1980s. This started the excision of the different forest fragmentations. These have further suffered the impact of the Nyayo Tea Zone, land for settlements and provision of public facilities. With the increased population, human pressure is immense (Ibid). Illegal tree felling, charcoal burning, hunting, debarking of medicinal trees, firewood collection, agricultural encroachment are some of the reported human pressures. The presidential decree of 1994 is blamed by Oyugi 1996 and Bennun for re-introduction of forest and glade grazing resulting to poor tree regeneration and policing problems (quoted Bennun and Njoroge 2000:242). Whereas presidential decrees are unarguably policy destabilizing, the issue of community use Vs pure conservation is still debatable depending on local circumstances.

Nonetheless, all these activities have had their toll on biodiversity with some bird species such as the yellow-mantled weaver, fine-banded woodpecker and Hartlaubs

Turaco being feared extinct (ibid). Birds are important indicators of ecological trends. Birds cannot live is scarcity of insects or seeds that they feed on, trees that they live on, breed on, hide or disguise in. They are good seed dispersers. Birds will normally free from disturbance may it be by man or any strange noises. So the extinction of some birds in Kakamega Forest may be an indication of the trend of biodiversity population in general. Justifiably therefore, the 25,000 animals, 7,000 plant species, 2,000 fungi and bacteria reported in NBU (1992) may just be a pale image of the would be species population in Kenya.

This may have captured the attention of the BIOTA project; a mega biodiversity research project in Africa under which this study is embedded. Funded by the German Federal Ministry of Education and Research (BMBF); Biota Africa was initiated in 1999 with the aim of achieving a holistic scientific contribution towards sustainable use and conservation of biodiversity of the African continent. The project has three main sub-projects; namely BIOTA East, West and BIOTA South depending on their location in Africa. Map 1.1 gives an indication of the location of the project. This study is in the BIOTA East sub-project, based in Kakamega Forest, Kenya. For details, please see, www.biota-africa.org.

Map 1.1 An indication of Kakamega Forest in the context of Biota Africa



Source: BIOTA-Africa:2007

This study justifies its place by complementing the other BIOTA Africa studies in giving an informed report on institutions and the governance of biodiversity in Kakamega Forest.

1.3 Institutional focus on Kakamega Forest

Many factors have been given for the current state of biodiversity in Kakamega Forest. Poverty, population growth, fire, logging, grazing are some of them. However, underlying each of them are institutions that should constrain their magnitude and impacts on biodiversity. Government policies and indigenous institutions where applicable, should contribute to good governance of biodiversity, but they hereby seem not in control of its degradation. Existing formal and informal institutions should guard against the growth of poverty and population to unmanageable levels, and thus avoid their negative impacts on biodiversity. Boserup (1965) argues that even in pre-capitalist societies, population growth did not lead to a decline in the agrarian output. Instead, she argues, it led to the use of intensified techniques and new institutional arrangements. With population growth, more intensive patterns of land use are employed even under pre-capitalist systems. Consequently, in an agrarian system with annual cropping, private property rights in land are found in contrast to long fallow agricultural systems (Boserup 1965, Platteau 2000). Why has is it not been possible to attain such an effective institutional change in relation to biodiversity in Kenya, particularly, Kakamega Forest?

In Kakamega Forest, three formal governance regimes namely Kenya Wildlife Service (KWS), Forest Department (FD) and a church organization namely the Quakers govern different fragments of the forest. The Forest Service and the Quakersô mandate is however provided for by the Kenya Forest Act 2005 making thus the similarity in the two systems. The different regimes implement different formal regulations namely the Kenya Wildlife (Management and conservation Act) Cap 376 and the Forest Act 2005 besides the already existing informal or social constraints. As a result, the forest is portioned into two administrative sections characterized by varying forest densities and community relations and this depicts some inconsistencies. Based on this, this study presupposes that the sectoral approach to the governance of biodiversity ecosystems in Kenya produces negative incentives that are a serious hindrance to biodiversity conservation.

For effective governance of biodiversity, the right incentives need to be created. This is attained by building an enabling institutional environment. The institutional environment comprises of three interactive components:

i. Formal institutions
ii. Informal or social institutions and
iii. Levels of compliance or enforcement (North 1990:3)

The three interact to produce a set of institutional incentives or disincentives that govern human behaviour, and consequently, are responsible for biodiversity management outcome. Therefore, to change outcomes requires altering the incentives through a process referred to as institutional change. An incentive measure represents a change in the rules governing the use of biological diversity or its components (UNEP/CBD/COP/3/24 1996:4). The most common incentive measures involve changes in formal constraints such as property rights arrangements. Changes could also be achieved by altering informal constraints or by monitoring and ensuring compliance with the rules. Successful changes in incentives, however, require that both formal and informal constraints be supportive of the changes (Ibid).

To achieve such a harmonious institutional environment, the study hopes to finally propose some viable institutional measures necessary for building institutional incentives and disincentives for better governance of biodiversity in Kakamega Forest. This will be achieved by progressively answering the questions:

- What are the current formal and informal property institutions governing biodiversity in Kakamega Forest?
- How well have they been implemented and complied with?
- What is the way forward for sustainable management of biodiversity in Kakamega Forest?

Chapters four onwards gives an account of how far the set goals have been attained. Beforehand a thorough review into literature lays the foundation.

As provided for in the Forest Act 2005 Part 1 Section 2, Kenya has three types of forests and forest owners. These are, State forests owned by the Kenya Forest Service, Local Authority forests owned by a local authority and Private forests owned by an individual, association, institution or body corporate. Kakamega Forest falls under the state forests category. The Kenya Forest Service is in charge of all state forests. However, when a forest is designated a National Park or a national reserve, then Kenya Wildlife Service takes charge. Kakamega Forest is subdivided into a national reserve and a forest thus having the Kenya Wildlife Service and the Forest Service running the different sections of the forest. Varied policies control the different sections.

The Wildlife Conservation and Management Act highlights the powers given to the Kenya Wildlife Service managing the northern part of the forestôs main block also referred to as Buyangu. It is also in charge of the adjacent fragment referred to as Kisere. The two sections have been under Kenya Wildlife Service since 1986 when they were declared national reserves by the central government. The southern part of the main forest block and two adjacent fragments referred to as Malava and Bunyala are under the Forest Service whose mandate is given by, The Forest Act 2005. The Quakers church mission is in charge of the southern most fragment referred to as Kaimosi. The Quakers employ The Forest Act 2005 in their administration of forest activities. The three regimes have different approaches to the management of the forest including their view of community access to forest products. The right to access, withdrawal, management, exclusion, and alienation from the forest all apply differently.

Impacting on the forest are also the informal institutions of the neighboring Abaluhya community. Although not sited as co-owners to the state and the local authority forests above, they are not only the traditional custodians of the forest, but the said authorities are supposed to act only as custodians to public forest. The presence of the formal and the informal institutions at play in Kakamega Forest therefore pose various challenges in governing the forest ecosystem. In order to capture these challenges in a comprehensive manner, it is crucial to classify them into various categories. For this purpose, we refer to the studyôs theoretical framework and the formal administrative regimes in Kakamega Forest. As discussed in section 1.1, the most crucial component of a policy framework is to create the right incentives and disincentives in order to meet its objectives. In the case of a biodiversity governance system, institutions have been identified as being of significance influence on how a biodiversity governance system runs. Outstanding among institutions for biodiversity conservation is property right institutions. Property rights determine the right to access, withdrawal, management, exclusion and alienation from an ecosystem, in this case Kakamega Forest. For property rights to be effective in governing Common Pool Resources, in this case a forest ecosystem, figure 1.1 outlines the conditions that ought to be met. But are these factors relevant to Kakamega Forest? To find out how effective they could be in this case, these ten factors in figure1.1 are weighed each against the formal/informal institutions at play in Kakamega Forest. This gives us a harmonized

analysis of the policy challenges encountered in governing the forest. This is the concept captured in figure 5.3.

2 Institutional pillars into the governance of biodiversity

2.1 Institutions defined

Institutions have become an important paradigm in assessing social, economic and political performance of the society. North (1981,1990) appreciates the role of institutions in the performance of economies. Ostrom (1990) on the other hand evaluates the role of institutions in governing the commons, whereas Olson (1972) evaluates group dynamics from a new institutional perspective. Many other authors such as Thomas (1973), Ensminger (1992, 1998), Bromley (1992), Becker and Ostrom (1995), Ruttan (1998), Gibson (1999) have evaluated different dimensions of human interaction from a new institutional perspective; leaping forward the significance of the recently emerging discourse of New Institutional Economics.

The term, institutions has multiple underlying interpretations across different disciplines. Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction (North 1990:3). According to North, they are made up of:

- Formal constraints (e.g. rules, laws, constitutions),
- Informal constraints (e.g. norms of behaviour, conventions, self imposed codes of conduct) and their
- Enforcement characters.

Together, they define the incentive structure of societies and specifically economies (North, 1994:359-368). Uphoff (1986:8), acknowledging Huntington (1968), defines institutions as stable recurrent patterns of behaviour. Other definitions are available from the new institutionalism literature, with the common denominator that institutions are a bundle of inter-linked, enduring and persistence guiding principles governing a society. North (1990:3) observes that institutions reduce uncertainty by providing structure to every day life. They are a guide to human interaction.

It is commonly agreed that institutions include all socially devised rules of governance such as articles of constitution, statute of common law, regulations and by-laws, policies, legal rulings, contracts, code of conduct and honour, and the myriad of social and cultural traditions and norms of behaviour; that direct appropriate behaviour thus forming an institutional matrix within which all social, economic and political actors interact (Connor and Stephen, 2004:11). Property rights, as later expounded on, are a bundle of rights that define a form of ownership over a ñthingò (Becker 1980: 189f). The rights could be formal or informal, based on government regulations or embedded on a peopleôs culture respectively (North 1990, Ostrom 1990, Ensminger1992, 1998). Property rights therefore, form part of the wide institutional matrix governing any society.

The day to dayôs use of the term institutions however differs. The distinction between organizations and institutions is still ambiguous. North (1990:4) cautions against confusing the rules of the game with the players. In advancing his argument, he explains that the purpose of the rules is to define the way the game is played, while the team or organization in this case aims at winning the game. The team and the rules form an institutional environment in which the game is played, but they are different in kind. Organizations are agents like firms, tribes, states, households and any other defined group of people with preferences and objectives. Organizations are the proprietors to

institutions. Although distinguished in definition, each complements the other. Institutions (rules, procedures and norms of society) and organizations (government, private sector and civil society) form the interface between policy and people. Organisations and institutions, such as markets, the media, NGOs or bureaucracy, laws and regulations mediate the impact of policy on people and their livelihoods. For example, the front line workers of the forest department mediate forest management policy. Often the impact of a policy will depend on the extent and nature of peopleôs interaction with those organizations and institutions (Shankland, 2000).

In this context, Northôs definition of institutions is applied, but with emphasis to property rights institutions.

2.2 Insights into the governance of biodiversity

The role of institutions in the governance of biodiversity is vital. The Governance of biodiversity addresses the institutions that regulate relationships between actors in the use, control and management of biodiversity (World Bank 2002). Biodiversity or "Biological diversity means 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 (CBD 1992)ò. Growing international attention to biodiversity in the 1990s has brought governance issues associated with biodiversity conservation to the fore. At the same time, faith has diminished in the ability of the national conservation authorities usually politically weak, understaffed and under funded, to take sole responsibility for the management of resources; and local communities, NGOs and private sector have been invited to share in the responsibility for the management and protection of biodiversity (World bank 2002). This has not been without challenges, considering that institutional adjustments have had to be undertaken to embrace the evolving partnerships.

Sustainability of biodiversity is predicated on the management of the ecosystem and habitats that host its diversity such as forest, agricultural land, rivers, lakes other components of nature. For effective governance of biodiversity property rights should be allocated on a scale and at a level sufficient to ensure that the entity that is best placed to manage the resources has complete control over them. Institutionalisation of property rights should aim at the local users having at least the rights to manage resources and make decisions about resource use and the exclusion of others from the use of resources (proprietorsô rightôs). If not so, the results are likely to be limited (Agrawal and Ostrom 2000:100).

Additionally, decision-making should respect the rights and needs of those who depend on resources. For the poor, democratic governance is the door to equity and one of the building blocks of sustainable resource management (World resources 2005:4). This lowers the probability that contradictory laws are applied to one resource. Legal institutions for the protection of property rights need to recognize and protect the rights of local communities if property rights are to engender sustainable biodiversity conservation. Account also needs to be taken of the diversity of notions, actors and interests including communities and customary tenure arrangements. Tenure regimes should be aligned to land use systems to ensure that there is synergy between ownership and use of natural resources.

Making the governance of biodiversity more friendly means tackling issues of property rights, access to information and decision-making, adequate representation, institutional transparency, and fairness in sharing the costs and benefits of resource

management. These are all aspects of democratic governance (World resources 2005:4). Towards this goal, the role of property rights is here below explored.

2.3 Property rights

Property rights are fundamental incentive measures in defining the actorsô rights and relationships over a property, thus engulfing an integral component of the governance of biological diversity. Property rights are a bundle of rights that define a form of ownership over a ñthingò (Becker 1980:189-90). The thing could be tangible or intangible, moveable or immoveable. Intellectual property rights such as patents, trademarks are examples of intangible, transferable property rights; whereas land and its permanent attachments, may constitute immoveable and tangible properties. The bundle of rights may constitute the right to access, withdraw, manage, exclude, alienate, possess, rent, dispose, bequeath or transmit and the right to security. The existence of all these elements would be interpreted as absolute or full ownership. However, empirically, it is unlikely that absolute ownership has ever been achieved. The society always imposes some form of restrictions on the use of ones property, especially those related to prohibition of harmful use (Graham 1998: 518-521). If one individual has a right, someone else has a commensurate duty to observe that right. According to Schlager and Ostrom (1992), five property rights most relevant to the governance of biodiversity are the right to access, withdrawal, management, exclusion, and alienation.

- Access: The right to enter a defined physical area and enjoy non-subtractive benefits
- Withdrawal: The right to obtain resource units or products of a resource system (e.g. cutting firewood or timber, harvesting mushrooms)
- Management: The right to regulate internal use patterns and transform the resource by making improvements (e.g. planting seedlings and thinning trees).
- Exclusion: The right to determine who will have an access right, and how that right may be transferred.
- Alienation: The right to sell or lease management and exclusion rights.

The combination of the bundle of rights that is held by a certain entity defines his recognition as a tenant, owner, claimant or otherwise as the case may be. In the natural resources domain, various bundles of rights, if well enforced determine the mode of governance, thus the level of biodiversity conservation. Table 2.1 gives an impression of bundles of property rights held by various entities and the accruing constraints or privileges.

Table 2.1 Bundles of rights associated with positions

	Owner	Proprietor	Authorized claimant	Authorized user	Authorized entrant
Access	X	X	X	X	X
Withdrawal	X	X	X	X	
Management	X	X	X		
Exclusion	X	X			
Alienation	X				

Source: E. Ostrom and Schlager, 1996:45

Authorized entrants: may be allowed through a fee or some other means, an operational right to enter, but do not have a right to harvest forest products.

Authorized users: Those who have both the right to enter and to harvest some forms of products

Claimants: Possess the operational rights of access and withdrawal plus a collective-choice right of managing a resource that includes decisions concerning the construction and maintenance of facilities and the authority to devise limits on harvesting rights. Forest users in some community forests in Nepal, for example, are encouraged to develop their own management plans but do not have the authority to determine who is in or not in a user group (Varughese 1999).

Proprietors: Hold the same rights as claimants with the addition of the right to determine who may access and harvest from a resource. Most of the property systems that are called ñcommon-propertyò regimes, involve participants who are proprietors and have four of the above rights, but do not possess the right to sell their management and exclusion rights even though they most frequently have the right to bequeath it to members of their family (Berkes 1989; Bromley et al. 1992; K. Martin 1979; McCay and Acheson 1987). Biodiversity is an explicit example of common properties.

Owners: Possess the right of alienation ñthe right to transfer a good in any way the owner wishes that does not harm the physical attributes or uses of other ownersò in addition to the bundle of rights held by a proprietor. An individual, a private corporation, a government, or a communal group may possess full ownership rights to any kind of good including a Common Pool Resource (Montias 1976; Dahl and Lindblom 1963) adapted from Ostrom and Schlager (1996).

Stemming from property rights theory is what is universally referred to as private property, Public property, government property, communal or common property and open access. These terms better reflect the formal central body in control of a resource, the status and organization of the holder of a particular right than the bundle of property rights held. A private property may belong to an individual or an organization; government property to the government and communal property to an identifiable and defined group which could be a church, a tribe et cetera. However, none of these explicitly reflects on the lesser or informal rights contained in each regime. Details concerning who the authorized entrants, users or claimants are do not automatically emerge from the property title. The constitution of rights may differ socially (amongst communities), physically (between regions) and politically (between political regimes). Since the type of property ownership does not explicitly present the diversity of stakeholders and the rights by each over a property or a resource, breaking down the

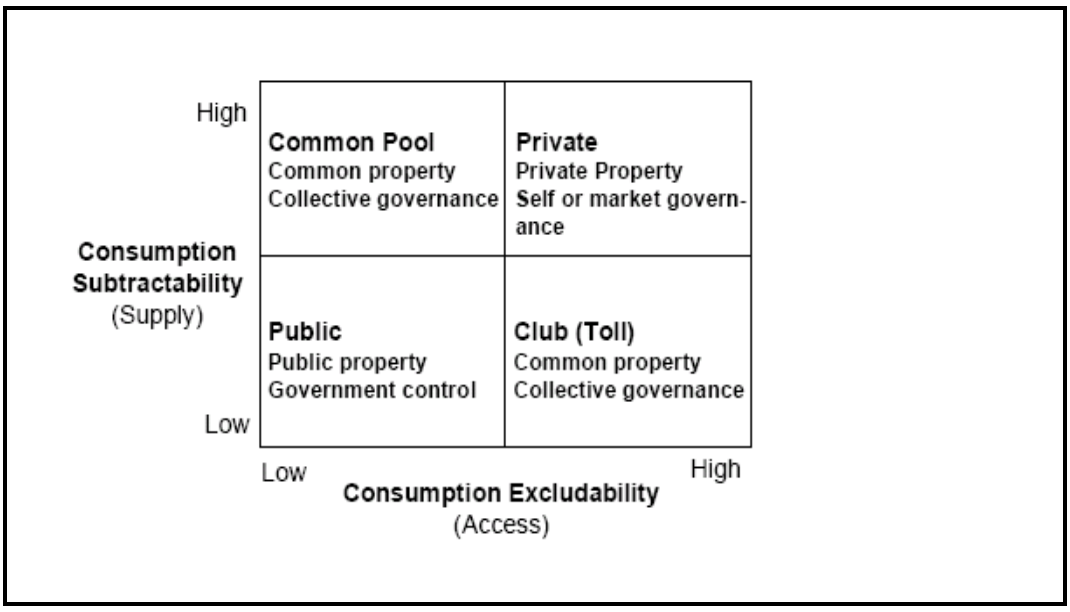
bundle of rights into access, withdrawal, management, exclusion, and alienation better elaborates on the mode governance over a resource. This kind of classification clearly identifies the actors and their roles in managing a resource. On the other hand, open access stands out exceptionally as it signifies a case where there are no property rights and the resources can be utilized by anybody for as long as he can access them. There are no constraints to its utilization, thus no mode of governance. De jure open access has always been and still is a rare situation. However, de facto open access exists in situations where property institutions fail to be enforced or complied with. In this context, more often than not, this results in biodiversity degradation

Although property theory as explained above is instrumental in identifying the stakeholders, it falls short of fulfilling the economic law of supply and demand. The economic value of biodiversity is a necessary criterion in justifying biodiversity conservation. This is especially important to pave way for biodiversity conservation in todayøs economically biased society, although as explored in the introduction section, the value of biodiversity goes beyond economic terms. However, to cater for this, the standard theory of economics measures the economic nature of biodiversity by considering two attributes,

- The extent to which one persons consumption reduces the supply available to others (subtractability) and
- The extent to which access to consumption can be controlled (excludability).

Figure 2.1 below depicts how the two variables relate, thus economically classifying a good as a private, public, club or a common good.

Figure 2.1 Taxonomy of consumption characteristics, property rights and governance



Source: Powell M. 2005:17

Public goods are low in subtractability and low in excludabitility; private goods have high excludability and high subtractability; while club and common goods are high in subtractability and low excludability (Powell 2005:17). Although public goods, example a bridge, are low in excludability, the additional attribute of low subtractability ensures stability. Comparatively, the high excludability rate of private goods counteracts the adverse effects of high subtractability. If (and only if) compliance is enhanced, private

property rights over an agricultural farm for example, will ensure exclusion of intruders thus low substractability or harvesting of resources.

An interesting emergence from the two theories is observed in relation to biodiversity. Biodiversity is classified as a common property and a common good respectively. The shared attribute is the low rates of excludability making biodiversity highly prune to degradation. Under property theory, this is attributed to the wide scope of stakeholders and to the high rates of subtraction in economic theory. The two reflect one of the most challenging dimensions in the governance of biodiversity; the attainment of collective action. Collective action refers to a situation where individuals pursue their joint welfare as contrasted to individual welfare. In the governance of biodiversity, this is attained by ensuring access by the big number of stakeholders, ensuring exclusion of outsiders and free riders and spontaneously achieving sustainable subtraction of resources and replenishment of an ecosystem (example, a forest). This normally creates collective action challenges that, according to Powell (2005:11), can only be solved by implementing special institutions as discussed further below. Appropriately therefore, biodiversity is a Common Pool Resource (CPR) and should be governed accordingly (ibid).

Towards this goal, the social, economic and political faces of biodiversity should be taken into consideration This is possible if the market, community and the state collectively gear their effort towards a common goal, biodiversity conservation. According to Williamson (2000:598),

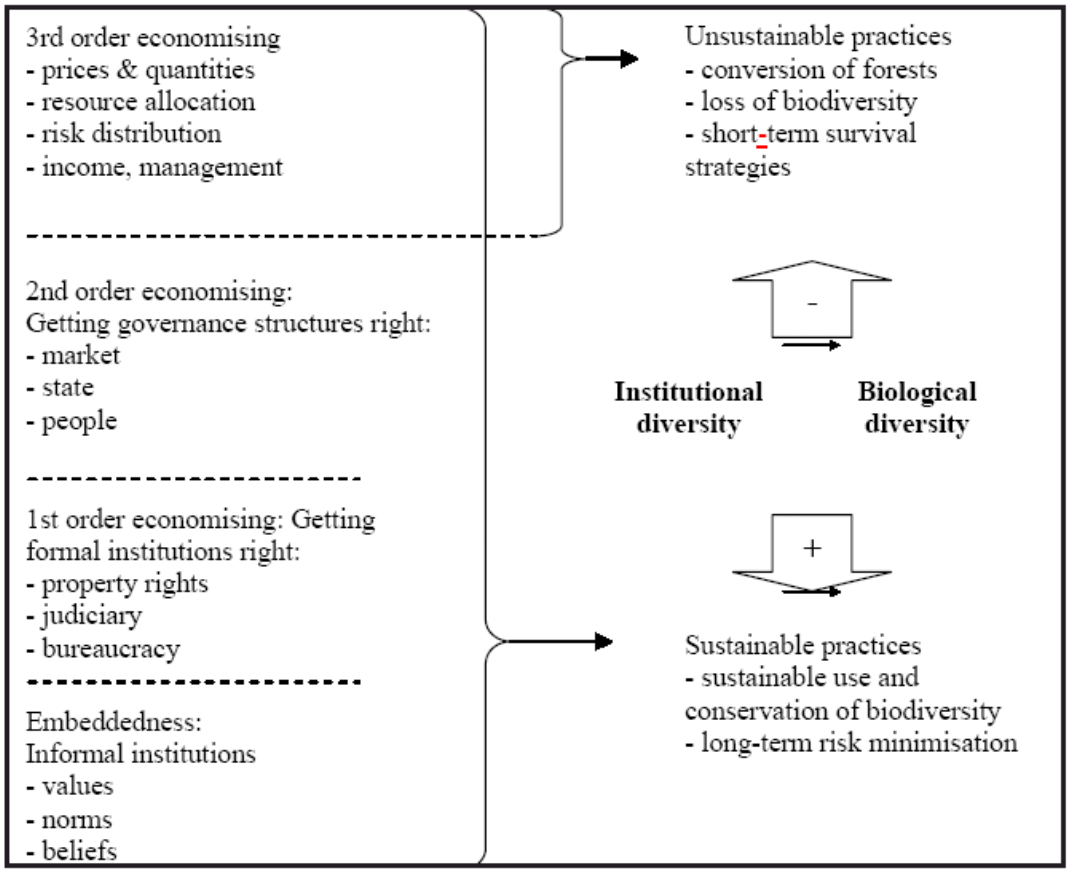
> *ñOnce property rights have been defined and their enforcement ensured, the government steps aside. Resources are allocated to their highest value as the marvel of the market works its wondersò*.

In reality, this has not materialized in the governance of biodiversity. In agreement with Dietz et al. (2003), the process of institutionalising biodiversity conservation is a constant struggle, which requires institutional diversity. Governing biodiversity is not achieved by singular institutional arrangements, such as a market miracle. The market mechanism would not deliver without the existence of formal and informal institutions. Formal institutions ensure administrative performance of the market, for example, enforcement of the formal contracts. Informal institutions such as trust and social networks on the other hand, (Fukuyama 1995; Ostrom and Walker 2003) ensure compliance. It is manôs irrationality that gives base to new institutionalism. In diverting from old institutionalism where man is portrayed as an economic-robot in a perfect market, new institutionalism convincingly considers not only his economic rationality, but also the realities of manôs social, physical and political environment that influences decision-making. In ensuring biodiversity conservation therefore, the market and the state (formal institutions), and the community (informal institutions) need to work together in harmony for enhanced performance.

Ostrom (1990:58-82), present cases where communities have been able to govern the production and provision of ecosystem goods and services by themselves instead of being dominated by the market or the state. In cases where indigenous institutions have endured for centuries, social capital is embedded in the shared knowledge, trust, and understanding among users and this has sustained the productivity of natural resources for centuries. However, there are cases where the dominance of state control on most common pool resources blurs the performance of indigenous institutions. The option then is for the market, state and community to synergize their efforts for collective performance.

In reality, what might happen if, for example, the market dominates? According to Gatweiler (2005), the market is better suited to solve allocation problems of private goods than those of public goods. He argues that if peopleôs behaviour is merely driven by the price mechanism and insufficiently embedded into social norms, institutions, and governance structures, the social and ecological system becomes increasingly vulnerable to external disturbance. In his example of the Ethiopian coffee forests, with the drop in coffee prices, (more) poor farmers converted coffee forests to maize or khat (Catha edulis Forsk) farms, a plant used for its stimulant effects. This provided better cash income possibilities. Once the reliance on cash income became prominent, the market mechanism became the dominant mode of governance. Apart from fast cash from timber and non-timber forest products, the farmers sought employment outside agriculture. This process was accompanied by the dissolving of traditional institutions and social networks. These changes led to environmental, human, and social degradation. Consequently, relying merely on one level of social analysis (like the market in the above example), the robustness of both the ecological and social systems suffers. This is detrimental to biodiversity whose value goes beyond the market economic interpretation. Therefore, an array of institutions across all levels of social analysis makes biodiversity ecosystems less vulnerable. Figure 2.2 below illustrates this argument; that as institutional diversity increases, so do the chances to successfully conserve biodiversity and vice versa. Ironically however, institutional diversity, though necessary, creates complex and multiple challenges to the governance of biodiversity.

Figure 2.2 Institutional diversity, the market, state and the people



Source: Adapted from Gatzweiler 2005: 211

As illustrated in the figure, the market, although one of the dictating components in the governance of biodiversity, is not well equipped to solely tackle the task without the

hand of the state and the community. Illustratively, the same negative results may be achieved if either the state or the community assumed dominance. Ideally, a well-coordinated contribution of all three sectors in the governance of biodiversity is vital and should therefore be institutionalised accordingly. However, operationalization of the mode of governance will vary from case to case and this will determine the range of stakeholders and institutional networks involved in the governance of biodiversity. Conclusively therefore, biodiversity is a Common Pool Resource (CPR) and should be governed accordingly (Powell 2005:11).

2.3.1 Governing biodiversity as a common good

The common good nature of biodiversity poses various challenges to its governance. Common goods or Common Pool Resources refers to natural or manmade resource systems that are sufficiently large to make it costly (but not impossible) to exclude potential beneficiaries from obtaining benefits from its use (Ostrom 1990:30). Common Pool Resources (CPRs) contribute much of the environmental income earned in the developing world. They are forests, fisheries, reefs, waterways, pastures, agricultural lands, and mineral resources that no individual has exclusive rights to. They are typically owned and administered by the state, a village, a tribe, or other social groupings, with the idea that the benefits will accrue to many people rather than one person or family (World Resources 2005). Essentially, Common Pool Resources do not exist in isolation but interacts heavily with private and public properties in their neighbourhoods that also harbour biodiversity. Ecosystems cannot easily been partitioned into independent units, but should be treated as a functional whole. The success of the governance of CPRs therefore, should go beyond the ecosystem borders. In case of forests institutions for example, consideration should range not only within the forest, but also the neighbouring agricultural, residential or water bodies as the case may be.

Examining Common Pool Resources further, it is not of much contestation that the multiple ownership and high subtractability nature of biodiversity is a challenge to its governance. This may have prompted Hardin (1968) in his article, ñ*the tragedy of the commons*ò, to conclude that tragedy is the fate of all scarce resources used in common. Hardin visualises a situation where a pasture is open to all. Arguing from the perspective of a rational herder, each herder falls into the temptation of increasing his herd. For every animal added, the herder has more gain than loss since he receives all the proceeds from the sale of that animal, but only a fraction share of the loss arising from overgrazing. Inevitably, all the rational herdsmen reason in this way, adding more and more animals to their herd and finally, there is no more pasture for either of them, and, ñ*therein is the tragedy*ò, (Hardin 1968:4).

To avoid the tragedy, Hardin advocated for the privatisation of property rights to such resources. He overlooked the fact that even the pastures in his classic illustration had been sustainably managed for centuries of years. Aristotle had predicted the same, many years before Hardin, that, what is common to the greatest number has the least care bestowed upon it: everyone thinks chiefly of his own, hardly at all of the common interest (politics book II, Chapter 3). Affirmatively, Gordon (1954:124) describes the same dynamic that, *everybodyôs property is no ones property*, both quoted in Ostrom (1990:2). Co-incidentally, Hardinôs citation came at the opportune moment. A time that natural resources were getting depleted and an urgent solution was a must to escape the tragedy. This compounded the ideas that had been lingering in a majority of the ruling fraternityôs minds and was considered an evolution (Ostrom 1990:3). Although

privatisation of property rights had started quite early, example from around the year 1900 with the coming of colonialists in Africa, this article heightened the urgency, intensity and magnitude of privatisation of common property rights. It is not however clear how well Hardin was conversant with the success of communal property rights and natural resource governance as practiced in Africa and other parts of the world. However, it is doubtful that his recommendation was universally tailored; considering that biodiversity degradation in Africa and elsewhere in the world has been on the rise despite privatisation of common property. Moreover, even a privately owned resource will not be managed optimally if its owner cannot guarantee exclusion.

Although many Scholars have argued that Hardin failed to distinguish open access from common property (Ciriacy-wantrup and Bishop, 1975), Hardinôs message cannot be dismissed on these grounds. Hardinôs tragedy has been witnessed in cases where institutional failure to control access to resources, has created de facto open access, thus overexploitation of resources. This may not necessarily arise from the failure of common property regime as such, but from other internal or external influences such as failure to enforce internal constraints to collective action or incursion by outsiders (Dove 1993, Berkes and Folke 1998). Although Hardinôs prescription in privatisation of the common property rights did not universally succeed in deviating the tragedy, the imminent environmental tragedy confronts the world today than it did thirty-eight years ago, when Hardin gave the warning. The high rates of deforestation, desertification, effects of pollution on the ozone and the oceans and the general trend of climatic change evidence biodiversity degradation. As witnessed by Ostrom (1990), Common Pool Resources do not always end in a tragedy, but their governance is still a major challenge to the world today. To divert the trend of biodiversity degradation, institutional enforcement and compliance is vital.

An ironical divergence to the debate on privatisation of property rights is that privatisation seems to have succeeded in saving biodiversity in some parts of the world. The green environment in countries like Germany, Britain and elsewhere in the west physically evidence this. This as however been coupled with a lot of economic growth such that forest resource dependency is eliminated. Consequently, is privatisation of property rights eminently to blame for the biodiversity catastrophe that glaringly faces the world today? The fact that ñprivate institutions alone will not do enough to protect biodiversityò(James et al. 2000:120) is irrefutable. This, however, should not lead to the misconception that private institutions are not able to contribute to the good governance of biodiversity. The blame over private properties not withstanding, other perspectives stand valid. The bone of contestation here is not property rights privatisation per se, but rather, the application of the system. The economic, social and economic situations in different continents differ, and the mode of the application of private property rights ought to be as diverse. Abuse of private property rights by most public bodies has contributed to their failure. The diverse institutional set-ups in different geographical and political borders have produced as diverse results to privatisation of property rights. It may therefore be appropriate to conclude that the transplantation and direct duplication of private rights from one geographical, political or social environment to another without considering the local characteristics of the new location is at the core of their failure in improving the governance of biodiversity. Forthcoming in chapter 4, is a further elaboration on the effects of property rights transition and transplantation on the governance of biodiversity in Africa.

Biodiversity conservation and sustainable development issues are still major international concerns. Conservation of biological diversity has been recognized in the international community, including policy makers and scientists, as essential for the

very survival of human beings on planet earth. Many believe that ambiguous policies and programs focused on the agrarian sector worldwide are at the heart of the present crisis of biodiversity conservation. Others blame the impacts on traditional methods of regulation by government intervention in the sector as often conflicting, and frequently adverse with respect to biodiversity protection (Bhattarai and Hammig 1998:1). Population increase, poverty and other general causes that point to no particular culprit are top in the list of biodiversity degraders. However, such failures as political corruption and other means of resource abuse that have seen Kenyan forests decline to their current micro-areas are rarely mentioned. This may due to the intimidation that goes with such activities making the would-be whistle blowers coil in fear. In other cases like in the Kenyan situation, no amount of whistle blowing cowed down the 1978-2002 political regime from abusing forest ecosystems for personal gain. Now that the dust has settled, the community bears the blame of forest destruction, which is to a large extent misleading.

Perrings (1995) argues that the cause of the present level of biodiversity decline is due to ecosystems being localized and the failure of existing institutions to incorporate (or internalise) the values of biodiversity conservation activities within the decision-making process. Internalisation of these externalities may only be achieved through the reform of national and local institutions (Swanson 1995). Swansonôs, like Hardinôs perspective has been shared by many and institutions have been reformed persistently in an attempt to save biodiversity, but the results have in most cases not been as successful as expected. Why the unexpected? This is because, without political goodwill, institutions are rendered impotent. In the Kenyan situation for example, institutions that were in place before 1978 had largely protected the forests. But when a new political regime emerged after 1978, the same institutions were rendered completely useless resulting to a lot of forest destruction by the politicians and politically well connected. This destruction, the country is reeling to revive to date without much success; and all the blame goes to the community.

All the above factors cannot be diminished as possible causes of biodiversity degradation. However, underlying each of them are institutions that should constrain their magnitude and impacts on biodiversity. Government policies and indigenous institutions where applicable, should contribute to good governance of biodiversity, but they are hereby blamed as possible contributors to biodiversity degradation. Existing formal and informal institutions should guard against the growth of poverty and population to unmanageable levels, and thus avoid their negative impacts on biodiversity. In a 1965 quotation that would still be valid today, Boserup argues that even in pre-capitalist societies, population growth did not lead to a decline in the agrarian output. Instead, she argues, it led to the use of intensified techniques and new institutional arrangements. With population growth, more intensive patterns of land use are employed even under pre-capitalist systems. Consequently, in an agrarian system with annual cropping, private property rights in land are found in contrast to long fallow agricultural systems (Boserup 1965, Platteau 2000). Why has it not been possible to attain such an effective institutional change in relation to biodiversity? After evaluating extensive economic literature on biodiversity conservation, Bhattarai and Hammig (1998:1) poses;

> *Inspite of increasing international concern for biodiversity conservation, especially after the United Nationôs Rio de Janeiro conference and subsequent Convention on Biological Diversity (CBD) in 1992, it is still not clear what institutional arrangement can effectively promote conservation and sustainable use of biological diversity.*

This does not imply that institutions and institutional reform is futile. In most cases, it is effective. But the challenge is on attaining a set of institutional matrix, which is effective in attaining the right incentives for biodiversity conservation. For this to be achieved, institutions must effectively respond to change, as is the case with the example of agrarian societies given above. Several scholars advocate for collective action as one of the measures that ensure such fluidity of institutional change, but how attainable is collective action?

2.3.2 The logic of collective action

According to Group theory, individuals with common interest will voluntarily act so as to try to further those interests thus ensuring collective action (Bentley 1949; Truman 1958) as quoted in Ostrom (1990:5). On the contrary, Olson (1965:2) in his book, the logic of collective action, challenges the optimism portrayed by group theory with the view that, unless the group is very small, or there is coercion or some other device to make people act in their common interest, rational self-interested individuals will not act to achieve their common or group interest. Hardin (1968) echoes the same view by his illustration of the tragedy that results from a group of herders using an open pasture in common. However, Ostrom (1990:58ff.) presents cases of isolated groups or communities worldwide that have locally developed effective property institutions for collective governance of Common Pool Resources that have endured for centuries. From the experience of these cases, she develops eight design principles for institutionalising Common Pool Resources (See box 2.1).

Box 2.1 Property rights institutional design principles for CPRs

1.Clearly defined boundaries

The boundaries of resource systems (e.g. groundwater basin or forest) and the individuals or households with rights to harvest resource products are clearly defined.

2. Proportional equivalence between benefits and costs

Rules specifying the amount of resource products that a user is allocated are related to local conditions and to rules requiring labour, materials and/or money inputs.

3. Collective-choice arrangements

Most individuals affected by harvesting and protection rules are included in the group who can modify these rules.

4. Monitoring

Monitors, who actively audit physical conditions and user behavior, are at least partially accountable to the users and/or are users themselves.

5. Graduated sanctions

Users who violate rules are likely to receive graduated sanctions (depending on the seriousness and context of the offence) from the users, from officials accountable to these or from both.

6. Conflict-resolution mechanisms

Users and their officials have rapid access to low-cost, local arenas to resolve conflict among users or between users and officials.

7. Minimal recognition of rights to organize

The rights of users to devise their own institutions are not challenged by external governmental authorities, and users have a long-term tenure rights to the resource.

8. Nested enterprises (For resources that are part of larger systems)

Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises.

Source: Ostrom 1990:9

Unlike Hardin (1968) and Olson (1965), she shares the optimism presented by the group theory, but acknowledges the challenges involved in the success of attaining the right incentives to achieve collective action. She argues that the success of these institutions was based on eight principles as presented in Box 2.1. The focus of the scholars mentioned here is not biodiversity conservation as such, but rather, the governance of Common Pool Resources and group dynamics in general. However, Common Pool Resources (CPRs) such as forests are mega-biodiversity habitats. The success in governing these resources impacts positively on biodiversity conservation.

The eight principles, she cautions, are not universal rules but they uniquely bundle-up in response to varying local situations with the aim of deliberately or indeliberately regulating transaction costs. Transaction costs are the costs that arise when two people engage in a transaction, economic or otherwise. This, according to Coase (1937) was an expensive process, and it still is. To make a transaction, one has to have information about product and about the other actorsô behaviour. One also has to monitor the partners and sanctions must be enforced. These activities consume time and resources (North 1990) and are therefore costly.

Kakamega Forest had been self-governed by the Isukha-abaluyha community for hundreds of years before privatisation of property rights in Kenya. The community engaged in collective action by applying most of the above property institutional design principals to the forest as reflected on further in chapter 7. However, various institutional changes have progressively eliminated this mode of community governance to state control with detrimental effects on biodiversity in Kakamega Forest. This is unlike in the case of forests in Kumaon region in India where despite the various institutional changes, villagers have for decades protested any move that risked their rights to forest management. As a result, they still retain their rights as proprietors. On the other hand, the experiences of Nepalôs Terai Parks and Peoples Project (PPP) present a case very similar to that of Kakamega Forest. The Villagers here have only recently through the project re-gained entrant and user rights to the forest. The two case studies are in this context used to analyse the eight property rights institutional design principles given above in Box 2.1. These case studies although adapted from Agrawal and Ostrom (2000:92-100), are not amongst the ones given by Ostrom (1990) in developing the eight principles. Their autonomy therefore gives a good base for independently applying and evaluating them as a base for determining their relevance to the governance of forest ecosystems and buffer zones. The current situation in the two cases may have changed, but they are hereby applied as documented in the year 2000.

Many relevant cases on the governance of forest biodiversity are presented in literature, but the colonial legacy of the two countries, the history of the case studies and other elements sparks off their selection for the said analysis. Nepal is often seen as among the leaders in developing countries in setting conservation goals and priorities, and creating programs and legislation (Heinen and Kattel 1992). A case study from Nepal is thus considered ideal. Conveniently, the Nepalese case represents project intervention on forest management. This makes it quite relevant today in that the influence of project intervention into the governance of biodiversity is a common phenomenon. In Kumaon, the institutions governing forest biodiversity have evolved for over a century with the involvement of the villagers. This is in reality a rare situation in most countries although the community have at times been forced to coarse the government towards respecting itôs forest rights. Although the bundles of rights have been consistently changing in response to legislative changes, villagers in Kumaon still retain proprietary rights.

Box 2.2 The case of Kumaon forests, India

Forest management in Kumaon dates back to the beginning of last century when the activities of the British colonial state sparked off the processes that led to the formation of village-level forest councils in the region. The British administration consistently strived to exclude the community in forest management, but the people violently protested. The government elected a commission that enquired from the community what their needs were. As a result, the government reclassified Reserved Forests that had been taken over by the Forest Department between 1911 and 1917 into Class I and Class II forests. Class I Reserved Forests were all transferred to the revenue department and, in time, could come to be controlled by villagers by following a specific procedure as described in the 1931 Forest Panchayat Rules. Class II Reserved Forests were retained under the control of the Forest Department. The government also passed the Forest Council Rules of 1931. The villagers could now create forest councils and bring under their own control forestlands that had been transferred to the Revenue Department as Class I Reserved Forests and Civil Forests. This can be seen, in some cases, as the formalization of informal institutions called Lattha Panchayats that had successively influenced the use of many forests in the Kumaon Hills before 1910.

Today, the broad parameters that define the formal management practices of the forest councils are laid out in the Forest Council Rules of 1931, as amended in 1976. These Rules form the state-defined limits to local autonomy:

- Villagers cannot clear fell the forest
- They cannot impose fines beyond a specified amount
- They can raise revenues only through certain limited sources
- They must take recourse to established legal procedures to resolve conflicts. Where conflicts over interpretation and application of rules spill over into formal channels of dispute resolution underwritten by the Indian state (district and provincial level revenue/judicial authorities), serious losses become unavoidable. For example, if parties to a dispute take their quarrel to district or state courts, the case may drag on for decades without being resolved.
- Collectively the rules constitute more a framework for the management of forests rather than a defining straitjacket. Rural residents, through their elected forest councils, possess substantial powers
- To create concrete restrictions to prevent certain types of forest use and facilitate others
- Villagers vote to elect between 5 and 9 council members and the council leader

The council:

- Meets frequently, its members discuss, craft, and modify specific rules that will govern withdrawal of forest products
- Creates monitoring and sanctioning mechanisms in an effort to enforce the rules it has crafted as well as the Forest Council Rules framed by the government
- Selects guards, fines rule breakers, manages finances, and maintains a record of its meetings, accounts, and local rule infractions. The guard is paid by contributions from the village households
- Usually deploys its net earnings toward public activities such as construction of school buildings, religious celebrations, or purchase of collectively used utensils.
- The Forest Council Rules also provide for support to the councils from the revenue and the forest departments to facilitate rule enforcement and the maintenance of vegetation in the forests.

Today, administration responsibilities are well shared. Whereas the revenue department officials underwrite the enforcement of rules, the forest department coordinates the commercial harvest of forest products from community forests and provides technical assistance to develop them. Foresters responsible for the Civil and Soyam forests (which are under the control of the Revenue Department) and those working in the Soil Conservation Wings of the forest department have undertaken some plantation on forest council land. Further, before the council can sell any of its timber or resin, it must seek approval from the relevant authorities in the forest department. Like the interactions with the revenue department officials, these can take a long time because of other duties, which receive greater priority. A request to cut even a few trees from the council forest can take up to two years before it is finally processed in the forest department and the Revenue Department offices.

Source: Summarised from Agrawal and Ostrom (2000:93-96)

Box 2.3 The Parks and People Project in Nepalese Terai

Protection in Nepalese Terai can be traced back to efforts made by the monarchy to protect small patches of the forest in the Terai with the aim of protecting large mammals such as wild rhinoceros from poachers, and preventing villager encroachment. The passing of the National Parks and Wildlife Conservation Act that established the Royal Chitwan National Park in central Terai as Nepalôs first protected area in 1973 (Basnet 1992) marked enhanced preservation efforts. Since then, Nepal has created an extensive network of national parks, wildlife areas, hunting reserves, and conservation areas that cover nearly 15% of the countryôs total area. The parks and wildlife reserves are significant for the protection of biodiversity, tourism and provision of products such as grass, fodder, and wood fuel to communities along their boundaries. Buffer zones are highly regarded and the warden is legally empowered to declare an area surrounding a Park or a protected area, a buffer zone. The warden may constitute user groups to coordinate the management of fallen trees, firewood, fodder, and other grasses. Of the income earned in protected areas, 30% to 50% can be used for community development in consultation with local agencies and communities. However, various challenges are evident:

- Conservation and community participation goals tend to conflict
- Government legislation continues to be the dominant means to practice protected areas management
- The Parks and People Program (PPP) identified the main problem in the management of Nepalôs protected areas to be conflicts between people and park management authorities that were rooted in local poverty and consequent subsistence practices.
- Open boundaries and lack of effective barriers encourage people/wildlife conflicts
- Domestic animals access to grazing within park boundaries and this conflicts conservation goals
- Formation of the protected areas reduced the grazing land and forest products that villagers could earlier access and use, thus poaching and encroachment on park resources by the people, crop damage and human casualties by park animals is common.

To address these conflicts, PPP in collaboration with the Park officials aims at three objectives:

- Develop alternatives to the use of park resources for neighbouring households
- Seeks to devise compensation mechanisms for local communities in exchange for their exclusion from resources upon which they relied prior to the formation of the protected areas in question
- It tries to create incentives for local populations to change their actions in relation to the protected areas.

These local institutional actors are the units through which forest-related devolutionary initiatives in the buffer zones unfold. However, to date, the devolution that has taken place is quite limited. The main area in which devolution has occurred as a result of the Parks and People Program is entry into and use of park resources. For specified times during the year, zone residents are permitted to enter the protected area and harvest products such as thatch grass, graze animals, and collect firewood. Typically, the period for which they can harvest thatch grass, used for roofing, varies between ten and fifteen days in a year. Rules related to harvesting of firewood and grazing of animals are even stricter. Most of these rules continue to be crafted by protected area officials, without the involvement of local residents. Nor are local populations involved in the enforcement of the rules. In this sense, the main change in the status of the buffer zone residents as a result of the implementation of the PPP has been to make turn them into authorized entrants and users.

Source: Summarized from Agrawal and Ostrom (2000:97-100)

As discussed in the preceding paragraph, table 2.2 below presents a theoretical evaluation of the eight property rights design principles based on these two case studies. If adherence to the principles is positively reflected as prompting success in the governance of forests as Common Pool Resources, whereas divergence produces failure in forest management, thus biodiversity, then the principles will be endorsed as a base for analysing property rights incentives in the context case study, Kakamega Forest. If the results are negative, then alternative pillars of reference for the analysis will be explored.

Table 2.2 Evaluating the eight property rights design principles

	The principles	**Kumaon forests, India**	**The Peoples and Park Project, Nepalese Terai**	**Deduction**
1.	Clearly Defined Boundaries The boundaries of resource systems (e.g. groundwater basin or forest) and the individuals or households with rights to harvest resource products are clearly defined.	- Silent about physical boundaries, but the extent of physical areas are well defined. - The enumeration of about 3000 forest councils define some kind of community stratification and definition of users	- No boundaries, thus human wildlife conflict problems - Buffer zone management emphasized	- Physical and user boundaries may be defined, but in the case of biodiversity the effects within the borders have such profound effects on biodiversity beyond the borders and this also need to be considered, the buffer zone concept
2.	Proportional Equivalence Between Benefits and Costs Rules specifying the amount of resource products that a user is allocated are related to local conditions and to rules requiring labour, materials and/or money inputs.	- Forests councils implement social projects with part of the forest income e.g. schools in the village - Government supplements the forest council finances - Villagers pay the forest guard - Responsibilities are well shared between different agents (no duplication or omissions reported)	- 30-50% of forest proceeds could go to community development, but not clear whether this happens - Users have very limited access to the forest (10-15 days a year) and no responsibilities	- Partially applicable, because some biodiversity benefits are not quantifiable (need to also institutionalise intangible benefits) - Cost and benefit sharing essential
3.	Collective-Choice Arrangements Most individuals affected by harvesting and protection rules are included in the group who can modify these rules.	- Villagers are fully involved in decision making - All stakeholders are involved (the villagers forest councils, forest department, revenue department)	- Missing. Different agents with varying objectives and not well coordinated; thus conflicts - Top-down system. Government agents form the forest advisory committee to advise the local residents	- Wholly applicable, but coordination of all stakeholders remain a big challenge
4.	Monitoring Monitors, who actively audit physical conditions and user behaviour, are at least partially accountable to the users and/or are users themselves.	- Villagers pay the forest guards who are therefore partially answerable to them - Forest council ensure exclusion, monitoring and enforcement rights on behalf of the villagers	- Monitoring only by government agents only, thus not effective	- Enforcement of exclusion rights are mandatory to biodiversity conservation (prevent open access) - Community members should be fully involved in monitoring themselves

5.	Graduated Sanctions Users who violate rules are likely to receive graduated sanctions (depending on the seriousness and context of the offence) from the users, from officials accountable to these or from both.	- Forest councils levy fines, but the villagers have the right to contest - Formal dispute resolution procedures are very expensive and bureaucratic, stimulating preference of local mechanisms	- Sanctions are identified by the law (not flexible), thus ineffective	- A crucial principle; encourages moral self-regulation and not hide and seek games
6.	Conflict-Resolution Mechanisms Users and their officials have rapid access to low-cost, local arenas to resolve conflict among users or between users and officials.	- Forest council acts as the arbitrator between the government departments and the community - Local dispute resolution is undertaken by the council: it is fast accessible and less costly	- No conflict management mechanism given - Human-wildlife conflicts rampant blamed on poverty subsistence practices (Further research indicates that sometimes, the rich exploit the forests more than the poorer ones (Agrawal et al. 1999).	-Conflict resolution is crucial - In the Indian case, the villagers are not so well off materially, yet the right institutions are in place and quite effective. So poverty may only be a contributory factor but not the only problem
7.	Minimal Recognition of Rights to Organize The rights of users to devise their own institutions are not challenged by external governmental authorities, and users have a long-term tenure rights to the resource.	- Users have proprietor status - Users devise there own rules on forest harvesting - Government only provide a guiding framework and does not unnecessarily interfere with the users, however a form of collaboration by all the stakeholders is portrayed	- Local residents have limited user and access rights only (Achievement of the PP Project) - Government legislation dominates (local residents not involved in rule creating) - Very limited devolution in place	- Governments should be ready to restitute natural resource rights to the relevant communities through devolution. This is crucial, but in most cases, the government remains the main player
8.	Nested Enterprises (For resources that are part of larger systems) Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises.	- The villagers depend on forest councils as their link to the government (hierarchy well defined), which involves the judiciary, forest department and the revenue department. All have well defined responsibilities and are dependant on one another	- Only in the government hierarchy and the project (local residents not involved), thus less effective	- Minimizes conflicts, duplication and omission of responsibilities, thus crucial

Source: Author

From the above evaluation, it is clear that the more successful case of Kumaon forests in India to a larger extent adheres to Ostromôs (1990:92) design principles, inter alia. However, we cannot overlook the fact that Kumaon forest presents a rare situation where the community has progressively been involved in forest governance issues for more than a century, despite colonialism. Although the principles are not universal in nature, the Parks and Peoples Project in Nepalese Terai that falls short of most of these principles presents more challenges. However, it presents a more common and realistic phenomenon where most communities have progressively lost their rights to forest management, especially at and after colonization. Recently, most governments have embraced the principle of decentralization and community participation in most spheres of their economy, biodiversity not exceptional. This has in some instances been through project intervention like in the Nepalese case above. The challenges have not been less, considering that major institutional changes have had to be undertaken to encompass partial or full restitution of property rights from the government to the community members who are the de facto resource owners.

With caution therefore, the eight principles could be applied to different situations as guiding principles in the institutionalisation of property rights for biodiversity conservation. Further exploration however, builds the list further. The success of Kumaon forests could also be attributed to the recognition of informal rights. It is clearly indicated that;

> ***ñ****This can be seen, in some cases, as the formalization of informal institutions called Lattha Panchayats that had successively influenced the use of many forests in the Kumaon Hills before 1910****ò****.*

Recognizing informal or traditional property rights where applicable is a positive force to successful governance of biodiversity. Although this may be implied here by the participation of local residents, this study explicitly considers this, *recognizing of informal or traditional property rights* as a nineth principle in the governance of biodiversity and goes further to elaborate on the importance of informal institutions in the forthcoming chapter. Singling out the example of UNDP/GEF project on Lake Bosumtwe basin in Ghana, as an example, the importance of local knowledge in biodiversity conservation is expressed. The project sought to create a situation in which local indigenous rules and regulations on conservation of sacred groves and Lake Bosumtwe were legitimized by the local leadership and community. The project also aimed at establishing a revolving fund, based on local traditional solidarity systems to catalyze the replication of sustainable farming systems piloted under the project and other environmentally benign income-generating activities (UNDP/GEF 2003:15). The success obtained is recorded as remarkable.

Another element crucial to biodiversity conservation and that seems not comprehensively integrated in the Common Pool Resources literature so far perused is buffer zone management. The Nepalese Parks and Peoples Project is commendable in this dimension of ecosystem management. Buffer zones are widely regarded as one of the most suitable strategies to resolve existing and potential conflicts over forest resources or biodiversity e.g. firewood, fodder, and grazing pressures. There is an emerging realization that a major part of conservation of biological diversity must take place outside of protected areas and involve local communities. The extensive agricultural areas occupied by small farmers contain much biodiversity that is important for sustainable food production. Indigenous agricultural practices have been and continue to be important elements in the maintenance of biodiversity, but these are being displaced and lost. There is a new focus on the interrelationship between agro-

biodiversity conservation and sustainable use and development practices in smallholder agriculture, with emphasis on use of farmers' knowledge and skills as a source of information for sustainable farming (Uuitto and Ono 1996). The tenth institutional principle considered in this context therefore is, *the inclusion of buffer zone management in the governance of Common Pool Resources.*

The evaluation reinforces the eight principles and considers two more as crucial pillars in creating institutional incentives for the governance of biodiversity. The ten principles are picked up in chapters 6and 7 whereby they are practically tested in the case of institutions governing biodiversity within Kakamega Forest and its buffer zone. An area of controlled land use, a buffer zone, as the name suggests refers to an area, often peripheral to a protected area, inside or outside, in which activities are implemented or the area managed with the aim of enhancing the positive and reducing the negative impacts of biodiversity conservation on neighbouring communities (Wild and Mutebi 1996). The goal is to create a balance between community benefits and biodiversity conservation.

2.4 Institutional focus on buffer zone management and biodiversity

A buffer zone can be located inside a conservation or protected area, or on the outside. According to Arthur and Greve (2000:13), the various approaches to buffer zone management include Protected Areas (with and without buffer zones), Integrated Conservation and Development Projects (ICDP), Man and Biosphere (MAB) and Land Use Planning (LUP). The type of conservation area with or without a buffer zone depends on a number of factors: population pressure, size of the area, quality and quantity of biodiversity, cultural situation, social organisation and way of life, legislation and economic development. In deciding on the best option, it is crucial to examine the economic opportunities and hurdles, the legal context and the condition of the conservation area itself, IUCN 1998 quoted (Ibid).

In all the cases socio-economic development plays a crucial role. Integrated Conservation and Development Projects take biodiversity conservation as its base and covers smaller areas, while Man And Biosphere focuses more on people and larger areas. In general, the higher the population pressure, the smaller the protected areas and the buffer zones, and the more intense the repression will be. The land use planning approach comes close to the Man And Biosphere approach; however, in Man And Biosphere approach the protected area is the main focus, while the Land Use Planning approach combines people and nature together as its core (Ibid). In the context of Biota Project under which this study has been undertaken, Land Use Planning approach, referred to as PLUP (Participatory Land Use Planning), is the primary focus since Kakamega is a highly populated area. For Participatory Land Use Planning to be effective, various policy instruments on the buffer zone are necessary to harmonize activities that will create incentives/disincentives for biodiversity conservation. Considering the interweaving nature of biodiversity, these instruments need to be approached on a multi-dimension perspectives based on international, national to local initiatives. In so doing, various institutional aspects are hereunder discussed.

i. International and National Policies

Ironically, no international treaties and conventions explicitly dealing with buffer zones are in place, yet in practice, buffer zones are often applied as tools to implement those conventions (Arthur and Greve 2000:17). The Convention on Biological Diversity (CBD) of 1992 does not explicitly mention buffer zones, but implicitly, some chapters

are relevant to buffer zone management e.g. Article 8 deals with in-situ conservation and the role of indigenous people in biodiversity conservation. On the other hand, Convention 107 of the International Labour Organization recognizes the rights of tribal and indigenous people to ownership of their traditional lands. In this regard, biodiversity conservation and respect for traditional land use rights and legal instruments are considered as being complimentary in nature.

At national level, most policies on biodiversity and conservation seldom address the issue of buffer zones. Definitions of buffer zones are not consistent, which explains the relatively wide range of applications and different interpretations. National legislation usually fails to address or consider the creation of buffer zones outside conservation areas. The sectoral approach in legislation hampers the integrated approach of buffer zone management, particularly when buffer zones are located outside conservation areas. Although many countries have National Forest Action Plans, Environmental Action Plans and even Biodiversity Action Plans, their national legislation often does not keep pace with new developments. Buffer zones are rarely dealt with in national policy and legislative documents (Arthur and Greve 2000:17). Institutionalisation of buffer zones however remains vital to the governance of biodiversity.

In response, a few countries have developed policies and legal instruments facilitating the development and implementation of the buffer zone approach through facilitating revenue sharing with the example of Nepal; and decentralization of decision-making and creation of by-laws in Ghana. Traditional land rights and land tenure are issues often raised in buffer zone management since they tend to be crucial for making investments in the buffer zone, which may in return impact on biodiversity conservation. However, legally, these issues have not been addressed directly in relation to biodiversity conservation in most countries. In Ghana and most West African countries however, national legislation supports traditional land use and customary rights, which could go a long way in protecting biodiversity (Ibid). Unfortunately, in situations where timber or minerals play a role, these laws are not strictly enforced or, even worse, are often overruled by economic and political interests. This is detrimental as it ignores the ecological value of biodiversity.

ii. Jurisdiction and buffer zone management

The common scene in most countries is a fairly thorough legislation with regard to conservation areas, but quite often not with regard to their zoning. As a result, sectoral conflicts may arise not only over their jurisdiction, but also with respect to the value and significance of buffer zones. Nepal and Cameroon are two countries where the buffer zone concept has been laid out in legal terms. In Nepal, the Buffer Zone Management Regulations of 1996 define the buffer zone as an area outside the protected area under the warden, assisted by a buffer zone development council (HMG, 1996). In Cameroon the law defines the buffer zone as area of 1km outside the boundaries of the nature park.

Due to the lack of a well-defined legal concept of buffer zones, a wide diversity can be observed in set-up, management and implementation of buffer zones. Consequently, situations are common where buffer zones are located within the conservation area. Apparently this is done in order to facilitate the management of *core* as well as buffer zones and to ensure a single responsible authority. Wherever the buffer zone is situated within the boundaries of the declared conservation area, jurisdiction over the buffer zone will be with the protection objective (Arthur and Greve 2000:22), which encourages biodiversity conservation. However, this goes against the rural development approach where other social and economic activities are not only permitted, but are fundamental livelihood pillars in the buffer zone.

However, if the buffer zones are situated outside the conservation area, conservation authorities may have little or no say in the set-up and management of the buffer zone, which may in return affect their biodiversity conservation goal, resource planning and implementation. However, in cases where a high population pressure requires a buffer zone with a clear socio-economic approach, it would be advisable to place the buffer zone under the jurisdiction of the local development authorities, which normally means that the buffer zone will be located outside the conservation area. Buffer zones that are a continuation of the conservation area (natural buffer zone) are preferably managed by the same authority as the conservation area (Ibid). In both cases, community participation is crucial.

The sectoral nature of governance in many developing countries may lead to contradictory objectives and regulations between the buffer zone and the conservation area, if under different authorities. Ensuring that the community members in this jurisdiction have more control of the biological resources can bridge the jurisdictional gap. Community participation ensures sustainability and consistency in decision-making. The possibility of creating by-laws to fill any institutional vacuum in legislation concerning buffer zones could ensure fast legitimacy by counteracting the usual bureaucracy involved in legal reform.

iii. Legal aspects

The legal aspects of a buffer zone are determined by the international, national and local level legislation. However, as discussed above, these legislations in many instances do not directly address the issue of buffer zone management and biodiversity. Although this gap needs to be filled, local legislation in form of by-laws, rules and agreements could meanwhile be used as tools for the management of buffer zones especially if the local communities support them. This will ensure that laws and legal procedures are consistent with traditional practices of governing biodiversity.

In cases where buffer zones are situated outside the conservation area, legal obstacles will usually be even more critical because the institutional control and jurisdiction fall under different authorities other than the management of the conservation area (Arthur and Greve 2000:26). Joint planning and implementation, shared policy objectives, co-ordination in procedures, and modifying legal procedures, laws and by-laws will be key issues here. Informal or management agreements between local people, the management staff of the protected area, and other government agencies has been proved effective (Mangel et. al. 1997:66). However, this is not always easy. A good example is the Qomolangma Nature Preserve (QNP) in Tibet where an institutional situation has emerged in which the park authorities have full control over core zone development, limited control over buffer zones, and basically no voice in the economic development zones. In such a situation, where pockets of these different zones are geographically blended, joint planning and implementation of regional development programmes is nearly impossible. This is because most of the multitude of institutional actors have limited (or no) knowledge or understanding about buffer zone functions and requirements for biodiversity conservation (Ibid).

iv. Property rights and buffer zone management

Land tenure is a key issue in the success or failure of biodiversity. Although it will usually be more difficult to manage biodiversity conservation on privately owned land, buffer zones on state-owned land, while allowing uniform management regimes, may lead to the management problems associated with the tragedy of the commons (Arthur and Greve 2000:26). On private land, land-use restrictions may be difficult to enforce,

especially if people interpret private property rights as absolute. There will also be the tendency of potential alternative uses with apparently more favourable financial returns from investment, which may in return jeopardize land use planning for biodiversity conservation. In this case, informal management agreements that ensure short-term incentives in favour of biodiversity conservation would be a requirement for ensuring sustainable productive use of land by local communities.

On the other hand, buffer zone institutions may have a rather negative impact on women, for example by creating formal threats to their traditionally accepted (but not formalized) rights of access to land resources. Problems with registration may also arise out of inconsistencies or gaps in the legal framework, or conflicts of interest arising between traditional users and others claiming ownership rights. Integration of gender issues into policy development and implementation is crucial to biodiversity conservation. Apart from the gender, other institutional factors may be a challenge to the governance of biodiversity at the buffer zone as discussed below.

v. Institutional failures in buffer zone management

Relevant institutions are a prerequisite to effective buffer zone management thus biodiversity conservation. However based on Arthur and Greve (2000:41-42), some failures may be attributed to:

- Lack of legal authority to establish or manage buffer zones. Buffer zones are normally not defined by law, consequently it is rarely explicitly stated who is responsible for their management.
- Poor policy development and implementation capacity at the local level. To get institutional support, establishment of a buffer zone must be part of the policy thinking at the national and local government level. Often, however, policies and subsequent regulations are subject to frequent changes, mostly for political reasons. Such an unstable policy environment is detrimental to establishing popular support among local resource users for innovative approaches towards long-term management of the natural resource base. In such an institutional environment, people distrust any initiative that originates from the government, irrespective of the soundness and feasibility of the initiative.
- Buffer zone initiatives often by-passing the authorities responsible for rural development may be an added challenge. Lack of cross-sectoral collaboration among the authorities responsible for rural development may hamper progress. This may in some cases be attributed to the linear nature of formal institutions that goes a long way in discouraging collaboration. Biodiversity conservation is a multi-sectoral endeavour and this should be addressed at policy level.
- Local knowledge not being sufficiently used. The local people are experts in their own environment and know best what need and need not be done in response to various challenges. They are therefore crucial parties to biodiversity conservation. There is need for formal institutions to give room to this notion.
- Buffer zones not being well defined. It is important that all parties involved agree on the boundaries of the conservation area and buffer zone, and that this agreement is clearly visible in the field to avoid conflicts.
- Too much emphasis on environmental protection while neglecting community benefits. For management objectives to be supported by the stakeholders, the development objectives of buffer zones need to be given considerable attention by the relevant institutions. This and several other factors indicated below will ensure stakeholder cooperation.

vi. Enhancing institutions for buffer zone management

- ï It is important to build on local institutions and traditional organizations
- ï The legal status of the buffer zone should be clearly spelled out. If missing, then the use of by-laws, informal or management agreements could be very useful and applicable.
- ï Cross-sectoral collaboration is crucial. It is necessary to have various government authorities working together, notably the forest/parks department and the agricultural department
- ï Legislation needs to be reviewed or enacted to address buffer zone management. Of importance is to constantly identify the shortcomings in national legislation at any particular point in time to keep up with new developments
- ï Local groups should be given secure rights to use and control access to natural resources as a condition for long-term sustainability in biodiversity conservation and rural development
- ï Local or regional by-laws should be examined for their potential to help or hinder biodiversity conservation
- ï Where possible, legislation regarding buffer zones should ensure that they are under the same jurisdiction as the conservation area for easier administration. If impossible, then sectoral collaboration should be legally addressed in order to streamline activities in the both the buffer and the conservation areas. (Arthur and Greve 2000:45-48).

Given the chapter insights on the governance of biodiversity, biodiversity conservation seems a goal at hand. If biodiversity ecosystems and their buffer zones are well institutionalised at the local level, then optimal global benefits of biodiversity conservation is assured. However, the social, economical and political dynamism of a society impacts on the governance of biodiversity. At no one time will an institutional equilibrium be achieved. Institutions have to keep changing to keep up with the social, ecological, political and economic dynamics of the society. Instrumentising institutions in building and maintaining enabling incentives for biodiversity conservation is therefore a constant struggle. Following the notion of the New Institutional Economics, individuals will seek the best possible personal outcome and institutional change will come about by the aggregation of decisions taken by these bounded rational actors (North 1990; Ensminger 1992; Gibson 1999; Platteau 2000). This explains why institutions are effective at one point in time but come into conflict during future developments (Haller 2002:9). The next section elaborates on the effects of these institutional changes on the governance of biodiversity.

3 Institutional changes and impacts on biodiversity

3.1 Effects of Institutional change

The incentives governing the use of biological diversity and its components are produced by a societyôs institutional environment (Presber and James 1996). The institutional environment, as discussed in section 2.1, is comprised of three interactive components:

iv. Formal institutions
v. Informal or social institutions and
vi. Levels of compliance or enforcement (North 1990:3)

The three interact to produce a set of institutional incentives that govern human behaviour, and consequently, are responsible for biodiversity management outcome. Therefore, to change outcomes requires altering the incentives through a process referred to as institutional change. An incentive measure represents a change in the rules governing the use of biological diversity or its components. The most common incentive measures involve changes in formal constraints such as property rights arrangements, economic policy or laws. Changes could also be achieved by altering informal constraints or by monitoring and ensuring compliance with the rules. Successful changes in incentives, however, require that both formal and informal constraints be supportive of the changes (UNEP/CBD/COP/3/24 1996:4), as hereunder discussed.

3.1.1 Formal institutions

Formal constraints are the written instruments that provide a legally enforceable framework for the economic and social activities of a society. The legal structure is the core of a country's formal institutional structure. Laws can either grow out of a country's social conventions or be imported from another institutional environment (UNEP/CBD/COP/3/24 1996:5). When laws grow out of a countryôs social conventions like in the case of Kumaon forests, India (box 2.2), they respond well to the local needs and are normally more effective than imported ones as in the case of Nepalese Terai (box 2.3). Various factors lead to the misalignment of the imported laws in the new set-up as explained in chapter 4 in the context of Africa.

Laws pertaining to biodiversity resources exist at many levels, and can include national park laws, hunting regulations and zoning requirements. In this context, we consider both formal and informal institutions within and in the buffer of Kakamega Forest. Economic measures contained in government policy on biological diversity and natural resources are also formal institutions, as they function within the legal structure. Property rights to the extent that they are written instruments and legally enforceable, are also important formal institutions. They determine the very fundamental elements in the governance of biodiversity namely the rights to access, withdrawal, management, exclusion, and alienation.

3.1.2 Informal institutions

Informal constraints are the unwritten rules that govern everyday human behaviour in economic and social exchange. Cultural norms, social conventions, morals, etiquette, traditions, and taboos are all interrelated social constraints, which stem from belief systems. Compliance with social constraints is by convention and not through legal channels. The purpose of social constraints is to reduce uncertainty for people by making human behaviour more predictable. While every country has its formal structure of laws, government policies and property rights, social constraints form an equally important parallel system of rules based on cultural norms and social conventions. Social constraints are determined by the accumulation of social convention, and thus can be more durable than formal constraints. Where formal constraints, such as laws and property rights, are weak, social conventions tend to prevail, and this is often the case with biodiversity. Because social constraints stem from belief systems, they tend to differ considerably from society to society. Social constraints can be changed to improve incentives for conservation and sustainable use of biodiversity. However, the process of change is more gradual and requires greater sensitivity than for changes to the formal constraints.

3.1.3 Compliance on formal and social institutions

Compliance is the degree to which individuals and organizations respect and adhere to the existing constraints, both formal and informal. The relative levels of enforcement determine the extent to which the individuals and organizations in a society comply with the formal and social constraints. Each type of constraint, formal and social, has a separate monitoring and compliance mechanism. Monitoring and ensuring compliance with formal constraints is the responsibility of a third party, i.e., the state, normally through law enforcement agencies and the judiciary. This function often serves to coordinate access to and use of biodiversity and its components. Relevant organizations for monitoring and ensuring compliance with formal constraints may include, inter alia, the government departments responsible for protected areas, forestry and fisheries, as well as the judicial system.

Monitoring and ensuring compliance with social constraints is the function of a social group, which may be civil society as whole, a village council or a family unit. Methods of encouraging social compliance can range from a mild rebuff to outright ostracism, which normally act as strong motivation for conformity. In addition, this may regulate the societyôs behaviour in accordance with their inner beliefs about acceptable standards of conduct. Compliance is an important dimension of the institutional environment because without the enforcement of incentive measures, there may be no compliance; without compliance, measures are ineffective. Increasing the level of compliance with either the formal constraints or the informal/social constraints can act as an incentive for biodiversity conservation and sustainable use. Most efforts for improving the level of compliance are geared towards the enforcement of formal constraints. However, informal or social constraints have as great a role to play in the governance of biodiversity as the formal constraints. Ostrom (1990) evaluates the role of formal and social constraints in governing the commons. She concludes that both need to be properly enforced for effective governance to be achieved. They complement one another.

3.1.4 Institutional Incentives

The three components of the institutional environment that is formal and social institutions, and their compliance interact to produce a set of institutional incentives/disincentives. Incentives motivate desired behaviour while disincentives discourage undesired behavior. CBD (1992) defines an incentive as any legal or economic inducement which is specifically intended to incite or motivate governments, local people, to conserve, use sustainably and equitably share the benefits arising from the use of biodiversity. Examples include, inter alia, individual transferable quotas, property right mechanisms, species commercialisation, biodiversity prospecting, emissions trading schemes or certification and eco-labelling initiatives. A perverse incentive induces behaviour that depletes biodiversity (Myers and Kent, 2001). Accordingly CBD (1992) defines a disincentive as any economic or legal inducement or mechanism designed to discourage governments, local people, or corporations from depleting biodiversity. Disincentives include taxes, fines, and penalties of other types formally administered through legislation or through social constraints such as public opinion embedded on social norms and behaviour (Jeffrey and McNeely 2006:2).

Incentives/disincentives could be direct or indirect. Direct incentives are applied to achieve specific objectives e.g., to reduce poaching of protected wildlife, to improve management of a protected area, to improve agricultural practices, to promote sustainable utilization of forest resources, inter alia. They could either be in cash e.g. fees, royalties, rewards, grants, income supports, subsidies, loans, and daily wages; or in kind e.g. material goods delivered to institutions, communities or individuals in return for their contribution to biodiversity conservation and rehabilitation works. This in return for their refraining from activities which damage biodiversity. Other direct incentives in kind include food-for-work programs; equipment donated to protected area management authorities, timber concessions inter alia. Direct in-kind disincentives might include jail sentences, confiscation of land or elimination of property use-rights and any other suitable coercion as the case may be.

Indirect incentives encourage behaviour, which conserves biodiversity, or generate resources for conservation efforts without any direct budgetary appropriation for biodiversity conservation from the government or other sources. They involve applying fiscal, service, social, and natural resources policies to specific conservation (Ibid). Institutional incentives fall under this category. Some institutional incentives govern human behaviour and thereby determine biodiversity management outcomes. Distinguishing institutional incentives from other incentives is the fact that they are the product of a complex interaction between the full range of relevant factors rather than just a single factor. A biodiversity management law and well-defined property rights over resources may be necessary, but not sufficient, conditions for creating incentives for conservation and sustainable use. What is also needed is compliance with the formal constraints, enabled by supportive informal constraints. When a formal policy instrument receives social and institutional support, and compliance is adequate, then a programme on incentive measures is "institutionalised" and will direct policy makers consistently towards actions that support and reinforce policy objectives.

3.1.5 Institutional Change

Institutional change involves altering the institutional environment of a country or society, frequently through the introduction of an incentive measure. A new incentive measure can represent a change in a law, policy, property rights regime, social

convention, or the level of monitoring or enforcement. For institutional change to be effective, various factors need to be taken into consideration. These are,

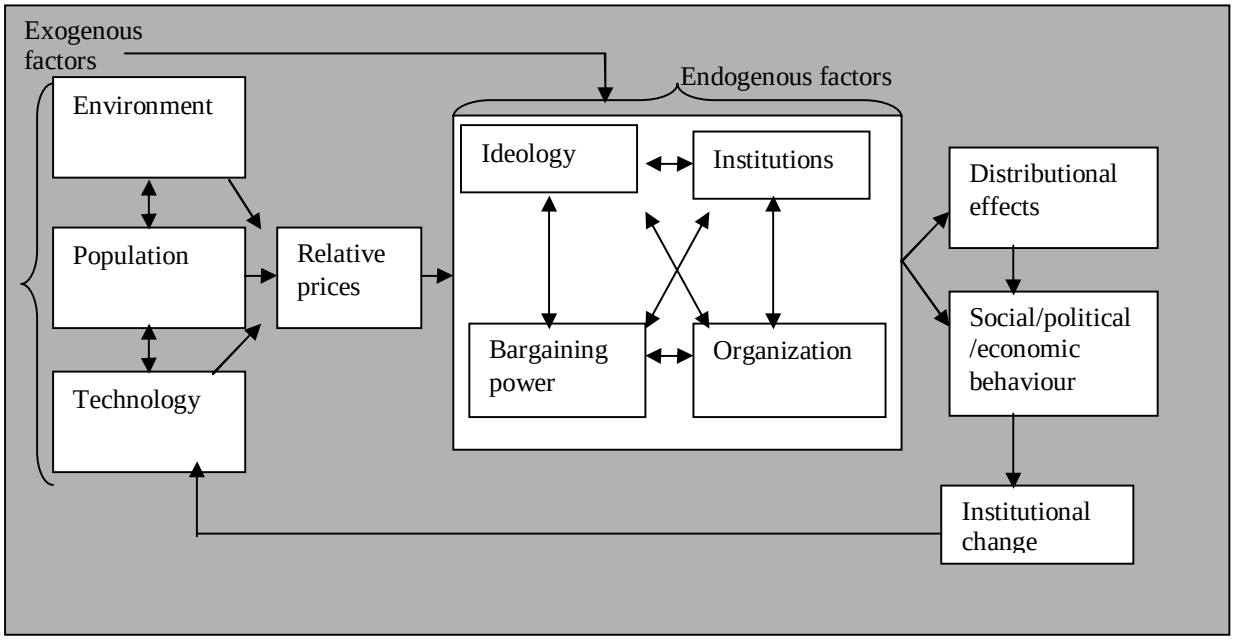
- While an incentive measure usually involves an adjustment in one of these areas, the entire institutional context must be supportive for implementation to be wholly successful.
- Institutional change is usually gradual and incremental because the institutional environment functions to provide stability to society.
- In addition, the institutional environment creates vested interests, individuals and organizations that function successfully within the existing set of societal rules. Thus, institutional change that modifies the incentives governing biological diversity use will require the cooperation and participation of the relevant stakeholders and finally,
- Realistic expectations about the time required to effect change. Whereas formal institutions such as laws and regulations may be changed frequently, informal or social institutions takes time (UNEP/CBD/COP/3/24 1996:7).

Informal institutions are at the heart of a communityôs social fabric. Therefore, the significance of changes in resource tenure systems and property rights systems is to the community not limited to their economic impacts. For many rural communities, resource tenure is a central social institution that governs not only their relationship to land and natural resources but also the relationships between families, between members of the community and those outside it, and between villages, communities, and peoples. Therefore, changes in tenure and property regimes have implications for the entire social fabric of rural communities. This is true for all tenure and property systems relevant to natural resources, but is particularly evident in the evolution of land tenure (World resources 2005:4). When formal institutions are drastically changed, as they sometimes do, they disconnect from informal institutions whose change is relatively gradual. If no rectification measures are taken in time, institutional conflicts arise due to ambiguity of legitimacy.

Economic growth and development often results to institutional change stimulating various impacts on the governance of biodiversity. The pattern of economic incentives that prevails in a society is one of the most important factors influencing the use of biodiversity resources. Hence, the failure to recognize the economic value of biodiversity and to set up appropriate institutions can result in a distortion of economic incentives, which in turn leads to poor governance and excessive loss of biodiversity (Bhattarai and Hammig 1998:16).

Esminger (1992), in her book, making a market, looks at the market economy and changes on political, economic and social institutions; and their effect on incentives to families and individuals in relation to overuse of resources and conflicts. In doing so, Esminger looks at the institutional changes, which were taking place among the Orma, a semi-sedentralized pastoralist group in Kenya. Common pastures held in common by the Orma were being transformed to private property. Esminger argues that when analysing institutional change, it is important to look at individual motivations of different actors, formal and informal constraints and incentives, which influence priorities of the people. According to her, there is an interaction between the endogenous aspects of a society in which the individuals are living, composed of institutions, ideology, organisation and bargaining power (Esminger 1992:5-7) figure 3.1. These four endogenous spheres influence one another and are themselves influenced by exogenous factors.

Figure 3.1 Modelling institutional change



Source: Adopted from Esminger 1992:10

Exogenous factors may include the social-political-economic factors, physical environment, demographic changes, and technological changes, which together influence relative prices. Consequently relative prices impact on the endogenous factors. The outcome is influence on distributional effects and the individual socio-economical behaviour. The emergence of the whole process is institutional change that leads back to the exogenous variables

To analyze institutional changes, it is necessary to evaluate an individualôs stand and which structures influence his motivation and relative bargaining power from case to case. Ensminger shows in her work, that those individuals who gain more bargaining power in a changed situation, may change the institutions further, eradicate them or even create new ones for further selfish benefits (Esminger 1992, Esminger and Knight 1997).

Box 3.1 Process of institutional change: the case of the Orma

In the case of the Orma, pastures held as common property were being transformed into private property. Before this happened, the council of elders and the sedentary local population were unable to keep off other external pastoral nomadic groups from using the pastures (exogenous variables). This was due to the heterogeneity of interest among the sedentary village group for economic interests (endogenous factors). Some of the villagers benefited from the nomadic tribes by getting cattle, milk while others did not (relative prices). It therefore proved difficult to come to an agreement or monitor the pastures collectively. In this situation, pastures were privatised (resource distribution change) and the power of exclusion taken from the council of elders (reduced bargaining power) to the government selected chief (institutional change). The chief had good contact with the state and its forces, thus much more bargaining power than the elders.

Source: Adapted from Esminger 1992

In agreement with North, she does not argue that the best institutions are always selected, but rather that those that survive, are those which usually serve the people with the most bargaining power. This is one factor that may contribute to institutional failure resulting to the creation of pervasive incentives.

Incentives are the product of more than just one factor or measure. Incentives are the product of the interaction among the formal constraints, informal constraints, and the level of compliance in society, which together create the institutional environment. The design and implementation of new incentive measures require an understanding of the institutional environment, which guides the decisions of individuals and organizations whose behaviour, in effect, determines a country's biodiversity management outcomes. But, institutional change is gradual and new measures depend upon support from each component of the institutional environment. If this is not fulfilled, then institutions may fall short of their mandate.

3.2 Building institutional incentives

In keeping with the framework outlined above, this section focuses on how to build incentives at (a) formal, (b) social and (c) compliance levels. Successful implementation of a single incentive measure requires support from the broader institutional environment. As mentioned above, the most common opportunities for improvement involve changing the formal constraints. This reflects the fact that formal policies, laws and property rights are most easily identified. However, the social constraints and compliance issues are at least as important, though more difficult to specify. Based on (UNEP/CBD/COP/3/24 1996:11-14), opportunities to improve incentives in each area of the institutional environment are hereby discussed.

3.2.1 Formal Constraints

Based on the formal dimension of the institutional environment, economists have developed two distinct approaches to incentive measures. These are;

- Property rights and markets solutions (e.g. implementation of markets for the benefits of biodiversity)
- Policy (e.g. regulation of the processes and activities that undermine sustainable use).

i. Property rights and Market Solutions

Market solutions are pertinent where markets are missing for the benefits of biodiversity or for the costs of biodiversity loss. Market solutions require the assignment of well-defined property rights over the biodiversity resources in question. The assignment of property rights over the values of biodiversity internalises the social (or "external") benefits of investment in conservation and sustainable use. Property rights create incentives by allowing individuals and organizations to better capture the value of their biodiversity investments. In practice, the establishment of property rights and markets for the benefits of biological diversity is difficult because many of the values, particularly the enormous categories of ecosystem function and resilience (Perrings et al. 1995) and existence value (Krutilla 1967), are either unquantifiable or intangible. However, many examples exist where some components of biodiversity can be captured with a property right and traded. These solutions are based on the creation of innovative new markets. Examples of innovative property rights and market-based solutions include tradable water shares (Australia, New Zealand, India), tradable reforestation credits (Costa Rica), tradable conservation credits (Mexico, Costa Rica) and eco-labelling (Germany, Korea, Peru Costa Rica), quoted in Panayotou (1996).

ii. Policy Solutions

Policy solutions typically entail charges and subsidies applied by the government. Policy solutions can create incentives for biodiversity management by making sustainable use alternatives financially more attractive through supportive policy. Likewise, fines can be levied against activities that have negative external effects on biological diversity. Either alternative uses government policy to level the playing field for sustainable biodiversity management when the functioning of existing markets has negative external effects. Experience with charges and subsidies as incentives for conservation and sustainable use include differential land use taxes (Germany), watershed charges (Indonesia, Brazil), deforestation charges (Central African Republic), differential park entrance fees (Kenya, Botswana), scientific tourism fees (Madagascar) inter alia, (Panayotou 1996).

The correction of perverse incentives is another opportunity for a policy solution. Perverse incentives are the result of policies that subsidise activities that prevent sustainable management of biological diversity or, less commonly, tax activities that benefit biological diversity. Governments can look to their range of natural resource policies for opportunities to remove incentives for destructive activities.

A country's legal framework is an equally important area for improvements to formal constraints. Opportunities can be found at all levels, from local by-laws to the national constitution, and can include a review and harmonization of the relevant legislation as recommended in chapter 10 below in the Kenyan context.

3.2.2 Informal Constraints

Informal constraints are the unwritten social conventions and norms that guide the behaviour of individuals and organizations in their everyday activities. There are many potential opportunities for changing social constraints to create enabling incentives for biodiversity management. However, circumstances vary by country. In many instances, opportunities for improvement are available in more than one area.

In some instances, lack of information or understanding prevents the conservation of biodiversity and the sustainable use of its components. A lack of information regarding what is necessary for conservation and sustainable use, and an absence of understanding about the benefits that biodiversity provides, can affect the behaviour of individuals and organizations at many levels. In such circumstances, education programmes and awareness campaigns at the appropriate levels can help to change people's belief systems regarding biodiversity and thereby create more enabling social incentives for conservation and sustainable use.

In the past, many individuals and organizations have been excluded from the decision-making process regarding biodiversity management, particularly conservation. The establishment of protected areas is a commonly cited example. Feeling excluded can lead to social rejection of formal conservation measures, and changing such hostile social constraints can be difficult, as it requires altering people's beliefs. As illustrated in the case of Kumaun forests in India (box 2.2), one method for improvement is to develop participatory activities for those who feel alienated. Measures such as including local people in decision-making processes and offering a feedback mechanism for any potential disputes can lead to new preferences for biodiversity management. Such decentralized decision-making processes can encourage participation by a range of potential partners for biodiversity management, including the private sector, NGOs,

landowners, local communities, scientific bodies, universities and other institutions as need be.

A feeling of uncertainty may also compromise conservation and sustainable use, particularly for individuals and communities who are poor as in the case of Nepalese Terai (Box 2.3). If people feel uncertain, they are likely to have preferences and social conventions that prioritise short-term gain over long-term planning (a high discount rate). Such preferences can profoundly undermine conservation and sustainable use, contributing to a cycle of poverty. While the most fundamental way to address this issue is to alleviate poverty, a more immediate possibility for improvement is to instigate training and capacity-building programmes. These offer especially good opportunities where traditional resource management schemes have been eroded. Training people in sustainable use methods and building capacity in biodiversity management creates more stakeholders in favour of conservation and sustainable use. Also, the allocation of property rights over local resources to the users can reduce uncertainty and provide an incentive for adopting long-term management objectives.

In some cases, traditional property rights and management regimes, indigenous knowledge, and cultural norms for conservation and sustainable use exist, but receive little recognition or support from individual governments. This can lead to erosion of these enabling social constraints, particularly if property rights are legally transferred away from individuals and communities. Often, the result is a shift in social constraints away from favouring conservation and sustainable use. Where social constraints do favour conservation and sustainable use, there is an opportunity for policy to build on existing institutions. Conferring awards and prizes, which underline the value of sound management through traditional or innovative methods, can provide positive reinforcement for conservation and sustainable use. Emphasizing the positive and rewarding creativity and innovation can engender and reinforce enabling social constraints.

3.2.3 Compliance

Compliance refers to the extent to which individuals and organizations respect and adhere to the formal and social constraints that apply to their behaviour. Opportunities to improve levels of compliance are found mostly in the area of formal compliance, rather than social compliance. This is because a change in social constraints normally brings about a corresponding shift in social compliance mechanisms. The following examples describe some common circumstances that can offer opportunities for improving the effectiveness of incentive measures through increasing levels of compliance.

Formal compliance can be impeded by political interference in the judiciary. The judiciary is intended to approximate an independent third party, which makes decisions based on itôs interpretation of the law. If the judiciary is not ensuring compliance in the courts, the reason is often political interference. Such interference can originate from vested economic or political interests. In the case of biological diversity, these interests may lie in the natural resource sector of the economy. Freeing the judicial system of political interference is a challenging but significant opportunity to increase the effectiveness of the formal constraints for biodiversity management. Normally, this involves altering the social constraints that permit interference. Unlike in the alteration of formal constraints, informal or social constraints take time.

Often, the formal constraints for biodiversity management are comprehensive, but there is no corresponding compliance by society. In these cases, the relevant social

constraints may be in conflict with the pertinent formal constraints (or are otherwise not supportive). Such conflict can be the consequence of formal constraints such as conservation laws being adopted or literally transplanted from foreign institutional environments and placed in an institutional context where there is little or no social support. In this instance, harmonizing the two sets of constraints can improve outcomes.

Education and capacity building within the relevant enforcement agencies can improve compliance and the level of harmony between the formal and informal constraints. Education of enforcement agencies may involve sensitivity training, if monitoring and ensuring compliance involves direct interaction with the public. A sense of pride on the part of enforcement agencies, and an improved relationship between these agencies and the public, can engender a new level of commitment and can lead to a shift in beliefs about the positive role that enforcement can play in a society.

Sustainable improvements in biodiversity management practices stem from formal constraints that create enabling incentives, supported by social constraints and appropriate monitoring and enforcement mechanisms. When the three factors of an institutional environment begin working together to promote sustainable biodiversity management, the cost to government of achieving its biodiversity objectives is reduced. Due to the interactive nature of the three components, diagnosis of opportunities for designing and implementing economically and socially sound incentive measures involves an assessment of a country's entire institutional environment as undertaken in chapter 10 in the Kenyan context. Once an institutional diagnosis has identified areas of opportunity to improve incentives, then appropriate measures can be designed. However, a specific measure, e.g. a new property right or community participation in resource management needs support from the overall institutional environment for sustainability and long-term success. Furthermore, the unique socio-cultural, economic and legal environment that has evolved in each country or region should inform policy decisions about the conservation and sustainable use of the components of biodiversity.

3.3 Ineffective Institutional change

Although institutional change is meant to produce enabling incentives, the outcome of the change is not always optimal. The factors enumerated above for effective institutional change namely compliance to formal and informal institutions are sometimes not achieved creating pervasive incentives.

Without careful empirical analysis, functionalist explanations may become justifications for irrational or non-functional institutions. There seems no reason to suppose a priori that competitive pressures are always sufficient to break up less than optimal institutions (Basu et al. 1987) quoted in Bhim (2001:4). Institutions do not always decrease transactions costs but might actually, when inefficient, increase transaction costs (Olsson, 1999), like in the case of the Orma (box 3.1). North (1990) pointed out that not all institutions are efficient and powerful groups to serve their particular interests can capture institutions of collective action. In addition, it may be the richer members of the community that dominate local politics and organizations as found in Joint Forest Management in India where benefits from the system goes to certain sectors of the community (Saxena, 1989).

In Africa and most of the other nations with a colonial legacy, transplantation of institutions from the colony to the colonized had considerable unfavourable effects. This was mainly caused by failure to evaluate the social, economical, ecological and administrative hierarchy of the colonies. For example, the introduction of private property rights was partly meant to save the mega-biodiversity ecosystems such as

forests and lakes that were abundant in this continent. On the contrary, the process of privatisation, originally aimed at a good course, has been hijacked by the powerful enhancing biodiversity degradation. As discussed in chapter 3.1.4, it is not that the best institutions are always selected, but rather that those that survive, are those which usually serve the people with the most bargaining power. This is one factor that may contribute to institutional failure especially if they result to creation of perverse incentives.

In Senegal and India, for example, Ribot (1995) and Anderson (1995) respectively report how the wealthy and influential villagers in control of supposedly democratic forest councils are able to use state resource laws to their personal benefit and to the detriment of the poorer and the powerless resource users (Bhim 2001:6). To ensure that institutions perform, the constraints they impose should be enforced. However, the success is subject to the underlying fact that it is the organizations that embody and interpret the scheme of norms and laws to fit their preferences. Buchanan (1991) prescribes strict constitutional rules against deficit spending. He assumes that this would discourage rent-seeking behaviour of the agents. However, agents react differently and their actions may not be fully determined by the set institutions. The laws and instruments of implementation may perfectly be in place, but the target agents or actors fail to react as expected. In this case, the agents fail to enforce institutions; or enforcement provokes non-compliance. Eggertsson (1990:310) admits that actual or operational behaviour is not guaranteed by correct regimes of constraint, similar rules can create different behaviours and outcomes.

Besides the erection of the correct institutions, it is necessary to analyse the behaviour of the target agents or organizations and their diversity in preparation for enforcement. This is necessary in order to explain the determinants of institutions and their evolution over time, and to evaluate their impact on social, political and economic performance and efficiency (Nabli and Nugent, 1989:1333-1347). Affirmatively, World Bank (2002) adds that the historical aspect of institutions is a pragmatic approach to institutional building, focusing on what can be done practically rather than what should be done in an ideal world. This may produce economically, socially or politically over-ambitious institutions that only serve to arouse false expectations that are short lived. Failure to cultivate compliance to such institutions may be blamed on real or perceived institutional weaknesses. If counteracted by further institutional changes, an intricate and multiple institutional environment emerges further complicating implementation. If the actual cause is not identified in time, institutions will produce perverse incentives leading to biodiversity degradation.

Although World Bank is quoted above as advocating for the evaluation of historical aspects of institutions, it is not clear how it views the forceful measures undertaken by donors on their recipient countries. This is one factor that forces the recipient countries into making ad hoc institutional changes without much regard of their historical aspects and many other considerations. Institutions or policies made at such an atmosphere may not achieve the expected result, which is again blamed on the recipient countries. As the blame game heats up, the recipient countries continue being more and more indebted, while biodiversity degradation gains momentum. Some of the activities vital for biodiversity conservation can be homegrown. The big African population can be turned into strengths for biodiversity conservation e.g. by campaigning for tree planting by each person. However the donor fever has spread to the roots such that in some instances, the community members demand money to plant trees on their own farms. This is a new culture that needs to be fought if biodiversity is to be saved.

According to Mamadou (1996:58), the social, economic and political crisis of post independence Sub-Saharan Africa can largely be attributed to a crisis of institutions resulting from a structural disconnect between the indigenous informal institutions and the formal institutions. But how did the crisis arise? The next chapter analyses how property rights institutions in Africa have been changing in response to political transitions and the effects this has had on the governance of biodiversity.

4 Institutional Changes in Africa: Impacts on Biodiversity

As acknowledged by the Regional Round Table for Africa, there has been increased awareness on the fragility on the African environment and its natural resources. However, land, forests and water, which are the natural resource base, continue to deteriorate (Mbote and Cullet 1997:38). Some of the most critical issues include deforestation, desertification, soil erosion and the decline of biological diversity. Biodiversity is crucial for African society, majority of who reside in the rural areas and directly rely on it. The need to save biodiversity is therefore a livelihood issue. Acknowledging that the regions are unique in nature, this chapter captures a rather general insight into Africa. This is taken as a reflex point to the detailed Kenyan situation forthcoming in the subsequent chapters.

4.1 Indigenous Institutions and Biodiversity

Well-defined empires and ethnic groups marked pre-colonial Africaôs administration. Although hierarchical in nature, these systems were governed by consensus and broad participation. This was through group representation at the central community level and village councils at the local village level (Whitaker 1988:35). Decision-making was collectively done and maintained. Everybody was listened to and accepted his responsibility to the group. Rituals, religion and politics were inseparable (Davidson 1969:67-80).

On the natural resource management front, traditional land use was in harmony with the environment. Over the centuries, societies had developed their own social customs and regulations, which ensured sustainable use of land-based natural resources on inter and intra -generational basis. Individual land use practices were governed by customs and regulations in such a manner that they were considered socially acceptable. Local communities depended wholly on the natural resources communally owned by defined communities and utilized in common (Murombedz 2003). Not much has been documented on pre-colonial conservation of natural resources in Africa, however, the general view is that due to the low population density, simple hunting and gathering way of life, the conservation methods in pre-colonial era were simple and not worth serious attention. However, Schoffeleers (1979) documents complex relationships between communities, their environment and the various institutional mechanisms developed by these communities to manage natural resources (quoted in Murombedz: 2003). This included rituals, myths, taboos and sacredness of most fragile ecosystems. Other practices such as shift cultivation, pastoralism, hunting and gathering ensured resource sustainability. The San people in Botswana and Zimbabwe lived in small groups as hunters and gatherers depending wholly on their environment without any negative impacts. Pastoral practices by the Masaai in Kenya and Tanzania, the Khoi Khoi of Namibia ensured sustainable grazing. In Zimbabwe, a number of beliefs and taboos acted as forest codes; only dry wood could be used for firewood; large trees including all fruit trees remained intact for their harvests, shade and fodder. The belief was that breaking these rules caused calamities such as diseases, drought or famine. To restrict indiscriminate hunting, hunting was confined to certain species and seasons. In Zambia, the Ila speaking people held communal expeditions called Chilla to hunt Lechwe, a rare antelope. These hunts could only be authorized by the chiefs and elders on confirmation that the animal populations were sufficiently large enough (Resource

Africa: undated). Indigenous and the intimate knowledge of the ecosystems by the communities ensured sustainable harvesting that ensured replenishment of the ecosystem. Various local myths therefore reflect specific societal attachment to their environment.

Religious, ruling entities and cults acted as the agents in ensuring that the institutions performed. The rules were intergenerational and the community members adhered to them in loyalty to their ancestors and the fear of being out-casted from the community. Binsbergen (1979), quoted in Murombedzi (2003) observes that ecological transformation of any society is normally reflected in its religious systems. Similarly, Schoffeleers (1979:2) states that, the prevalent idiom used by central African societies for the articulation and application of their earth philosophies is religion. Sacredness has been documented as a major player in environmental conservation in traditional Africa. What is not clear is whether this was with any awareness by the community or just a coincidence. Many groups designated sacred groves for worshipping spiritual ancestors. The common characteristic of most of these sacred sites is their vulnerability and prominence in the landscape. They included hills, pools, imposing trees, caves, streams, falls and mountaintops (ibid). The Kikuyu community in Kenya believed that their God, (Ngai), lived on Mt. Kenya (Kirinyaga). The mountain therefore remained sacred and special rules for its utilization accrued.

Cults functioned to regulate production and distribution of food, protection of natural resources and human migratory movements if need be (ibid). In Malawi, the Mbona cult reacted to the perennial flooding of lower Shile River in the 1930s by exerting pressure on the population to migrate, thus relieving pressure on the land. Cults were also influential on the management of land, livestock, fishing, and ecological functions. They achieved their functions through rituals, issuing and enforcing directives. Reasonable sanctions equally accrued to rule breaking. During colonial era, the legitimacy of most cults was jeopardized greatly diminishing their importance.

The fact that resources were not commoditized but only harvested for immediate needs must have contributed to their sustainable use. Although the small population may have ensured less pressure on the environment, equity is more commendable in that it ensured proportional benefits and sometimes costs. Community boundaries were respected and rulers ensured exclusion of outsiders to avoid over-exploitation of resources (Murombedz 2003:3). To build social relations and ensure reciprocation of favours by the neighbouring communities, the rulers would allow them into their territory for grazing or harvesting of some resources. However, this happened on consultation with the community but not for personal gains.

At a glance, this section reflects on most of the eight principles given is box 2.1 as being necessary prerequisites in designing Common Pool Resources institutions today. The same institutions proved relevant to the Indian Kumoan forests and Nepalese Teraiôs Parks and People Project (Table 2.2). This section evaluates whether the mode of biodiversity governance in Africa was characterized by some of this principles. In the case of pre-colonial Africa, the governance of biodiversity was characterized by:

i. Communal ownership: Resource areas and users were well defined and institutions ensured that every member of the society had access to the resources. Equity was ensured. Women, sick and disabled accessed resources on family lineage.
ii. Collective action: in decision-making and adherence to community rules that guided resource utilization. The community viewed the resource as the only source of livelihood and thus treated it in a sacred manner.

iii. Information guiding resource management was readily available on intra-generational basis and this ensured compliance.
iv. Monitoring was a community issue while sanctions ensured compliance.
v. There was no external interference and this ensured persistence of the various home-grown institutions.
vi. Elders made decisions based on communal preferences. It was thus easy to comply.

Acknowledging the changes that have occurred between pre-colonial era to date, and without the intention of idealizing indigenous institutions, it would be appropriate to commend them for having been in control at their due time. Moreover, most of the principles hereby advocated for management of Common Pool Resources (of which biodiversity is a component) today, existed in the African history. The same elements that were practiced at pre-colonial era are applicable today in the two case studies theoretically tested above. If they prove as relevant once tested practically in the case of Kakamega Forest, then it will be appropriate to consider them a policy issue. These are the practices that were considered primitive in the enactment of formal institutions in Africa. If these social or informal practices had been consulted earlier on, particularly at the onset of independence, this study would most probably be reporting on a success story in the governance of biodiversity. A lot of resources now being used to reverse the situation would be geared towards other development issues.

Nonetheless, remnants of the informal institutions can be traced in many communities today and there is a chance that recognizing their importance can still contribute to better governance of biodiversity. In rare cases where informal institutions have been given a chance e.g. with the case of the Kumaoun in India (box 2.2) their role in biodiversity conservation is commendable. These institutions make an important component of the particular societies. Defensively, most governments peg the recognition of these institutions in decentralization, community participation, Regional Rural Development (RRD) and other important approaches that are being applied to utilize informal institutions today. These are crucial aspects that are no longer subject to long debates. Their effectiveness has long been recognized. Many organizations and governments have come to embrace them in many spheres of their economies, biodiversity not exceptional. However, the challenge lies in their implementation. Though easily advocated for, their implementation is a long process. Challenges arise especially in cases where the concepts lack institutional anchor. Without undertaking an analysis of where policies went wrong, the consequential effects today, it may be difficult to clearly indicate a way forward in implementing some of these concepts. Towards this goal, a revisit into the beginning of institutional disconnect in Africa is a necessity that is here below undertaken.

4.2 Impact of transplanted institutions on biodiversity in Africa

Transplantation of institutions in Africa did not only occur at colonialism, but realistically, with globalisation, this continues. This could be either voluntarily or by economic intimidation. Intimidation, in the sense that many policies in Africa are more donor-driven than concrete-research based. The effect transplantation of institutions has had on the recipient countries, positive or negative, should inform policy on a way forward. As explained in chapter 3.1.1, transplantation of institutions has had more negative than positive effects on biodiversity for reasons well expounded on in this sub-chapter. But what are the underlying crystal factors involved in the African context?

4.2.1 Introduction of private property rights

Colonialisation introduced new concepts and property rights in their specific colonies that were meant to engineer economic growth and give way for easy dominance. The assumption was that what had worked in Europe could be replicated in Africa (Michael 1996:41). Private rights to property were superimposed on the already existing communal property rights as a result of a misconception about the effectiveness of the local systems in resource management (Vandana 1991:14). The positive motive was to engage the various colonies in economic development which unfortunately, compromised the equally or even more important ecological aspects. Private rights would ensure fewer conflicts on land use and reduce overuse of resources (John 1984:23), so it was assumed. This overlooked the fact that the communities had communally and sustainably managed these resources for centuries of years. Shared responsibilities over resources were viewed as burdensome and privatisation was necessary to ease the situation. Privatisation was also meant to ensure tenure security especially to the poor and the landless by giving them secure rights to resources. This process however further marginalized the poor by transferring more resources to the better-off households and denying them access to common property resources (Mbote and Cullet 1997:25).

Colonialists interpreted some African communal systems of holding property as open access. It was assumed that the communities lived in a vacuum without any mode of governance. This was the case with most pastoralists like the Masaai whose land was accessible to all members of the society with no entity assuming absolute control. The land left fallow by the farming communities or by the pastoralists for seasonal grazing was assumed free of property rights, thus ready for occupation. To avoid the tragedy of the common extensively discussed in chapter 2.3, the local people were hurriedly confined in marginalized areas that further caused degradation of biodiversity. In due course, nature reserves were created introducing the policy of enclosure and real alienation of the people from nature. Traditional boundaries were no longer valid and the regional system of governing biodiversity on community basis was without consultation dissolved into national policies. Natural resources were commercialised through commercial hunting and tourism whose importance grew steadily.

The misconception of property rights in Africa led to transplantation of foreign property rights without due regard of the local institutions. The appropriation by settlers of rights in land amounted to the expropriation of the rights of the indigenous community (Ogendo: 1991). This destabilized the Africanôs view of their environment. Religion, cults and local communal governing councils that were the base of resource management lost legitimacy and moral stand. Christianity undermined traditional religion, African territorial cults and the mode of governance was dismissed as primitive.

As earlier discussed, cultural institutions are slow to change and despite the institutional changes undertaken, cultural rules were only suppressed but not suffocated. These institutions have proved a force to reckon with in the implementation of formal institutions. The challenge facing most African countries today is how to harmonize the two and level the ground for collective conservation of biodiversity. Why this has not been possible in a self-ruling Africa may be blamed on various factors, but most of all, lack of political goodwill. Most past evils in Africa are blamed on colonialism which is partly true, but 40 years into independence, Kenya is an example of an African country that has not much to show on the institutional front. Some of the laws and regulations being implemented today are the same ones applied during colonialism. So, who is colonizing who? Or rather, who has colonized who? The answer is simple, a small

minority of the rich and politically well connected have now colonised the majority of Kenyans making them passive passengers in a country wagon they so dearly hold. Eating crumbles under a table they so hard laboured to lay. Although section 4.4 evaluates the way forward for making good the effects of institutional implantation discussed in this section, political goodwill is a pre-condition for any solution that may be put forth.

4.2.2 Breakdown of collective action

In pre-colonial era, communal extraction and preservation of natural resources and biodiversity in particular ensured social cohesion. Equity played an important role in the management of environmental resources and in ensuring equal distribution of wealth. This halted the emergence of exceptionally well off community members and thus ensured social bonding. The importance of resources as an intra and inter-generational commodity was captured on the local sayings and riddles. The saying by chief Nana Ofori, Ghana,

> ***ñ****I conceive that land belongs to a vast majority of whom most are dead, a few living and countless host still unborn****ò***, thus captures the African communal perception of natural resources, thus biodiversity (Mbote and Cullet 1997:27).

This notion is today captured in the popular term, sustainability; using resources without compromising the interest of the future generations. The denial of property rights to resources by colonialists weakened this sense of trusteeship and stewardship in the community. This was to spread to other spheres of the peopleôs lives as competition over resources stiffened. This encouraged resource conflicts and inequity in resource access. In many communities, the important role of the elders, chiefs and religious leaders in managing resources was drastically reduced by the introduction of land tenure policies and legislation that marginalized the communities in the management of natural resources (Nsajama 1993:3). The loss of influence of the elders affected the social bond of the society, a role that they concurrently played as the community stewards. Chiefs were given official formal mandate as colonial representatives over their own people and this severed their relationship with the community members. The harsh nature of the colonial regime created suspicion amongst the people, which suppressed their solidarity further creating social insecurity. Insecurity further meant scramble for the sudden scarce resources, thus biodiversity degradation.

4.2.3 Removal of resources from community control

Breakdown of Peopleôs attachment to land was one of the most profound effects of colonialism. Land was symbolic in the African context and could not be exchanged for any gift or money. Initially, this made it difficult for the colonialists to buy land from the natives and had to use legal instruments to forcefully occupy the land. This marked the beginning of legal instrumentisation of land in Kenya, a tool that has been used by the post-colonial governments in land grabbing which was detrimental to biodiversity. With the introduction of a land market, the attitude of the people to land was changed, viewing it as a commodity and not as a sacred gift from their god(s). Since land was the mainstay of most of the African communities, the future was no longer certain.

With the introduction of land laws, communities were moved to marginalized areas where land was less productive. No compensation was given for the loss of land and other property rights such as hunting and gathering in the reserved areas. This led to shortage of land, which in return endangered biodiversity (Gullan and Williams: 44) quoted in Mbote and Cullet (1997:26). In some areas, human activity was allowed, but

in most cases, wildlife and forests were enclosed from the people. This led to the peopleôs antagonism towards environmental preservation laws, which they interpreted as alienation measures. From then on, communitiesô rights to land and resources were assumed to be usufructuary in nature (Chatrapati 1986:14). In Kenya such rights, Lord Haldane contended, ñcould be extinguished by the action of a paramount power assuming possession of the entire control of a countryò (Mbote and Cullet 1997:26). Consequently, property rights over land and resources were vested on the supreme authority, her majesty the queen, in British colonies.

The land acquisition policy and environmental laws by the colonial powers alienated the native communities from access to natural resources. Once forests were enclosed, they could not be used for firewood collection, medicinal plant or harvesting of other non-timber products by the community. Land under game reserves was no longer available for hunting or cattle grazing which were the main sources of proteins for the communities which in return compromised the peopleôs nutritional needs and health (Nsajama 1993:3). Impact of Privatization was more adverse on the poor who relied on common properties for most of their common needs.

The rate of environmental deterioration, loss of biodiversity and inequity accelerated at independence, a situation that has proved difficult to reverse. By Coercion, colonialists implemented their environmental laws and policies. Independence demanded a diplomatic and more humane approach to resource governance. This has not yet been achieved. On the contrary, it has been abused as a leeway for corruption and other evils that amounted and still contributes to loss of biodiversity. This is attributable to abuse of formal institutions and non-recognition of social constraints.

4.2.4 Introduction of new land-management policies

For agriculture to fit into the commercial purposes of the colonial power, new land-use policies were necessary. These were imported from the mother countries or other colonies. In Kenya for example, the Indian Land Acquisition Act of 1899 was imported from India and imposed to the local circumstances. It was meant to vest more land possession powers on the British government by vesting all wasteland (all unsettled land) on her majesty.

To maximize harvests, policies supporting monoculture agriculture in form of exotic species were introduced in the country. Reforestation programmes used quick-growing species such as eucalyptus, which was resistant to pests. Indigenous forests were cleared to give room to the fast growing tree species. This greatly interfered with the forest ecosystem leading to biodiversity degradation. Traditional food crops were undermined as inferior and consequently abandoned with negative implications on food diversity and crop adaptation (Calestous:1989). This era also introduced the use of pesticides whose use has intensified ever since. Although pesticides ensure high yields, consequent effects on health and biodiversity have been proved detrimental. Policy intervention in subsidizing and encouraging them in the market front has intensified their effects.

Interest in indigenous trees and organic farming has been revived in some countries through policy incentives. However, the high demand for land, inequity in natural resource distribution, increased population and disappearance of some species has affected the progress (Kihika and Opole, 1993:53). Changes in climatic conditions and other factors sometimes prove unfavourable for the growth of some indigenous species, making it final that these species are lost, forever. Although better late than never, it is either now or never when it comes to biodiversity. This is a lesson that for institutions to

be effective they have to intervene at the right point in time, otherwise, if overtaken by events, their success gets compromised.

4.2.5 Multiplication of institutions

Emerging from all the changes is an intricate multiplication of biodiversity institutions that are difficult to implement. Kenya, like most other developing countries, has been caught up in a multiple, intricate institutional system, which is highly disconnected and disadvantageous to most spheres of the economy. It therefore becomes evident that despite the wide range of legislation for environmental management in Kenya, biodiversity degradation persists. This is more the result of institutional weaknesses and failures of coordination than legislative inadequacies (Bennun and Njoroge 2000:40). Consequently policies are rendered impotent. Interpreting the problem as that of policy failure, more institutional changes are undertaken, making an already bad situation worse. Precisely, at one point in time, Kenya had 77 legislation articles dealing with the governance of biodiversity (Ibid); overlapping on the already existing cultural institutions. Although efforts to consolidate these institutions are underway in Kenya, for example, a lot needs to be done to enhance implementation and more so, compliance.

4.3 The missing institutional dimension in Africa

At independence, most African countries inherited the colonial governance systems as they were without making any significant adjustments to fit to the new political, social and economic situation. Modern governance systems continued being superimposed on the traditional institutions and the indigenous management systems of the community. The principles listed above that ensured sustainable resource management were severed. The state continued to be powerful, isolated, repressive and locally alienating. The big gap between the citizens and the administration bred distrust, further alienation and lack of indigenous legitimacy (Mamadou, 1996:43).

The fact that the states were formed on none other factor rather than political power was not revisited. The governance of natural resources in Africa was initially at community level and each community had a well-defined region of jurisdiction. Consolidating these regions, governing a state as one entity and strictly applying homogenous policies will remain a great challenge today and long into the future unless regional strengths are identified and appreciated. The great diversity of the African people in culture, language and biodiversity as well, may not be easy to capture in homogenous national policies. However, if institutions are flexible and broad enough, carefully giving room for interpretation according to peopleôs culture and social constraints, then this diversity can be turned into a great strength. This may have prompted some of the new concepts such as Regional Rural Development (RRD) concept that advocates for the governance of resources at regional level; thus capturing a regionôs homogeneity and diversity at a manageable level, which would gradually turn into a great strength even at international level (for details, see Rauch et al. 2001).

Today, most communities still lay claim over what resources were historically theirs. If the formal institutions do not respect community historic social rights to property, then conflicts are due to arise. In Kenya for example, historical land claims have provoked tribal clashes since 1992. Faced with extreme conditions, the Maasai can still not respect individual property rights. For example in the year 2000, there was drought in Kenya and to everybodyôs surprise; the Maasai moved their cattle even to the city

centre, Nairobi, in search of pasture. Nairobi is located on land that customarily belonged to the Maasai. The Maasai still harbors the feeling that this is their land. Logically, they have a right to since no one consulted them on any development that ceased the land away. Unfortunately, this makes the implementation of wildlife and biodiversity protection policies very difficult. Of importance therefore is to domesticate not only international law at national level, or national laws and policies at regional or community level, but to also allow an upward flow of influence.

At the community level, six to eight decades of colonization has not subverted or replaced pre-existing traditional systems, perspectives of governance and local administration in most African countries. The traditional institutions had only been suppressed but not eliminated. Independence was a significant juncture at which institutional reconciliation would have been undertaken. On the contrary, traditional governance institutions were overlooked by their own and the focus was on attaining fast economic growth modelled on the former colonizing states. The Conditions given for independence by the former colonies also contributed to the euphoria that was experienced in all spheres of the economy in the new economies. All the while, African communities identified with traditional institutions to which they felt accountable and dedicated to (ibid). The institutional disconnect or disharmony that was during the colonial era intensified after independence. The dream of the Africans, ñlife more abundantò (Obasanjo1987: 5) was not to be; not when the African leaders themselves could not make it real for their fellow Africans.

On the natural resource management front, the current environmental laws and policies reflect the former colonial rules and regulations. Keeping this laws and policies in itself is not a cause for alarm, but are they fitting to the local institutional environment thus creating enabling incentives and eliminating the perverse ones? Most governments retained the legal framework established under colonialism with little regard of the biodiversity degradation that has exemplified over time. Efforts to tailor the environmental domestic laws to the needs of the African countries in general and to the communities in particular have not been very successful (Mbote and Culliet 1997:27).

On the contrary, multiple formal and informal institutions that are sometimes either conflicting or duplicating create perverse incentives thus persistent trend of biodiversity degradation. Recognizing Africaôs crisis as one of institutions demands changes in all fronts (Mamadou, 1996:58). On the biodiversity front, this demands for incentive-driven policies that are embedded in both formal and social institutions thus ensuring compliance.

4.4 Incentives, institutions and biodiversity in Africa

Actively involved on the race for biodiversity conservation, many countries in Africa employ various direct and indirect incentives/disincentives towards this cause. With the aim of encouraging enabling incentives and modifying perverse ones, the list of activities engaged on is in exhaustible. The activities range from both direct and indirect economic, social to institutional incentives/disincentives as the few case studies documented below illuminates.

Box 4.1 The South African Natural Heritage programme (SANHP)

The South African Natural Heritage programme, SANHP, registers sites critical for conservation in the whole country. SANHP, introduced in 1984 combines.

(a) Institutional incentive measures (maintenance of full property rights)

(a) Social incentive measures (public awareness and technical assistance)

(b) Economic incentive measures (financial assistance, certification and promotion of alternative use).

The success of the programme is based on three factors:

(a) Benefit to landowners

(b) Policy support at all levels

(c) Broad participation by all stakeholders

Landowners are accorded full ownership and responsibility for the biological diversity occurring on their land and are encouraged to benefit from its sustainable use. The programme has political support at all levels of governance, with the President of South Africa being the patron. The programme requires active participation and is actively promoted by all stakeholders in the private, public and business sectors.

Source; UNEP/CBD/COP/4/18:4-7

Box 4.2 Policy instruments for the conservation of Mount Kenya forest

Mount Kenya is one of the largest, most ecologically significant and commercially valuable indigenous forests in Kenya. Three major tools have been used to introduce positive incentives for conservation and to overcome the perverse incentives that encourage forest degradation and loss of biodiversity. These include:

(a) Property rights and policy change

(b) Development of alternative products and markets

(c) Provision of finance and funding

All these measures have substantially improved community-level economic incentives for forest conservation. However, the case of Mount Kenya forest also illustrates the limitations of community incentives. Many of the economic forces driving forest degradation and loss do not arise at the local level, and are not directly related to the forest sector. Perhaps the single most important perverse incentive encouraging local forest degradation and loss is policy in the land and agriculture sectors based on extending and intensifying arable production and which still promulgates subsidies and interventions aimed at achieving these goals.

Source; http://economics.iucn.org on 02.10.2006

Box 4.3 Protected areas legal revision, Ghana

A proposal to revise Ghanaian law was intended to curb persistent problems of government exploitation of local forestland and encourage local participation in the management of these lands. Henceforth, landowners and local communities would declare ñdedicated forestsò for their own purposes. This may include protection of sacred and traditionally significant areas or for any other interest of community forestry. The condition given is for members to commit themselves to protecting and managing such areas. The interest the community has in these areas and the benefits are expected to act as incentives for their protection. ***(It is not clear in literature whether the proposed institutional change was undertaken, but the argument is commendable)***

Source: FAO: 1998, Draft revised forest Act, Ghana

Assuming the case studies are illustrative of what is happening in Africa, it is possible to assess the various approaches applied in creating incentives.

i. Formal policy incentive measures

Formal policy measures include economic and legal instruments, regulations, and public investment, which may be applied simultaneously in various combinations as each case demands (UNEP/CBD/COP/5/15: 3).

Economic instruments are captured in the above three case studies in form of property rights and new markets. Community members need to have the ownership right over the relevant resources, be it de facto or de jure. The mode of application of the various rights accruing will differ from case to case. Long-term security of tenure relating to natural resources may be a powerful incentive for conservation and sustainable use (Kothari 1999:10). In the above three case studies, community members are allowed a sense of ownership and benefit from the resources entitled to them, thus the success. (UNEP/CBD/COP/4/18) reports that the success of most biodiversity conservation initiatives is attributable to economic incentives. This could be attributed to the fact that the majority of the rural communities in Africa directly depend on biodiversity as a source of livelihood. Biodiversity will only be of value to them if they can benefit from it. Determination of the legal status of the benefit is therefore important whether it is ownership, user right, privilege or concession given by the State or some other legal rights such as the right to access, withdrawal, management, exclusion, and alienation.

Another critical issue for resolution is to ensure that rights (especially ownership) are not misused by the right-holder. Legal rights over natural resources should therefore go hand in hand with legally enforceable obligations towards conservation and sustainable use (Kothari 1999:10). In the Mt. Kenya case (box 4.2), it has been noted that policies beyond the forest are to blame for biodiversity degradation. This portrays a common feature where policies sometimes conflict making implementation difficult. Incentive measures introduced by one agency could easily be undermined by another agency if there is a lack of coordination or worse, institutional rivalry. On the other hand, the scope and extent of incentives could be substantially enhanced if relevant agencies coordinate with each other. Some kind of checks and balances, which must be mutual between local communities and government agencies, would therefore be necessary.

ii. Social incentive measures

Social and institutional measures provide critically important social support for the formal policy instruments. They include information provision, capacity-building and stakeholder participation (UNEP/CBD/COP/5/15:3). The Social and institutional measures are prominent in all the three case-studies in form of community participation. In the Ghanaian case (box 4.3), they actually feature as the main form of incentive measures by respecting the communitiesô choice of activities that respect their traditions or social liabilities. Incentives should therefore be sensitive to the local socio-cultures, and built on available resources/practices wherever possible. Measures which go against local cultures, or which are based on completely alien knowledge/practices/technologies, are less likely to succeed in comparison to those that are home grown thus being sensitive to such aspects (Kothari 1999:11). This brings forth the issue of new incentives that are coming up such as intellectual property rights and carbon trade.

The need to provide local communities and individuals with protection of their knowledge and practices is potential to biodiversity conservation. Article 8j of the CBD focuses on this. In agreement with Kothari (1999:11), existing western models of Intellectual Property Rights (IPRs) are not suitable for this purpose, as they are individualistic and often violate the ethical tenets by which communities organize their knowledge systems. Although this development is yet too new to be judged, it is clear is that there are complicated issues of knowledge ownership and spread, distribution of benefits that have to be worked out at policy level for these new incentives to be finally institutionalised. This is because local and national structures of inequity (social, political, and economic) can undermine the most well intended incentive measures, especially if

substantial populations are disprivileged in the process. A number of researchers have shown how, in Joint Forest Management and other initiatives, landless people, women, or other already disprivileged sections are rendered worse off by forest conservation policies (Sarin 1998; Raju 1998). It is at this juncture that carbon trade and intellectual property rights need to be weighed to avoid such drawbacks in the future. Although incentives are important driving forces, policy constraints need to be in place to prevent them from being too attractive or ambitious in a disruptive manner. On the other hand, policy on carbon trade and intellectual property rights should be very cautious to break the dependence-syndrome which is being created by some project initiatives on biodiversity. To elaborate, there are some projects in Kenya paying farmers to plant trees on their own farms. This is a good incentive but since a project is always short-lived, what will happen when these kind of projects cease? The farmer must be made to understand why he is planting trees, why it is for his own good and why he should further encourage his children to do so in the future. This is more sustainable for it is educative thus ensuring life after a project.

iii. The compliance component of incentives

The compliance component on incentive measures may include measures to encourage both socially enforced compliance and legal enforcement. Legal enforcement usually requires investment in institutional capacity, but can be assisted through measures designed to create social support for incentives. Socially enforced or voluntary compliance can be encouraged through activities such as stakeholder participation and information provision.

Social and formal enforcement therefore requires a diversity of incentive measures; no one kind of incentive would be appropriate or adequate to the meet the diverse realities even within a single country. On the contrary, a mix of incentives would be more effective. Dependence on single incentive measures could be risky. In any case, communities have diverse needs and a diversity of incentives would more likely meet these needs than any single measure (Kothari 1999:11). Moreover, the mix should ideally include not just economic and other material incentives, but also non-material ones such as political/social empowerment, social recognition (ibid) as in the Ghanaian case elaborated above. This would be a positive attempt into saving our common future.

Unfortunately, the effects of biodiversity degradation, though acute at source have far reaching global effects. Whereas political and regional boundaries are evident, the ozone, the oceans and the atmosphere knows no bounds. A few people may impact on the environment, but collectively the effects are shared. Lasting solutions therefore are prerequisite to avoiding a global environmental tragedy. What Africa needs is to tailor itôs past civilization into a new and bold vision. The worldôs experience may help, but the structures needed must stand on their own soil, unique to the local past and current circumstances (Mamadou, 1996:59).

5 Research design and methodology

This survey adopts the case study approach. The case is Kakamega Forest, itôs buffer zone and the underlying institutions. Although the case study approach here may be justified as a BIOTA project focus, underlying are various factors that further reinforces the same.

5.1 The case study approach

Although formal institutions for Kenya as a country are identical, informal constraints differ from one region to another and from community to community. The case study method thus gives a chance to consider Kakamega Forest as an independent institutional entity, whose homogeneities and heterogeneities are best understood by the residents. Borrowing from historical factors in Africa, natural resources or Common Pool Resources were governed on community basis identified by a common language. This conveyed the level of governance to regional level. In this case, concentrating on Abaluhya who are the immediate neighbours and historical custodians of Kakamega Forest would be the most logical approach crowning this argument. Considering that their culture, beliefs and norms or social constraints determined how the forest was governed in the past and impacts on how it is managed today further seals this argument. Further prove from preliminary results of BIOTA sub-project E13 observes that interest in the forest declines proportionately with distance from the forest (Wambua et al: 2007). This is unpredictably concentrating forest-focused researchers to a neighbourhood closer to the forest edge than formally expected. The special interest shown by these people is interpreted as a reflection of their historical attachment to the forest. On this basis therefore, the case study area is selected.

However, considering Kenyan politics, talking of the Abaluhya community as the legitimate custodians of the forest may raise eyebrows. While politicians may term it tribal, others may politically and logically push the same to be adopted for all other forests in Kenya; while a few may see it as a genuine strategy to saving biodiversity. Based on a subjective opinion, this might re-fuel a dormant conflict that has been simmering in Kenya since colonization, whereby various communities have been demanding land resources that are traditionally theirs. On a political trigger, once in a while, the conflict erupts in form of ethnic clashes between farmers and pastoralists; all to the detriment of biodiversity. In December 2007, this tribal dormant conflict was triggered by an election dispute resulting to a serious tribal war. This is how unpredictable politics may disarm responsive policies.

Politics withstanding, another factor that may be raised against the case study approach is that the Abaluhya community has been growing in size while the forest has been decreasing progressively. The forest may no longer be able to meet their demands fully. However, on a freewill, the community would sieve out with those closest to the forest seeking more participation for their own convenience; while those further away may find it inconveniencing to go for grass or dead wood 10km away, for example, and thus continue with their current survival strategies. At this juncture, the turn of events would meet with BIOTA sub-project E13ôs findings that those people living close to the forest show more interest in being participated in the management of the forest than those further away. On this justification therefore, this study considers regional, or what is captured here as case study as the best way of not only undertaking this research, but

also managing natural resources. In this dimension, the study still considers the region occupied by the Abaluhya community who are the traditional custodians of the forest as the most relevant study area from an institutional perspective (map 5.1).

Map 5.1 Kakamega Forest

Source: BIOTA-Africa 2004

From another perspective however, can this relatively small area occupied by only one sub-tribe really justify generalization of this study to the national and international level? This revisits a common debate on the practicability of the case study approach. As Booth et al. (1998:58) points out, ñWhile case studies cannot be representatives of larger populations from a statistical perspective because they cover only a small geographical area, they can be indicative of wider trends.ò In this context for example, if the proposal to manage Kakamega Forest on a community basis would be difficult, the question to policy makers should be, why? If the reason were that all other communities demand mandate to do the same, the trend seals it as a strategy that calls for further policy research. If further research for example, proves that the strategy is beneficial to biodiversity, but opposed because of identifying with particular ethnic

groups, then a regional approach may be adopted; capturing the same strategy but keeping controversies at bay. This is only an illustration of the many trends that can be captured through a case study approach.

On the other hand, factors beyond the study radius or even regional boundaries may also be detrimental or beneficial to biodiversity within. This is another challenge to the case study approach. The agriculture Act that governs the buffer zone for example, does not consider the case study area as unique. It is national wide. Corruption and other social influences do not stop at this distance from or to the forest. When the forest anti-logging policy was introduced in Kenya for example, it was convincing that the government was keen on biodiversity conservation. Striving to survive however, the saw millers switched to buying trees in the agricultural zones beyond the forest boundaries. This has caused immeasurable havoc to biodiversity even in areas far off the forest. The market has dominated resulting to what figure 2.2 cautions against. No finger has been raised as yet. The dazzling music of power saws all over the Kenyan highlands, cutting through the very heart of the environment has not had a message for policy. The same way the forest policy has impacted on areas far beyond the forest so would policies in these areas impact on the forest. Does this then rule out the case study approach as a genuine strategy for this study? Not really. Instead, it illustratively shows the extent to which biodiversity is inter-webbed.

Biodiversity is so inter-webbed, such that giving a territorial boundary to itôs management attempts to elude justification. However, in the short-run and for an urgent arrest to the current destruction of Kakamega Forest, this is justifiable. But the zone beyond the study radius also need to considered as an influence zone in the long run. Although this study advocates for the regional level approach to the management of natural resources, acknowledgement is given to the macro nature of all conservation and development issues in place today. Therefore, as efforts are geared towards the forest neighbourhood, progressively, attention needs to be paid to the areas beyond.

5.2 Research design

The design of the research is based on the Kenyan formal and informal institutional structure with special focus to Kakamega Forest. Kakamega Forest is an area that is designated as government land. Special for Kakamega Forest is the fact that it is administered by three governance regimes including the Kenya Wildlife Service (KWS), Kenya Forest Service (KFS) and the Quakers church mission. Kenya Wildlife Service manages the northern part of the forestôs main block also referred to as Buyangu. It is also in charge of the adjacent fragment referred to as Kisere. The two sections have been under Kenya Wildlife Service since 1986 when they were declared national reserves by the central government. The southern part of the main forest block and two adjacent fragments referred to as Malava and Bunyala are under the Kenya Forest Service (KFS). The Quakers church mission is in charge of the southern most fragment referred to as Kaimosi. The three regimes have different approaches to the management of the forest including their view of community access to forest products. Impacting on the forest also are the informal institutions of the neighbouring communities who are the traditional custodians of the forest. Being a predominantly agricultural society, other formal institutions such as the agriculture Act are also at play.

Considering that the whole of Kakamega Forest is on government land, it becomes interesting to identify the effects that the different institutions under which the forest is governed have on biodiversity. Naturally, one would expect that an identical mode of governance be employed to the whole forest as one entity. Moreover, biodiversity

degradation continues being documented despite the multiple institutions. Blackett (1994) as quoted in Mitchell (2004) reports the reduction of the indigenous forest cover in Kakamega Forest from 23 785 hectares in 1933 to only 13 990 hectares in 1990. The institutional environment within which this is happening therefore forms the fabric within which the design of this study is tailored.

5.3 Research strategy

The study upholds the definition of institutions given in discussed in chapter 2 of this study defining institutions as, ñthe rules of the game in a society or, more formally, as the humanly devised constraints that shape human interaction (North 1990:3).ò According to North, they are made up of:

- Formal constraints (e.g. rules, laws, constitutions),
- Informal constraints (e.g. norms of behaviour, conventions, self imposed codes of conduct) and their
- Enforcement characters.

Together, they define the incentive structure of societies (North, 1994:359-368).

According to Pasteur (2001.1), ñthe outcome of a policy or institutional analysis might illustrate the need for interventions that, highlight and address important policy areas, or policy linkages previously underdeveloped; improve policy making processes (e.g. by increasing opportunities for peopleôs views to be heard); improve the mechanisms through which policy is implemented; or strengthen organizational capacity for policy implementation.ò For this to be achieved, the three elements of institutional environment namely formal institutions, informal or social constraints and their levels of compliance need to be investigated to identify their levels of support for one another. If the level of support is high, then biodiversity conservation will be ensured by the emergence of positive incentives. On the contrary, biodiversity degradation will result from negative interaction between the three elements of institutional environment.

However, institutions, institutional impacts, and their making are highly complex political issues and processes. A range of historical factors, hidden agendas, personal politics, chance events and international influences, for example, often all combine to make any particular institutional issue complex to analyse. Incidentally, there are no simple rules, models and methods that will provide a universal guide in analysing institutions (Pasteur (2001.5). Like many other authors, Pasteur leaves it to the researcherôs discretion to identify various methods that may be combined to meet her specific goal(s). However, identifying with the analystôs task, Shankland (2000:17) gives four important insights into institutional analysis. His suggestions;

i. In analysing policies or institutions in this context, it is necessary to start from the already existing ones and work towards prescription. Careful evaluation of their strengths and weaknesses will expose factors to be considered in designing new ones. Although the task of formulating policies may be beyond the scope of this study, amongst other sources, research is supposed to constructively inform policy and learn from it (Phillips and Seck 2004). Towards this goal, the study considers this as an important starting point by analysing the most significant institutions on the ground in the forthcoming chapters 6,7 and 8.

ii. Policy formulation and implementation are an integral part of policy analysis. Quoting Thomas and Grindle (1990), Shankland (200:18) argues that policy contestation in the implementation phase can feed back into changes in the policy

itself. Moreover, concurring with John (1998:25), policy may just be a formal recognition of practical experiences of implementing agencies and their interactions with other stakeholders of whom the community form an integral part. Borrowing from this principal, the analyst considers all the elements of the policy process from formulation to implementation; the views and roles of the experts and the community as vital.

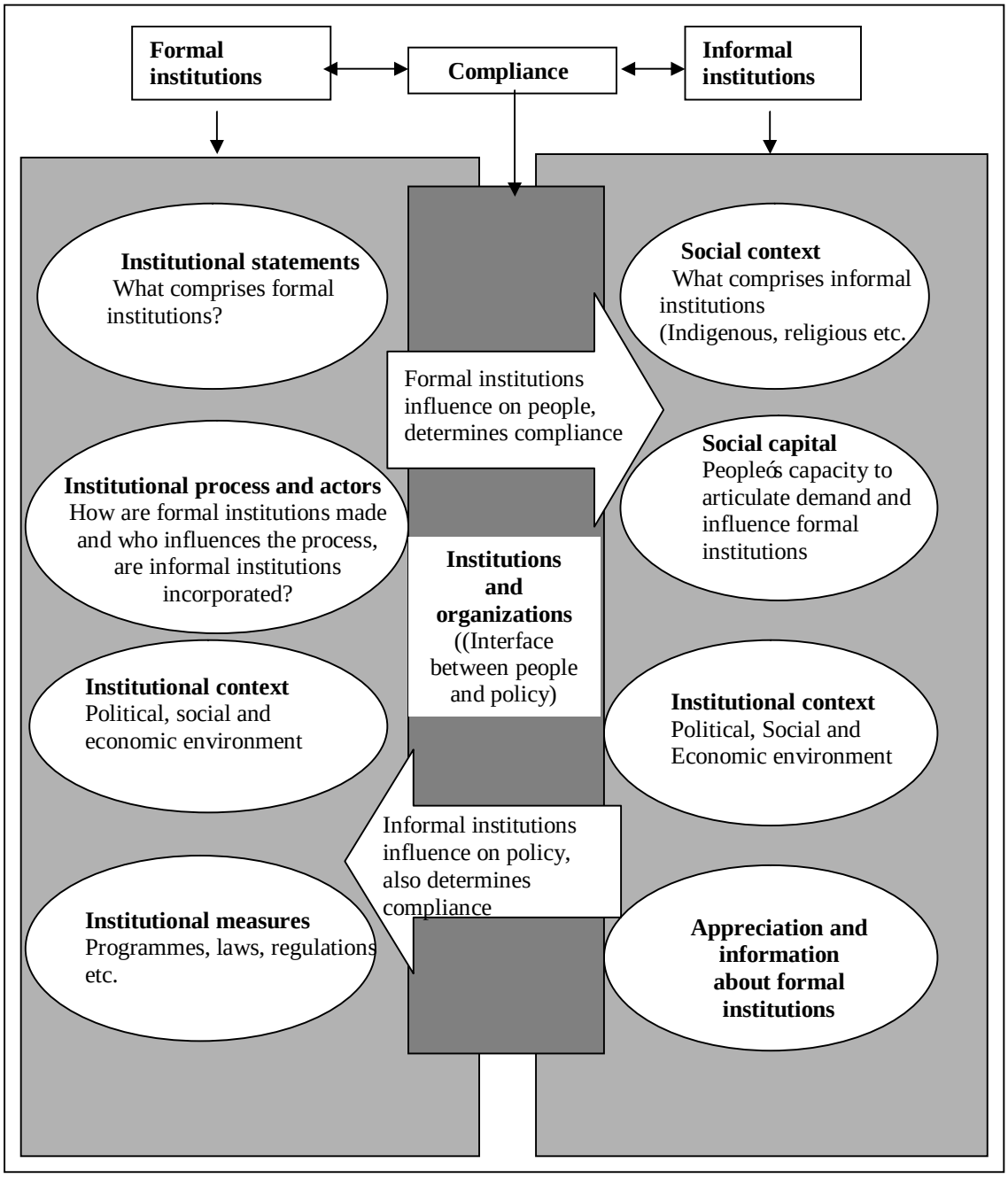
iii. The third principle is that of disaggregation. Policy analysis, Shankland suggests, should go beyond the macro social, economic and political level to the identification of ingredients of different policies. The analysis should consider the specific actors that influence the process of putting them into practice and the specific implications, which they have for different groups of people. This is the reason behind the authorôs concentration on the interface between policy and the community, which is at the local level.

iv. Finally, affirming John (1998:12) Shankland concludes that disaggregation process should also consider the sectoral nature of most policies. In most cases, the national policies on, say environment, will only act as guide to the sectoral specific policies on, say biodiversity. The biodiversity policies on the other hand may be interpreted differently by various sub-sectors or implementing agencies in form of laws, regulations, programmes, culture etc. This supports the approach of this study in domesticating the national policy statements to Kakamega Forest. The same policies may be interpreted differently in other parts of the country to fit the culture and other unique factors at the local context.

As a precaution however, Shankland alerts researchers that in practice, the neat hierarchy of institutional framework guiding the design of policy measures often does not apply. An interactive method of data collection therefore becomes necessary in order to meadow through the various diversions of the institutional process that may not be explicit. Based on these argument, this study responds by not only concentrating on the secondary documented data, but by engaging in a field survey to evaluate the practical effects of these institutions at community level. Further more, policy may be formulated without the community, but implementation is impossible without the community.

In preparation, the study engages by first identifying the elements of the various components of institutions that need to investigated on. To be able to come up with a comparative analysis, this study will investigate the three elements in three blocks namely formal, informal institutions and their level of compliance. These are illustrated in figure 5.1.

Figure 5.1 Components of institutional analysis for biodiversity conservation



Source: Adapted from Pasteur 2001:2

Figure 5.1 illustrates the key issues of the three blocks to be investigated on. The first element is to identify what comprises formal and informal institutions in the study area. This is done at the sampling stage.

5.4 Sampling

Two types of samples are employed in this study. These are;

- A documentary sample of the relevant organizations and formal documents most relevant to the governance of biodiversity in Kenya.
- A ground sample of the villages to be interviewed. This also targets those organizations to be included in data collection.

i. Documentary sample

Referring to figure 5.1, the beginning point is to sample what comprises the formal institutions in the context of the governance of biodiversity in Kakamega Forest. Once this has been accomplished, the political, social and economic environment under which these institutions are implemented will give more details of the external influences that determine their interaction.

What are the formal institutions to be considered? Formal constraints are the written instruments that provide a legally enforceable framework for the economic and social activities of a society. These constraints can be divided into laws, government policies (including economic measures) and property rights. This survey concentrates more on property rights institutions as far as biodiversity conservation is concerned. The rationale behind it is that access; management, exclusion, withdrawal and alienation rights; all relayed through property right laws play a great role in determining the level of sustainable use of biological resources. These factors are well reflected in a countryôs resource policy mainly instrumentized through laws and regulations.

In Kenya, the mode of governing biodiversity is on sectoral basis. Each sector involved in the management of whatever component of biodiversity e.g. forest, water, agro-biodiversity etc. has the relevant document(s) that enumerate the various elements of its mandate. These are the ones sampled or identified for this study.

Various organizations are mandated with the role of governing biodiversity. The various sectors labour to partition biodiversity into various clear-cut entities. Although it has been elaborated in the text of the difficulty and danger of partitioning biodiversity, this seems the only logical pathway for this study to identify the various institutions in place for biodiversity conservation. Moreover, the impact of institutions depends on the extent and nature of peopleôs interaction with the relevant organizations and institutions (Shankland, 2000). By identifying the various organizations involved in the governance of biodiversity, it has been possible to sample the formal legal statements relevant to biodiversity conservation for this study.

Table 5.1 presents a schedule of the various organizations that had been sampled at the initial literature review preparation stages of this study as being involved in biodiversity conservation in Kenya. This was meant to enable the researcher to identify the relevant formal documents that guide the activities of these organizations as instruments for the study.

Table 5.1 Institutions for biodiversity conservation in Kakamega Forest

	Organizations		Institutions
1.	**Public sector**	**Departments**	
i.		***Overall***	The constitution of Kenya
ii.	**Ministries** **The ministry of:**		
a.	Environment and Natural Resources	-National Environment Council (NEC) -National Environment Management Authority (NEMA). -Kenya Forest Service	The Environmental Management and Co-ordination Act (EMCA) Forest policy The forest Act The Timber Act
b.	Tourism and Wildlife	Kenya Wildlife Service (KWS)	The wildlife (conservation and management) Act (Cap 376) The Antiquities and Monuments Act
c.	Agriculture and Livestock Development and Marketing (MOALDM)		The Agriculture Act (cap318) The Tea Act The Coffee Act The Sugar Act
d.	Water		The National Policy on Water Resources Management and Development The water Act Lakes and Rivers Act
e.	Planning and National Development		The Physical Planning Act
f.	Local Government	Local authorities	The Local Government Act
g.	Lands and Settlement		The Land Use Policy (proposed) The Government Lands Act (Cap 280) The Registration of Titles Act (Cap 281) The Land Titles Act (Cap 282) The Trust Land Act (Cap 290) The Land Acquisition Act (Cap 295) The Survey Act (Cap 299) The ValuersôAct The Land Control Act (Cap 302) The Trespass Act
2.	**Civil Society** NGOs CBOs: Women groups Youth groups Religious groups		The Forest Act

Source: Author

Unfortunately, the literature review could not reveal the very specific details of Kakamega Forest. Consequently, most of the organizations in the above schedule proved either inactive or non-influential in the management of Kakamega Forest. Although it saves resources when researchers prepare research tools before piloting the study area, the practice may not be as time saving. In this case, generalisation of the Kenyan situation to Kakamega Forest meant that a lot of the preparation work undertaken would have been done without. Though informing, it would not have been necessary to purchase and peruse all the documents sampled in table 5.1, this time would have been more worthwhile invested on a pilot phase at Kakamega District. A pilot survey is therefore a necessity in all research endeavours in that it gives a clearer picture of the area of engagement unlike any amount of literature review will. Pilot survey should actually be undertaken before narrowing down to specific theoretical tools for any new research project, however small in scope. Only then can the researcher be sure of what theoretical focus to adopt saving one the agony of being drowned in the sea of literature readily available today.

Nonetheless, the study sieved up the list to three organizations whose authority has direct effects on the management of Kakamega Forest. These are,

- Kenya Forest Service whose mandate is defined by the Forest Act 2005
- Friends Church (Quakers) who did not even appear in the initial schedule (Table 5.1) since they are not in the management line for every other Kenyan forest. They also fall under the Forest Act 2005
- Kenya Wildlife Service (Kenya Wildlife Conservation and Management Act Cap 376)

Other indirect players but whose actions have a great effect on forest biodiversity in Kakamega Forest includes the,

- Ministry Water whose mandate is defined by the Water Act 2002
- Ministry of Environment and Natural Resources under which lies NEMA (National Environmental Management Authority) whose mandate is defined by the Environmental Management and Co-ordination Act, 1999 and the
- Ministry of Agriculture (the Agricultural Act Cap 318).

The six are analyzed in detail, hand in hand with community institutions or what is referred to as informal institutions in this context in chapters 6, 7 and 8 consecutively. Having defined the formal institutions to work with, it was also necessary to identify the physical scope of the study, thus undertaking a ground sampling exercise.

ii. Ground Sampling

In the case study area, three villages were identified. These are Buyangu, Shamiloli and Kaimosi villages. The villages have been selectively picked in the three areas that have different formal governance regimes on Kakamega Forest namely the Kenya Wildlife Service, Kenya Forest Service and the Friends Church Kaimosi (Quakers). This gives the research a base for comparing the communityôs perception of the different formal regimes. In each of these villages two focus group discussions were undertaken; one with the community members and one with the civil society representatives (Community Based Organizations and Non-governmental Organizations) together.

Considering the small size of the sample, the target respondents were to be selected in line with those already interviewed by other BIOTA sub-projects. This would avoid duplication of efforts, save on resources, but more important, enhance consistency in the

data collected within BIOTA project. For comparison purposes between the various research sub-projects, this was crucial. Unfortunately, an inspection into their questionnaire database revealed that the sampled households could not be followed up since they did not fit into the selection criteria for this study. This meant that the villages finally selected for this study were different. Although this was not the initial plan, it is advantageous in filling some of the gaps that would have been indeliberately created within the project by focusing on the same area. Methodologically, ñrespondentsô fatigueò was also avoided since Kakamega is a highly researched area.

For the administration of the expert opinion questionnaire, the study concentrated on the civil society in the case study area and the district public officers who are involved either in the forest or buffer zone management.

5.5 Data collection

As illustrated in figure 5.1, data was collected in three strata namely,

- Formal constraints
- Informal constraints and their
- Enforcement characters or compliance

5.5.1 Formal institutions

The survey on formal institutions was carried out in two phases,

- Desk-top review of the relevant documents
- Ground survey by administering a questionnaire and a focus group discussion with the informants

Phase 1 Desktop review of the particular documents

This involved the already sampled formal documents for biodiversity conservation relevant to Kakamega Forest. The process started with a review of all the sampled documents.

i. The review

The aim of the review was to familiarize the researcher with the contents of the various institutions in reference to biodiversity. This was also an important exercise preceding preparation of the questionnaires. Once the review had been undertaken, and in consultation with the relevant public offices at Kakamega, it was possible to undertake a policy or institutional ranking exercise.

ii. Institutional ranking

Institutional ranking helps in identifying the significance of certain institutions by ranking them in order or against one another for comparison purposes. This can be carried out by people affected by those institutions, as well as by those in positions of authority who might influence decisions in those policy areas. In this case, the researcher undertook the ranking exercise by considering what authority controls what physical area of the forest. The bigger the area, the greater the influence on biodiversity, thus having the Kenya Forest Service ranked as most influential, followed by the Kenya Wildlife Service and finally the Friends Church Kaimosi. Having sampled and ranked the relevant formal institutions to work with in the analysis, the next step was to identify specific issues of concern and make a checklist.

iii. Checklist of issues to be investigated

A study of institutions should look at the complex processes by which policy is understood, formulated and implemented, and the range of actors involved. In the literature review, various pillars that compound the governance of biodiversity were identified. The overall base is to recognize *that biodiversity is a common good and should be governed accordingly*. According to property theory, this implies that it has multiple stakeholders and a high rate of subtractability from an economic point of view. In this regard, it becomes very important not only to analyse institutions dealing with the forest biodiversity, but also to consider the economic and social factors of the buffer zone.It is also important to consider that incentives governing the use of biological diversity and its components are produced by a societyôs institutional environment (Presber and James 1996). The institutional environment comprises of three interactive components. These are:

i. Formal institutions

ii. Informal or social institutions and

iii. Levels of compliance or enforcement (North 1990:3)

The three interact to produce a set of institutional incentives that govern human behaviour, and consequently, are responsible for biodiversity management outcome. Therefore, to change outcomes requires altering the incentives through a process referred to as institutional change. An incentive measure represents a change in the rules governing the use of biological diversity or its components. The most common incentive measures involve changes in formal constraints such as property rights Changes could also be achieved by altering informal constraints or by monitoring and ensuring compliance with the rules. Successful changes in incentives, however, require that both formal and informal constraints be supportive of the changes undertaken (UNEP/CBD/COP/3/24 1996:4). In this context, both formal and informal institutions in the forest and the buffer zone will be surveyed with particular focus to the major changes in property rights and their consequent effects on incentives for biodiversity conservation. To conclude on the desktop survey, these factors are stretched out into a policy matrix.

iv. Policy matrix

Matrices can be used for cross-referencing a range of factors in order to identify relationships and influences. In this case, the matrix was used to compare and identify the contents of the various formal documents against the identified pillars of the survey. It however concentrated on the formal documents and not the organizations, which were only used as bridge in identifying the underlying legal documents. A sample matrix used for the survey is presented in appendix 1.

The policy matrix concluded the desktop survey of the various documents. An overview of the matrix helped in pointing out the paper contents of the various documents in relation to the identified variables. For example, conflicts and complementarities amongst the various legal documents were easily identified. With a matrix, it was possible to compare field details with the contents of the documents. It was also possible to refer to the matrix even in the course of interviews without much interruption. In case of clarification, the matrix indicates the relevant numbers or chapters of the various policy papers where details have been sourced, for easy reference. The policy matrix helped identify some quantifiable variables on the

institutional trends. Based on this, some illustrative statistics are presented in form of frequency graphs, pie charts in the result presentation chapters 6-10.

This section has in detail presented the process employed in undertaking a desktop secondary survey. This gave way to the engagement of actual primary data collection.

Phase II Ground survey

i. Administration of an expert opinion questionnaire

The aim of the questionnaire (appendix 1) is to compare what is indicated on paper and the real situation on the ground. The questionnaire targets the individual documents listed above. This means that specific questions were formulated based on the Forest Act, the agriculture Act, proposed Land use policy etc. This was administered to the staff of the relevant departments and civil society at district level. In general, the questionnaire targeted the various respondents presented in table 5.4.

Although the table envisioned target groups to be interviewed, respondent driven method was applied to include any omissions that had been identified in the course of the survey as being very important to biodiversity conservation in Kakamega.

Table 5.4 Target for the expert opinion questionnaire

	Target group	**Condition**
1.	Public sector employees	In the relevant organization outlined in table 5.1
2.	Civil society	Working in the forest or within the research area
3.	Research/academic organizations	In case any is involved in forest or buffer management
4.	Political representatives	Local area councillors and the member of parliament (if available), considering the political nature of formal institutions.

Source: Author

ii. Focus group discussion

The aim of a group discussion is to bring the particular informants together with the aim of reconciling their various views and as a deliberative moment for the way forward and clarification on any issues noted so far. Although the operations of the departments or organizations represented has been on sectoral basis, it is in the view of this study that collective action into the future is the best option for biodiversity conservation. However, the relevance of this opinion needed to be assessed on the ground. The level of success of such a move would only be affirmed or rejected by those already in the system. This was the agenda of the group discussion, which proved very vital in this dimension.

A policy or institutional analysis focusing only on the experts or implementers as identified above would have been incomplete until a survey on those whom the policies are targeted had been accomplished i.e. the community. This was the only way of accessing the level of success of the various institutions by measuring their level of compliance and appreciation by the community members. The process of undertaking the same is here below presented under the heading ñinformal institutionsò.

5.5.2 Informal institutions

This was in form of focus group discussions. Considering the different aspects that needed to be captured, the expert opinion and community focus group questionnaires (appendix 3) were phrased differently, though dealing with the same fields outlined in figure 5.1. This is because to policy administrators or experts, formal institutions are the governmental statements that they are expected to convert into action. Community members on the other hand, though familiar with their beliefs, taboos, etc. may not be as conversant with the formal institutions. They interpret policies or formal institutions as the actions of these administrators who represent the government. They may not be aware whether any documented formal institutions exist or not, but they know that they are supposed to pay a fee to graze in the forest or they are not at all allowed in the forest. To a researcher, this is what may amount to policy in some community interviews. Community members judge the actions of these public officers as being fair or unfair depending on the communityôs social set-up and a general respect for human values. To capture the two notions therefore, the phrasing of the questionnaires needs to consider the two dimensions.

The same definition of informal institutions given in section 3.1.2 upholds. Informal constraints are the unwritten rules that govern everyday human behaviour in economic and social exchange. Cultural norms, social conventions, morals, etiquette, traditions, and taboos are all social constraints, which stem from belief systems. Compliance with social constraints is by convention and not through legal channels. Because social constraints stem from belief systems, they tend to differ considerably from society to society. This supports the case study and sampling approaches undertaken in this research.

- *The Target*

As indicated, this block of the survey targeted community members. The selection was undertaken according to the following criteria,

Table 5.5 Selection criteria for community interviews

	Criteria	**Condition**
1.	Age	Both the young and the old in equal numbers
2.	Gender	Both male and female in equal numbers
3.	Religion	At least a member from each of the major religions here
4.	Proximity to the forest	Immediate forest neighbours
5.	Membership to various organizations that deal with forest management (forest committees, CBOs, NGOs)	Members to any identified groups and non-members too
6.	Education level	Illiterate and literate (to local standards)

Source: Author

The various conditions indicate the level of interaction to different institutions or policies by different people. For example, on historical aspects, older people gave a longer time extension of events while the young related more comprehensively to the

recent changes, especially those that were politically triggered. The literate had less affiliation to social constraints than the illiterate.

5.5.3 Compliance

The level of compliance and the reasons for or against the same can best be investigated hand in hand under both formal and informal institutions. This was a final-product of the two. However questions pointing directly towards compliance were included in the two questionnaires. This was also detected and evaluated during the focus group discussions.

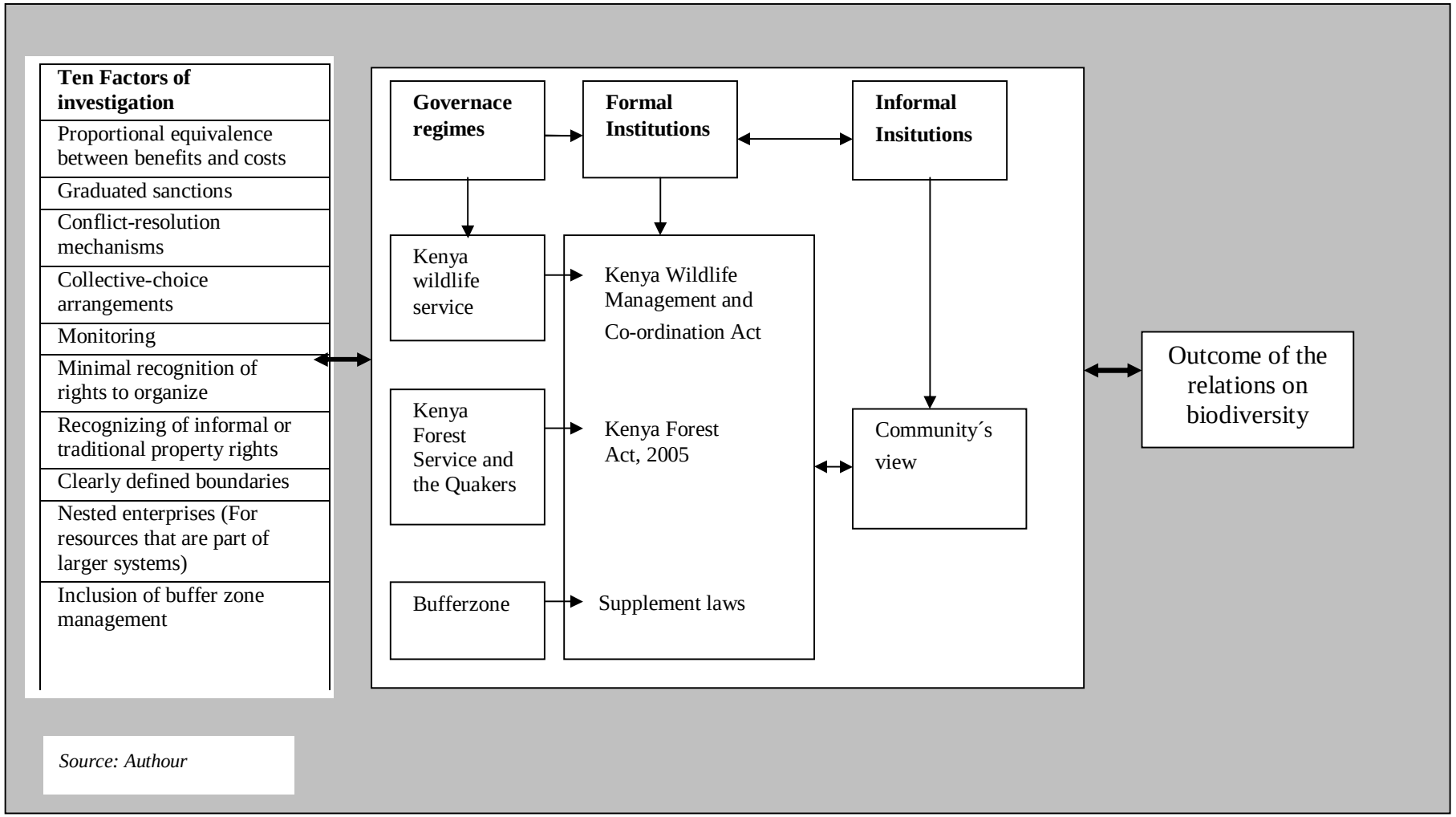
5.6 Data Analysis and presentation

As discussed in the preceding sub-chapters on methodology, both qualitative and quantitative data was collected for this policy research. Policy research has a number of characteristics that were applied here. These are that,

i. Data is collected systematically
ii. Interpreted systematically
iii. There is a clear purpose of what to find out
iv. The process is usually multi-disciplinary (KIPPRA 2005:20)

For factors i and ii, data systemisation started at the stage of literature review where the various factors to be investigated on were identified (figure 5.3). Once identified at the literature review stage, the same factors were systematically investigated in reference to

Figure 5.2 Conceptual framework



Kakamega Forest. Data interpretation followed the same policy framework making the whole data collection and interpretation quite systematic. This led to the third factor as enumerated above in which case the issues to be investigated were identified quite early in the research process. As a result, categorising the data at the analysis stage was not necessary since this had already been taken care of from the data collection stage as follows,

I. Development of data categories

This was done by applying the already identified institutions to be investigated. These were identified as both formal and informal institutions (Figure5.3). Formal institutions reflected the formal laws and regulations for biodiversity conservation in Kenya while the informal ones were reflected by community perspective of the various issues.

II. Allocating units of general data to appropriate categories

Once the data was categorised, it was then possible to fit all the data collected in the ten categories already identified. All the documentary policy papers to be investigated were passed through the said framework. This harmonised the data into well-elaborated stratifications that were easy to compare and contrast.

III. Recognizing relationships within and between categories

From the stratified data, it was possible to point out relationships between the various categories. In the whole process, policy matrices were used to conceptualise the data, refine the conceptualised data and finally cluster concepts to form analytical categories. Quantitative categories were translated into quantitative presentation modes such as graphs, pie charts that are presented in the following chapters 6, 7 and 8 to give weight to the qualitative policy analysis undertaken.

Data presentation

The analysed data is presented in a progressive order based on the following research questions.

i. What are the current formal and informal property institutions governing biodiversity in Kakamega Forest?
ii. How well have they been implemented and complied with?
iii. What is the way forward for sustainable management of biodiversity in Kakamega Forest?

The aim is to finally meet the study objective, which is to propose some viable institutional measures necessary for building institutional incentives and disincentives for better governance of biodiversity in Kakamega Forest. Both qualitative and quantitative methods are applied as need be.

Chapters 5,6 and 7 identify the institutions governing biodiversity in Kakamega Forest thus dealing with the first research questions as presented above. The chapters further present the analysis undertaken in this stage evaluating the success of the institutional implementation and compliance on biodiversity conservation. In these three chapters, formal and informal institutional results are presented in a comparable manner juxtaposed against one another. This now brings us to the third question on the way forward, which is covered in detail in chapters 9 and 10. Chapter 11 concludes the study and recommends emerging field of interest for further study.

6 Policy challenges in Kakamega Forest; The Forest Act 2005

The Forest Act 2005 applies to all forests and woodlands on state, local authority and private land (Section 2). Kakamega Forest falls under the state forests category. As earlier noted, the forest falls under the jurisdiction of two state administrative arms. These are the Kenya Forest Service (KFS) and the Kenya Wildlife Service (KWS). The Kenya Forest Service (KFS), whose mandate is defined by the Forest Act 2005, governs the southern part of the forest made up of the main block referred to as Kakamega or Isecheno, 14,440 hectares, Bunyala which is 825 hectares and Malava which is 718 hectares. The very southern tip of the forest is defined as a private forest according to the Forest Act 2005, Section 2. The Friends Church, Kaimosi, manages it. Like the state forests and Local Authority forests, the administration of private forests is legally placed under the Forest Act 2005. The Quakers are said to have governed the southern tip of the Forest since 1901 (Field interview). When the missionaries arrived in kakamega Forest in 1901, they hived off part of the forest and aligned to the church. The status quo was upheld at colonialism, independence and remains the same to date. The forest affairs of the Quakers are directly placed under the Forest Service, whose role in this part of the forest is more supervisory than active management. Guided by the Forest Act 2005, the Kenya Forest Service and the Quakers regimes are relatively the same. Further reference to the Forest Act or Service in this study captures the two regimes unless otherwise stated.

The Northern part of the forest falls under the Kenya Wildlife Service (KWS) whose mandate is stipulated by The Wildlife (Conservation and Management) Act Cap 376. The various administrative arms pursue different policies thus relating differently to the communities adjacent to their areas of jurisdiction. Differing policy results thus emerge. This marks the beginning of the many policy challenges in the governance of Kakamega Forest.

In the Kenya Forest Service zone, this study concentrated on Shamiloli and Kaimosi villages. Kaimosi village in the area administered by the friendsô church also falls under the mandate of the Forest Act 2005, thus the Kenya Forest Service. The mode of governance is relatively the same and forest conditions reflective of one another. In both Shamiloli and Kaimosi village; and all other villages adjacent to the Kenya Forest Serviceô area of jurisdiction, community members are allowed to extract various forest products as stipulated in the Forest Act 2005, Section 47(2)(a-k) that states,

> ***ñ****the management agreement between the director and the* (forest) *association shall confer on the association all or any of the following forest user rights -*
>
> *Collection of medicinal herbs, honey, timber and fuel wood, grass harvesting and grazing, forest produce for community based industries, ecotourism and recreation activities, scientific and education activities, plantation establishment through non-resident cultivation, silvicultural operations, community wood and non-wood forest based industries and other benefits that may be agreed on* ***---ò***

This aligns to the Kenya Forest Service mandate, which is to utilize forest resources for socio-economic development of the country as highlighted by the director of Kenya Forest Service, D.K.Mbugua (Standard newspaper real estate magazine dated 4th-7th October 2007).

On the other hand, in Buyangu village that is adjacent to the Kenya Wildlife Service forest zone, extraction of forest products is not allowed. Nonetheless, eco-tourism activities are allowed. Consequently, the community members adjacent to the Kenya Wildlife Service forest zone relate differently to the forest in comparison to those neighbouring the Forest Service area of administration.

Critically assessing the two administrative arms, it is evident that they create a sense of inequity, may it be real or imagined. ñ*Real***ò** in the sense that the people in Shamiloli and Kaimosi villages have on average four to five cows since they can graze in the forest at a fee. In Buyangu village on the other hand, they can on average afford to zero graze one to two cows since feeding them is not easy. They have no rights to the forest, so they argue. The inequity created is also ñ*imagined***ò** in the sense that the living standards of the people in Shamiloli, Kaimosi and Buyangu villages are relatively the same. Buyangu village, having send-off the forest dependence syndrome is even better off in the sense that the residents here have planted a lot of woodlots on their farms. They are now relatively more self-sufficient in firewood and building materials. The forest section adjacent to them and governed by the Kenya Wildlife Service is much better protected thus harbouring more biodiversity making it a naturalistôs preference. Although there are other social, economic, political and environmental advantages and disadvantages associated with either of the systems as discussed further below, it is evident that lack of a harmonious administrative system is a challenge to the governance of Kakamega Forest.

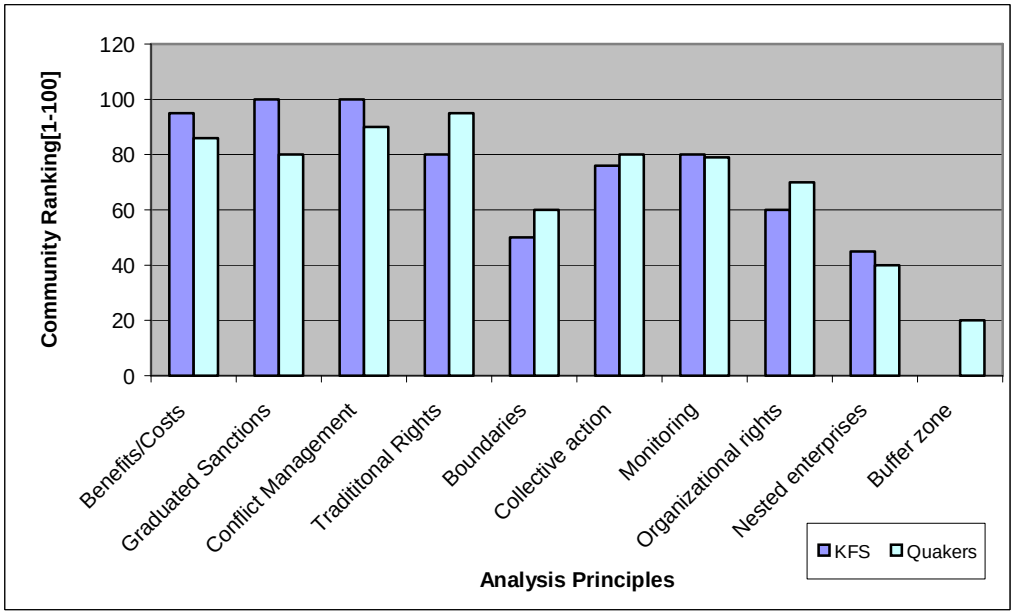
In sub-chapter 2.4 of this study, the effects of having the buffer zone and the core zone, (in this case the forest), under different authorities are discussed at length. How much more would the challenges be, if the administration of core zone is shared between different authorities; and the buffer zone too is under a different administrative arm as is the case with Kakamega Forest? This explains the high levels of dissatisfaction and competition amongst the stakeholders. The incentives given are not considered attractive whereas the disincentives are interpreted as being too harsh. Consequently, enforcement of, and compliance to the set standards, laws and regulations is a challenge to both the administrative arms and community respectively. The varying administrative policies in Kakamega Forest should however not be wholly viewed from a negative perspective. They give room for a comparative analysis, which at the end of the day, gives a choice as to which of the policies are better tailored for what purpose. Moreover, apart from the various administrative arms in Kakamega Forest, other challenges are evident.

The criterion set in this study for measuring the effectiveness of the various laws and regulations is presented box 2.1. A glance at figure 6.1 gives us the ten principles in order of preference as ranked by the community in Shamiloli and Kaimosi villages. On doing a theoretical evaluation of the ten principles in table 2.2 in reference to the Kumaon forests in India and the Parks and Peoples Project in Nepalese Terai, these factors were confirmed very vital in the governance of biodiversity. Why then are they revisited here? This is because having theoretically confirmed in chapter two that these factors are vital policy issues, it becomes necessary to practically evaluate them in Kakamega Forest. This is with the aim of evaluating the policy weight given to each factor and the effects on biodiversity. The interviews with the community and the administrators proved the factors as being extremely vital for biodiversity conservation, though on varying magnitudes. Moreover, they are all addressed in the various laws and regulations dealing with biodiversity conservation in Kenya. In this chapter, we evaluate the ten principles with reference to the Forest Act 2005. This begins with the ranking of these factors in order of preference by the community members in Shamiloli village.

6.1 Ranking of the institutional principles

These ranking is according to a focus group discussion held in Shamiloli and Kaimosi villages. The aim of the discussions was to get some insights on the interpretation of the forest policies by the community members. At length, the discussions focused on the issues that the community would like to have addressed in order to improve on the management of the forest and more so, on their relationship with the forest officers. The first step was to list down the issues directly as presented by the community. The next involved fitting all the issues in the ten categories already identified by the study (box 2.1) as being of vital policy issues for biodiversity conservation. Incidentally, all the issues fitted well into the ten categories thus streamlining the policy matrix for the policy analysis in the study. The third step was to rank the ten categories in order of preference by the community. These are the results now presented in figure 6.1.

Figure 6.1 Prioritisation of the institutional principles in Shamiloli and Kaimosi villages



Source: Field interviews

i. Proportional equivalence between benefits and costs
ii. Collective choice arrangements
iii. Conflict resolution mechanisms
iv. Graduated sanctions
v. Monitoring
vi. Minimal recognition of rights to organize
vii. Nested enterprises (For resources that are part of larger systems)
viii. Buffer zone inclusion
ix. Boundary definition
x. Recognition of traditional or informal institutions

Interpreting the ranking in figure 6.1, the issue of property rights as a major incentive/disincentive to biodiversity conservation again comes up. This has been discussed at length in section 2.3 of this study. According to Schlager and Ostrom (1992), five property rights most relevant to the governance of biodiversity are the right to access, withdrawal, management, exclusion, and alienation. Although the issue of property rights is reflected in all the ten factors, most important to the community are the rights of access and withdrawal, which directly defines the economic benefits from the forest resource reflected in factor one of figure 6.1. Factors two to seven follows shortly defining management, exclusion, and alienation rights. Last in the ranking are the rights that emphasizes on the direct welfare of the forest resource. These are the buffer zone, boundary definition concepts and the need for a nested enterprise system. This is because the concepts are either new or lacking on the ground, for example in the case of buffer zone management, not many understand this concept. There are also less institutional challenges posed by these factors.

Interesting in the ranking is that, ñ*recognition of traditional or informal institutions***ò** identified by the study as being crucial in the governance of Kakamega does not come emerge as strong. The main reason identified for this is that most of the traditional rights and rites related to the forest have been dying slowly since the management of the forest shifted to the government. The only place where this is still taking place is in Kaimosi where the Tiriki sub-group of the Luhya still initiates their sons into adulthood in the forest. For the underlying reasons resulting to the ranking of the other factors, we hereby engage the Forest Act 2005 in relation to each of the ten factors in order of preference as presented in figure 6.1. The first and most crucial policy factor to the community is on, ***ñ****benefits and costs.***ò**

6.1.1 Benefits and costs

At this point in time when forest resources are so strained, the issue of benefits and costs call for policy attention. Kakamega Forest is said not to be self-sufficient as far as costs are concerned. Although it was not possible to access the Kenya Forest Service budget, it was reported that the department has been remitting lesser money to the Service than it receives. Ironically, the benefits derived from the forest in terms of extractive and non-extractive products are reported as enormous. According to a report published by Biota E13, the None Timber Forest Products returns to the adjacent communities are quoted as being economically substantial, 29,000 Kenya Shillings per annum per household (Kiplagat et al 2006). What then brings about the imbalance?

Referring to the Kenya Forest Act 2005 Section 47(2), the benefits that the community is entitled to through a Forest Association are stipulated. These include rights to,

> -- ***ñ****medicinal herbs, honey, timber and fuel wood, grass harvesting and grazing, forest produce for community based industries, eco-tourism and recreation activities, scientific and education activities, plantation establishment through non-resident cultivation, silvicultural operations, community wood and non-wood forest based industries and other benefits that may be agreed on***ò** ---

All these activities are however allowed only under a licence, permit or a management agreement as stipulated in Section 52. Except recreation and eco-tourism activities, all the other benefits listed above entail extraction benefits either directly or indirectly. Considering the physical area of the forest under the Kenya Forest Service, the population pressure around the forest and the forest dependency in this area, it is not clear how all these benefits will be ensured and at the same time ensure that biodiversity

is well conserved. Important to note, however, is the fact that the Forest Act 2005 came into operation in February 2007 and most of its provisions are still in the process of being implemented. At large, the administration of the forest sector in Kenya is in a state of transition from the provisions of the Forest Act Cap 385 to the new Forest Act 2005. The actual effects of the given incentives can therefore not be conclusively evaluated as of now.

Nonetheless, considering that the forest is accessible everyday of the year, then over harvesting is not only due to occur, but has actually occurred in this part of the forest. The issue here is not harvesting per se, but rather the number of harvesters, the amount of products harvested, the mode of harvesting and the control measures in place. The main activities being undertaken by the community include harvesting of medicinal herbs, honey, dead wood for fuel, grass harvesting and grazing. The cost the community bears is through fees and fines. The most common forest uses are collection of deadwood at a cost of Kenya Shillings 8 per bundle, grazing at Kenya Shillings 25 per cow and Kenya Shillings 15 per sheep per month, Honey at Kenya Shillings 1575 per applicant per year. Other products include herbs and grass harvesting (see table 6.1) and appendix 2 for a more detailed schedule of forest royalties 2007-2008.

Table 6.1 Selected data of minor forest royalties, 2007-2008

	Produce	Units	Kenya Shillings per unit
1.	Bamboo	Per piece	35
2.	Firewood	Stacked wood from natural forest, per cubic metre	700
		From exotic hardwood, per cubic metre	500
		From exotic softwood per cubic metre	500
3.	Ordinary sand	Per metric tonne	100
4.	Grass	Per gunny bag of headload of 25 kg.	10
5.	Honey	Per applicant pre annum	1575
6.	Water	For commercial consumption per Litre	5
7.	Grazing	Per animal per month	
		Cattle	25
		Sheep	15
8.	Forest recreational areas	Adults	20 per day
		Child	10 per day
		School parties	5 per day

Source; Kenya Forest Service's forest royalties 2007-2008.

Considering that a five-litre container of honey goes for about 1000 Kenya Shillings and a litre of milk costs 15 Shillings, these prices are relatively fair. A farmer needs only 10 litres of honey to pay a whole year's honey license. He needs only two litres milk to pay a month's cattle grazing fee. However, the community members in Shamiloli termed these fees as being very high, but in reality they are not. However, having been used to traditionally accessing the forest at no fee, the claim may be valid. This is why the main challenge the Forest Service has to contend with is default in paying the set fees. Most of the community members do not comply with paying the set fees. All they want is to harvest forest products as they historically did. But how sustainable is this today?

Compliance to the conditions set for the harvesting of these products is also very low. In case of firewood harvesting, one is not supposed to carry a panga into the forest to avoid cutting live vegetation. However, this is still happening as the case presented in box 6.2 proves. The community members are yet to ñownò the forest and the rules that govern it. They still interpret the forest as belonging to the government. This is set to improve since the new Forest Act 2005, Part IV advocates a lot for community participation. Other benefits sited in Section 47(2) of the Forest Act are yet to be realized. This includes timber harvesting and plantation establishment through non-resident cultivation, for example. This will be possible once the Forest Management Plans (now in progress) and the relevant Forest Associations are in place as provided for in the new Forest Act, Section 46.

The most controversial of the stipulated benefits is the ***ñ****plantation establishment through non-resident cultivation****ò***, Section 47(2)(h). This is a system formerly referred to as the ñShamba systemò. The system involves allowing community members to cultivate and plant food crops on newly planted forest areas. In the process, they tend the tree seedlings to maturity after which they leave the area. The idea behind the system is noble, however, the Ministry of Environment discontinued it in the 1980s due to the abuse it was subjected to. The system was fully commercialised and corrupted by the forest officials and the community. The community in most areas destroyed the seedlings in order to farm longer on the assigned plots. Others went to an extent of selling the plots. Some of the foresters on the other hand were accused of letting out the plots that were to be allocated free in exchange for the services offered in tending the tree seedlings.

In the Forest bill that led to the current Forest Act 2005 for example, the issue of non-resident cultivation, Section (47)(2)(h) was not included. This is because the policy makers were aware of the mess that became of the *Shamba* system in the 1990s. However, the members of parliament declined from approving the bill unless this was provided for. The clause was thus demanded for political reasons. With the elections just around the corner, 27th December 2007, the minister for environment, honourable Mwiraria lifted the government ban on logging and allowed forest cultivation. Kenyans were up on arms against these decisions, but the country was on a high political fever that no one listened. The Daily Nation newspaper commentary for 15th November 2007, for example, urged the government to reverse this destructive decision with a lot of urgency, but the government was too busy campaigning. The only consolation was that the forest officers dismissed this as ñpolitical utterancesò, and since the relevant ministries had given no written authority, political utterances the statements remained. But just how destructive would such utterances be if taken literary?

Political influence in Kenya has been contributing to forest destruction especially shortly before elections. The government in power always uses forest resources to woo voters, laws and regulations not withstanding. With the 2007 election wave came the Pan paper project in Kakamega Forest. Although it is not clear whether this was a political or professional decision, Pan Paper has been assigned some of the opened up forest areas adjacent to Shamiloli village to create a forest plantation. Pan paper is a paper producing company in which the state is a principle shareholder located in Webuye, about 30 km from Kakamega town. With a request not to be named, most of the forest officers interviewed reports the decision as having come from ñaboveò. A decision most of them consider as being confusing having come at a time when the community is being prepared to take up such opportunities as stipulated in the Forest Act 2005. This is an abuse to the provision on non-resident cultivation. Although the community members sometimes benefit through casual labour, they are offended by this

project since they were not consulted. Since the Forest Act 2005 provides for non-resident cultivation, why were they not given the first priority, they ask? As a result, the would be custodians have now turned looters, stealing the seedlings and destroying the same plantation they were paid to plant. During our focus group discussion with the community, the reaction was that stealing tree seedlings is not wrong, for as long as the ñthiefò plants and tenders them in their new locality. Well, this may be subjective, but quite conclusive on the future of the said project.

Back to the preceding discussion on forest benefits, it is clear that only extractive benefits have been dealt with, yet there are many more non-extractive benefits that accrue to biodiversity. Why are they then neglected? This is because they are rarely an issue of discussion with the interviewees whose focus is on income generating activities. Section 41 of the Forest Act 2005 puts a lot of emphasis on these benefits, but direct forest benefits tend to override their importance on the ground. People are interested in short-term benefits. This is so despite the fact that there is some cost that comes with the management of both extractive and none-extractive forest products. Who then bears this cost? The cost the community bears is through fees and fines which is negligible as discussed in the preceding paragraph. Communityôs contribution to the financial cost of managing the forest is negligible amounting to less that 10% (oral interview, Assistant District Forest Officer), of the total budget. This is because they still harbour the feeling that the forest is theirs, so why pay? Where does the money go, they ask? The only cost they identify with is that of paying the guards. But must the guards be there, they ask? The institutional conflict here is open. The communityôs view is different from that of the state. The state is obviously aware of the costs involved and has even set funds purposely for this. Section 14 of the Forest Act provides for, ***ñ****funds of the service****ò***. Section 15 to Section 20 progressively outlines the sources and management of the Kenya Forest Service funds. Incidentally, the Forest Act, Section 19(1)(b) considers, ***ñ****moneys levied upon forest beneficiaries****ò*** as being contributory to the total forest funds. This makes it possible to enforce fees payment, but this is a big challenge due to the high rates of defaulters.

In table 2.2, the policy condition given for making benefits and costs an incentive in biodiversity conservation is to have the,

> ñ*Rules specifying the amount of resource products that a user is allocated relate to local conditions and to rules requiring labour, materials and/or money inputs.****ò***

Has this been met according to the Forest Act 2005? The Forest Act, Section 16 provides that the Forest Service prepare a budget for the next financial year. However, the challenge in Kakamega Forest is in involving the community in setting out the rules on the amount to be harvested against the cost paid. Costs are decided by the forest administration without the community. This makes it difficult for the administration to enforce the payment while the community eludes compliance. In Kenya where the government is the main player in the management of public forests, the community stands no big chance of exclusively managing the forests on their own despite the introduction of Participatory Forest Management.

In Mukogodo Forest Reserve in Kenya, Kagombe et al 2007 reports a lot of progress in community forest management by the Masaai that has had no direct government influence. Traditional governance set-ups are employed by the community in creating incentives and disincentives for proper forest grazing. Ironically, government machinery is now introducing modern Participatory Forest Management mechanisms. The question arising is, what for? If the system is effective and beneficial to the stakeholders, why interfere. This is an elaborative case that apart from community benefits, other

stakeholders are also seeking to share forest benefits, more so because Participatory Forest Management is donor oriented. As a result, there are many hurdles preventing collective action between the community and the government machinery.

6.1.2 Collective-choice arrangements

The Forest Act 2005 provides that forest management be undertaken not only by the forest officers like it was the case with the Forest Act Cap 385, but in partnership with the community, thus opening up to collective action. Part IV of the Forest Act provides for community participation through Community Forest Associations. Each Community Forest Association will prepare its own Management Plan on how it intends to undertake its affairs. This means that the participants will have a chance to make their own rules based on the provisions of the Forest Act 2005. The Act therefore fulfils the institutional condition set by this study which states that,

> *Most individuals affected by harvesting and protection rules are included in the group who can modify these rules.*

However, in Kakamega Forest, the above set up is yet to be achieved. Community members who are the main forest users are yet to be fully integrated in making rules. This is partly due to the fact that the Community Forest Associations, which are the avenues to collective action, are yet to be fully established to undertake their duties. This means that although the Forest Service has started opening up to community participation, the system is yet to be streamlined. The Forest Service and the community have no trust on one another, a fact that the District Forest Officer sites as a hindrance to the implementation of the new Forest Act 2005.

This again revisits the debate on achieving collective action on Common Pool Resources and the tragedy of the commons. In Kakamega Forest, moving from the old protective conservation methods to community participation is a challenge. Although community participation is the worldôs solution to natural resource management, the transition period may take a long period due to the many hurdles experienced. In Kakamega Forest, attainment of collective action in managing the forest calls for a close collaboration of the forest officers and the community; two groups that have been ñrivalsò for a long time. The forest officers have been viewing the community as forest destroyers while the community has been seeing the forest officers as a barrier to their access to forest resources. Bringing them together calls for a lot of sensitisation in order to bridge the institutional gap that has existed for a long time.

In order to initiate collective forest management, the Forest Act 2005 provides that various conditions be met. Section 35 provides for ***ñmanagement of forestsò***. Section 35(1) states that,

> ***ñ****Every state forest, local authority forest and provisional forest shall be managed in accordance with a management plan that complies with the requirements prescribed by rules made under this Act.****ò***

This is the first action towards collective forest management. Once this has been fulfilled, the next step is to register a Community Forest Association (Section 46). Section 46(1) states,

> ***ñ****A member of a forest community may, together with other members or persons resident in the same area, register a Community Forest Association under the Societies Act****ò***

Section 46(2) states,

> *ñAn association registered under subsection (1) may apply to the Director for Permission to participate in the conservation and management of a state forest or local authority forest in accordance with the provisions of this Act.ò*

Once a certificate of registration of a Community Forest Association has been issued and the Management Plan is in place, then a Management agreement is prepared, Section 47(2). The three documents are then presented to the director for approval. According to 46(2), a management agreement between the director and the association shall confer on the association all or any of the stated rights which includes access to,

> -- *ñMedicinal herbs, honey, timber and fuel wood, grass harvesting and grazing, forest produce for community based industries, eco-tourism and recreation activities, scientific and education activities, plantation establishment through non-resident cultivation, silvicultural operations, community wood and non-wood forest based industries and other benefits that may be agreed onò* ---

on condition that none of the activities will compromise biodiversity conservation. In Kakamega, the stakeholders are currently engaged in the preparation of Management Plans and registration of Community Forest Associations. However, various hurdles are already being experienced. The main challenges noted are;

- ï Collecting data for the preparation of the Management Plan is a challenge to the stakeholders whose financial capacity is limited
- ï A lot of community sensitisation is required in order to buy good will that will enable improve on the trust between the two parties. Time factor and resources are a hindrance
- ï The many forest stakeholders need to establish a partnership that will enable them to learn from one another and come to a common understanding on the goal ahead. Their varying perceptions are a challenge to arriving at a common understanding.

Despite the various challenges in the initiation of collective action, the forest administrators and the community are quite optimistic that this partnership is the beginning of improved forest administration. A lot of excitement is in the air with the community viewing the opportunity as an access avenue to quick riches. The forest administrators, though cautious of the effects of the partnership feel that collective action will reduce their burden especially in monitoring since this will be a common task. However the challenges of achieving collective action, which includes free riding, neglect of the common good are evidenced by the forest degradation witnessed in the Kenya Forest Service area of jurisdiction. Can this be turned around through community participation? Chances are low unless duties are really well streamlined without any overlaps that encourage the evils of collective action. This needs to be addressed seriously at the initial implementation stages of the new Forest Act 2005 to avoid adverse effects on biodiversity.

6.1.3 Conflict-resolution mechanisms

The forest Act 2005, Section 63(2), provides that all disputes arising under any of itôs provisions shall be settled by the National Environment Tribunal established under the Environmental Management and Coordination Act 1999, Part XII. Section 63(2) of the Forest Act states,

> *ñThe provisions of the Environmental Management and Coordination Act regarding reference to the Tribunal established under that Act shall apply to the settlement of disputes arising under this Act.ò*

Other than on dispute resolution, this clause sends a message that despite the sectoral laws and regulations on biodiversity conservation, some interaction is evident. The Environmental Management and Coordination Act 1999 which the Forest Act 2005 refers to here is the final resort on the decision on environmental disputes. In case of any conflict with any other law, the Environmental Management and Coordination Act 1999 prevail. However, various challenges on the enforcement of the Environmental Management and Coordination Act 1999 result despite the powers given as discussed in the forthcoming sub-chapter 8.3.

On conflicts, there are no major conflicts reported in the area governed by the Kenya Forest Service in Kakamega. No pending cases were reported with the tribunal as at the duration of data collection for this study. This however does not imply that there is total agreement between the stakeholders on forest management. Institutionally, the communitiesô view of forest management is different from that of the Forest Service. The community demand short-term extractive benefits while the Forest Service policies advocate for a balance between the short-term extractive and the long-term none-extractive forest benefits. This diverse perspective of forest benefits results to a hidden dispute, which is manifested in the lack of compliance to the set formal laws and regulations. For example, payment of the set fees for forest productsô use is partially complied with as discussed in sub-chapter 6.1.1 above. Due to this simmering dispute, a lot of forest offences are committed. The foresters in collaboration with the court handle these.

With the widened mandate to community participation by the new Forest Act 2005, the level of dispute resolution has been devolved to community level. Officials of the Community Forests Associations which are the avenue to community participation or collective action are capacitated to act as mediators between the community and the foresters. In Kakamega Forest, this was reported as an arrangement in place although the MUSHA and other Forest Association are yet to get registered. This is proving to be a cheaper, quicker and fairer way of sorting out the partiesô differences as reported by the community. Users and their officials are now establishing a rapid access to low-cost, local arenas to resolve conflict among users or between users and officials. However, most community members interviewed were already very sceptical of the officials of the Community Forest Associations terming them as corrupt, compromised and government sympathetic. The officials on the other hand feel that community members are expecting too much from the new participatory arrangements, thus their discontent. The evident relieve is that less people are taken to court due to consequential offences, keeping at bay the reportedly harsh court sanctions as discussed in the forthcoming sub-chapter.

6.1.4 Sanctions

The forest Act 2005, Part V, provides for the sanctions that the court may impose for varying types and magnitudes of forest offences. The Act does not provide us with the definition of an ñoffenceò. However, Section 52 of the Act states that,

> ***ñ****Except under a license or permit or a management agreement issued or entered into under this Act, no person shall* ***in*** *a state, local authority or provisional forest****ò***

From this statement, offence number one is accessing the forest without having authority, which is evidenced by a license or a permit. Every other mission one wishes to undertake in the forest without the licence is illegal. This means that the right to

access overrides the rights to withdrawal, management and alienation. The same section 52 of the Act further provides for the activities that should not be undertaken in a forest without a permit; such as,

> ***ñ****(a) Fell, cut, take, burn, injure or remove any forest produce; ----**ò**, (e) de-pasture or allow livestock to be therein, (h) collect any honey or beeswax---**ò***

Just to list a few of the most common offences in Kakamega Forest. Section 50 to 58 of the Act stipulates other offences and the sanctions that should be imposed. For example, for the above quoted offences, one,

> ***ñ****--is liable on conviction to a fine of not less than fifty thousand shillings or to imprisonment for a term of not less than six months, or to both fine and imprisonment.**ò***

According to the Act, all offences are supposed to be handled by the court. There is no room for any other avenue. 100% of the community members interviewed viewed this and other sanctions imposed by the court as being unfairly high. This is so especially because the only alternative to imprisonment is a fine in financial terms, yet they view themselves as being really financially deprived. This may be so, but for a sanction to be meaningful, the offender must feel the pinch. Listen to one of the forest cases, box 6.2.

Box 6.2 Forest offence and conviction

> ñI left my house at around 3.20 pm. sometimes in 2003 to hurriedly pick firewood from the forest and come back since I had a small baby to care for. On my way back, I met the guards who asked me for the receipt, but I had not paid for firewood harvesting. On not producing the receipt, I was not given a chance to defend myself. The forest guards beat me and took me to the Isecheno Forest Station where I was locked up for a day and then taken to Kakamega Police Station the following day. On the third day, I was taken to court, convicted and fined 10 000 shillings or a nine months imprisonment. My brother in-law, Gerald Musundi paid the fine and I was released.ò
>
> *Interviewer: So what do you think about the whole incidence?*
>
> ñIt was very unfair especially because I had a small baby who suffered for the days I was in police cell. Ten thousand is also a lot of money and I would not have afforded if it were not for my brotherò
>
> *Interviewer: What would you have preferred?*
>
> ñTo simply give the guards ñsomething smallò (bribe) and leave the issue at that. I also felt offended that they physically assaulted meò

Source: Field interview

Efforts of getting the official judgement from the court were not fruitful. However, the case portrays a true perspective of the nature of sanctions on the ground. Enforcement by the guards as reported in this case is very militant. The guards and other forest officials however dismissed this as community malice. Concerning illegal forest harvesting, Section 50(1)(c) of the Forest Act provides that the forest officer detains the forest produce, takes details of the offender and summons him to court. Arrest should only be a final resort after the officer has enough reason to believe that the offender will not appear to answer the summons. In the above case then why was the offender arrested? This was unlawful, but the guards feel that the community members are too difficult thus calling for immediate action once arrested. Summoning them will only make them more defiant, the guards argue. Community members report forest guards, as being too harsh whether one is compliant or not.

Ironically, 75% of the forest officials interviewed feel that the court is too lenient to forest offenders. They attribute this to the fact that the court doesnôt identify with the principle of conservation, therefore they do not understand why one should be fined, say 30 000 shillings for cutting a tree. To the court, this is a small offence. It was also the forest officialsô view that most of the prosecutors are not conversant with the Forest Act 2005, thus not making very informed decisions.

The other most offending conviction to the foresters and which seems to be gaining popularity with the court is to have the offenders convicted to several months public service. This to foresters is ridiculous. In one of the reported cases, Florence Mulwa of Shamiloli village was found guilty of harvesting grass, firewood and using a panga in the forest. She was convicted to serve in Shiamakhubu Health Centre for three months. Although the Act does not provide for this as an alternative to imprisonment or fine, the convicted lady and the community really appreciates it. She feels that this is fair for she can serve her family and at the same time serve the sentence. The issue of sanctions is quite controversial. What then would amount to fair sanctions for all parties?

In box 2.1, it was proposed that policies for biodiversity and other Common Pool Resources should provide that,

> ***ñ****Users who violate rules are likely to receive graduated sanctions (depending on the seriousness and context of the offence) from the users, from officials accountable to these or from both****ò***.

The situation in Kakamega Forest diverts from this principle in many ways. For instance, the only avenue imposing sanctions as provided for by the Forest Act 2005 is the court. The court is a superior institution accountable neither to the community nor to the forest officers. The two are currently unsatisfied with court decisions, but their hands are tied by the courtôs supremacy. Although the court imposes graduated sanctions depending on the forest offences committed, none of the concerned parties is satisfied.

In order not to be always on the losing end, the Forest Service officials in Kakamega have now decided to make use of Section 56 that provides for the Forest Officer to prosecute for any offence committed against the Forest Act. This means higher fines on the already complaining community members. Would this in any way reduce the number of forest offenders? It may discourage a few, but most of them will most likely step up their trespassing techniques. On the other hand, the Forest Service is able to instrumentise the law to meet its own goal, what about the community? This amounts to unfairness and more controversy over the nature of sanctions.

According to the interviews undertaken in Kakamega, it is true to say that court decisions are fair in the face of justice, but the community membersô financial status makes the fines seem too high and sometimes unaffordable. Considering the efforts that the officers put in arresting an offender, preparing for the judgment and considering the sentimental value the forester owes to the forest, these sanctions are unfairly low in their eyes. The best way therefore is to have the two parties discuss and decide on how to impose sanctions on forest offenders. According to the community, Kangaroo courts that were provided for by the Forest Act 385 (now repealed) are the way out. Through Kangaroo courts, they could negotiate with the forest officials and get an amicable way of imposing sanctions on minor offenders. Serious offenders such as charcoal burners and game hunters would be taken to court. Although the system was abused, according to the foresters view, it still is the ideal way of levying sanctions that favour both parties. Moreover, MUSHA and other Community Forest Associations are supposed to act as mediators between the community and the Forest Service. They should assume

the mediation role. The Forest Act 2005, Section 46(1) recognizes Community Forest Associations, thus making them legal instruments in forest management. This is happening in the case of MUSHA Forest Association, but at a low note since the association is yet to get fully established. Therefore, in the case of making fair the sanctions, the new Forest Act 2005 offers an amicable solution, but implementation of the same needs to be hastened. In the same vein, the effects of fair sanctions will spill over to ease in monitoring. This is because, like in imposing sanctions, monitoring will be a joint affair between the community and the forest officials as evaluated next.

6.1.5 Monitoring

The Forest Act 2005, Section 46(1) provides that the community undertakes forest management through Community Forest Associations of which monitoring is inclusive. Section 47(1)(d) provides that these associations are mandated with the power to,

> ***ñ****Assist the Service in enforcing the provisions of this Act and any rules and regulations thereto, in particular in relation to illegal harvesting of forest produce****ò***

Section 58 further expands the monitoring mandate to,

> ***ñ****every citizen of Kenya, and any person who is ordinarily resident in Kenya, who has reason to believe that the provisions of this Act have been, are being, or are about to be violated, may petition to high court---****ò***

The duty of monitoring activities in the forest therefore falls under every Kenyan resident who feels obliged to protect our forests. However direct responsibility lies with the foresters and the Community Forest Associations. This fully fulfils the institutional condition set by this study (box 2.1) that,

> ñ*Monitors, who actively audit physical conditions and user behavior, are at least partially accountable to the users and/or are users themselves.****ò***

According to the Forest Act 2005, the monitors are the users themselves or The Forest Associations that are accountable to the users themselves. However, in Kakamega Forest, the formation of Community Forest Associations is still at the very initial stages. In an effort to involve the community in monitoring, the Forest Service has hired some of the community youths as forest scouts. The scouts work with the forest guards in monitoring the forest. But still, illegal harvesting is quite extensive. This is to some extent because the community is not playing its role in monitoring. They still do not *own* the evolving policies that widen their mandate in forest management. Instead, the community members monitor the guards to make sure that the offenders are not arrested. This makes enforcement of the set rules very challenging. The relationship between the guards and the community is very strained putting each of them at a combative mood against the other.

The issue of monitoring is well provided for in the Forest Act 2005, but the problem still lies in the implementation of the set standards. The solution sited by at least 60% of the interviewees is to hasten in registering and capacitating the Community Forest Associations to be able to play their management roles. In the case of MUSHA, the community has already lost faith in it and blames the officials of corruption. The MUSHA officials on the other had defend themselves with the claim that because the association is still not fully operational they are not in a position to buy goodwill from the community. This, they feel, will also delegate some organizational rights to the

community making them responsible for the failures and successes of the new Participatory Forest Management policies. But as we stand, poor monitoring strategies have contributed to the degradation of this part of the forest.

6.1.6 Minimal recognition of rights to organize

The Forest Act 2005, Part IV provides for community participation in forest management through Community Forest associations. To qualify, the association has to apply to the director of the Forest Service for approval in undertaking various activities in the forest as stipulated in the management plan, Section 47(2). The association may device itôs own institutions, but they have to be approved by the director of the service. In essence, the community is not really independent. Section 47 of the Act provides for the conditions that may cause the director to terminate the management agreement with the community altogether. This means that the community is not guaranteed long-term tenure rights. For the right of users to create practical incentives and disincentives in forest management, the studyôs milestone is to have,

> *ñThe rights of users to devise their own institutions not being challenged by external governmental authorities and for users have long-term tenure rights to the resource.ò*(Box 2.1)

This is not the provision of the Forest Act 2005. There is still a lot of control on the activities that the community wishes to undertake in the forest. Community members still access the forest only on paying the set fees. The Community Forest Associations discussed here are still very young and in the process of being registered. The management plan for Kakamega Forest as provided for in Section 35 is still in progress. This means that the process may take a while before it takes off. But even on taking off, is it really possible to achieve the above institutional condition? According to the forest officers, this will take time. They still feel that the community is not capable of fully managing the forest. The Service still needs to undertake a strong supervisory rule. These precautionary measures are necessary, but it all depends on how participatory they are. It also depends on how the governance system is organized. Will it be bottom-up or top-down approach? This is issue of our next discussion, *nested enterprises.*

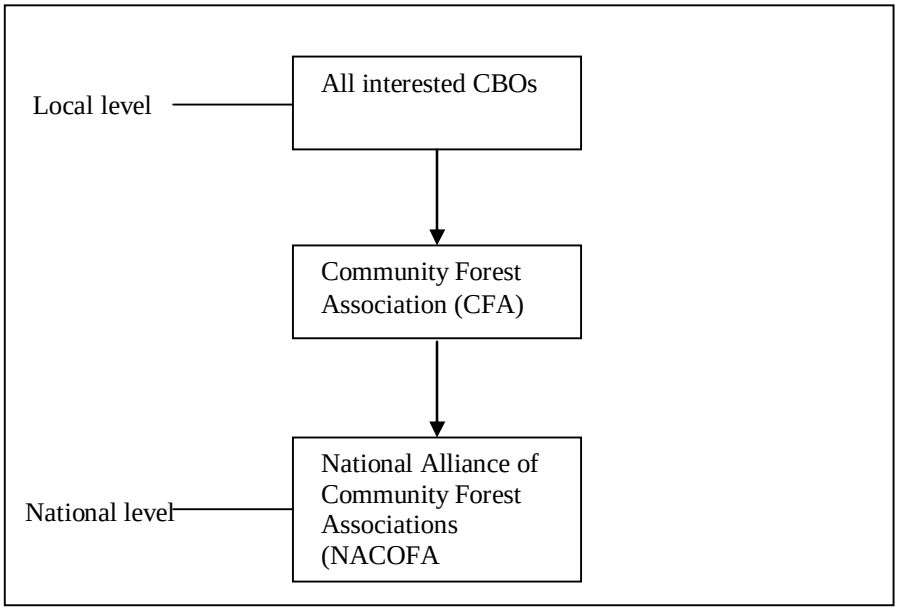
6.1.7 Nested enterprises

In reference to Ostrom 1990:90, proper nesting of an enterprise ensures that,

> *ñAppropriation, provision, monitoring, enforcement, conflict resolution and governance activities are organized in multiple layers of nested enterprises.ò*

The Forest Act 2005 provides for the community and the Forest Service as the immediate stakeholders in forest management. Community Forest Associations operate at an ecosystem level and are represented by the National Alliance of Community Forest Associations (NACOFA) at national level. The system is well nested from the local Community Forest Associations level to the national level. At a glance, Figure 6.2 reflects the system.

Figure 6.2 The role of Community Based Organizations in Community Forest Associations



Source: NACOFA:2007

The aim of the National Alliance of Community Forest Associations (NACOFA) is to collectively support Community Forest Associations in addressing sustainable management and utilization of forest resources in Kenya (NACOFA brochure).

The Kenya Forest Service on the other hand is a parastatal established by section 4(1) of the Forest Act. It is a body corporate with offices from local ecosystem level to national level. At the local level, it is represented by forest stations, which report to the District Forest Office and then to the national headquarters in Nairobi.

In Kakamega Forest, the issue of organizational set-up was not reported as being controversial. Each level of governance respects the mandate given to every other level of governance. The fact that there are no major institutional challenges however does not imply that the system is clear of any hurdles. Administratively, a lot of power is still withheld up in the ladder according to the policy implementers. Ironically, the Forest Act 2005 still lays a lot of administrative power in the hands of the director, yet advocating for Participatory Forest Management. The reason given is that the community members are still not fully prepared to undertake forest management on their own. This is true considering the previous protective forest policies that fully alienated the community. However, a more bottom-up approach is called for.

Nonetheless, unlike the Forest Act 385, now repealed, the Forest Act 2005 partially devolves more crucial forest management powers to the local level. This includes the foresaid powers of appropriation, provision, monitoring, enforcement, conflict resolution and governance activities. Higher offices are mainly mandated with a supervisory role. Institutionally therefore, nested forest management is provided for. The effectiveness will however depend on how well implementation is undertaken. A lot of attention also needs to paid not only on vertical enterprising within a certain sector, but also on horizontal enterprising between the various sectors and stakeholders involved. Horizontally, the issue of forest-buffer zone interaction in Kakamega is undisputedly crucial. This will to some extent determine the kind of incentives and

disincentives created thus determining how well the process is owned by the stakeholders.

6.1.8 Buffer zone management

The Forest Act 2005 does not explicitly provide for the definition or management of forest buffer zones. Implicitly however, the Act provides for the involvement of the adjacent forest communities in forest management (Part iv), not in buffer zone management. The legal status of the buffer zone is not well spelt out despite the Forest Act 2005 having been enacted at a time when buffer zone management is so crucial and highly emphasized on. Borrowing from international conventions on environment to which Kenya is a party (Section 61), none has explicitly dealt with buffer zones, yet in practice, buffer zones are often applied as tools to implement those conventions (Arthur and Greve (2000:17). The Convention on Biological Diversity (CBD) of 1992 does not explicitly mention buffer zones either, but implicitly, some chapters are relevant to buffer zone management e.g. Article 8 deals with in-situ conservation and the role of indigenous people in biodiversity conservation. On the other hand, Convention 107 of the International Labour Organization recognizes the rights of tribal and indigenous people to ownership of their traditional lands. In this regard, biodiversity conservation and respect for traditional land use rights and legal instruments are considered as being complimentary in nature. Referring to section 2.4 of this study, the challenges that arise due to lack of comprehensive institutionalisation of buffer zones are well discussed. Some can be clearly witnessed in Kakamega Forest.

Supplementing the Forest Act 2005, however, is the Environmental Management and Co-ordination Act 1999, Section 51(c). The Act provides that the National Environmental Management Authority (NEMA), shall in consultation with other lead agencies provide measures adequate for the conservation of biological resources in-situ by giving guidelines for -

ñ*(c) Selection and management of buffer zones near protected areas****ò***

On the ground, the buffer zone has not been physically curved out. The Kenya Forest Service defines a forest user as anyone residing 5km along the forest radius (oral interview Assistant District Forest Officer). This in actual terms is the buffer zone to the forest area governed by the Forest Service. In this region, the Forest Service holds sensitization meetings with community on how well to conserve the forest. This is done in collaboration with other stakeholders such as the Kenya Wildlife Service, the Ministry of Water, and agriculture among others. This is also the area targeted by the Participatory Forest Management concept. The community members here are encouraged to plant trees and other products normally harvested from the forest on their farms in order to avoid too much forest dependency. Unfortunately, no legal instruments are on the ground obliging the community members to do so, and most of them see no point planting, for example woodlots, when there is so much of wood in the forest. The forest and the agricultural officers have to keep calling meetings, but they have no powers to enforce what they are advocating for. This is aggravated by the type of land tenure in the buffer zone.

The land tenure here is predominantly freehold. Land policies governing land in Kenya encourage freehold land to be treated as absolute ownership. No institutional instruments are on the ground to enforce proper use or introduce new technologies on such land. As a farmer, it is to ones discretion to do as the government officers advise or simply ignore. This has adversely affected biodiversity. A farmer will prefer growing

crops rather than putting aside a portion of his farm for a woodlot. On the other hand, the average land sizes are relatively small, approximately one acre per household. This makes it difficult to reserve a portion for long-term benefits such as a woodlot. However, the main problem in Kakamega is the conservative attitude and predominant state of institutional inertia that is evident here (oral interview, District Agricultural Officer, Vihiga District). In Shamiloli village, the community is wholly dependant on the forest. Most of them have not fully acknowledged new ideas of conserving the forest such as agro-forestry. To them, Kakamega Forest is an infinite resource. As a result, the impacts of forest dependency are evidenced by the rather degraded state of the forest on the Kenya Forest Service area of jurisdiction.

The Forest Act 2005, Part IV provides for the involvement of the adjacent forest communities in forest management, but not in buffer zone management. This has diverted the attention of the community members from their own land to the forest. They donôt see their land as an integral part of forest conservation. This makes it not easy for the forest officers to monitor the great number of forest users. Enforcing the Act remains a challenge, and compliance is yet to be adopted as a culture.

In Kakamega, the buffer is interpreted as being 5km outside the forest (District Agricultural Officer, Vihiga District). In the context of Biota Project under which this study has been undertaken, PLUP (Participatory Land Use Planning) is encouraged as a viable approach to biodiversity conservation. Participatory Land Use Planning combines people and nature together as its core, thus the buffer zone and the ecosystem respectively. To undertake various activities on the buffer zone is possible. However, since no legal framework is in place, then most of the activities undertaken here are not harmonious. The numbers of actors in the buffer zone are many. We have individual community members, Kenya Forest Service, Kenya Wildlife Service, such Ministries as Agriculture and Water, Friends Church, and multiple Community Based Organizations. (For a supplement study undertaken on Community Based Organizations in Shamiloli village, please see appendix 3). The activities undertaken by these actors are conservation or livelihood oriented. There is a very thin line between the two classes of activities; instead, they supplement one another. However, each actorôs policies define there bias.

In the case of the Kenya Wildlife Service, the focus is more conservation-oriented as per the Wildlife Act 376. The forest is protected with limited access as discussed in the forthcoming chapter 7. Community Based Organizations bias is more livelihood oriented with such activities as merry-go-rounds and contributions to the community immediate needs such as contribution to burials and other social activities. Conservation-oriented activities such as the establishment of tree nurseries are common but not major. This points towards the motive of informal institutions, to secure a livelihood. The Ministry of Agriculture has its mandate wholly on the buffer zone, which is predominantly agricultural. Such activities as silk farming in Ikolomani and other areas have been introduced with the aim of improving the communityôs livelihood. Such activities in return make the community less forest dependant thus playing a conservation role. The Forest Service on the other hand is quite participatory in itôs approach to forest management. Due to the provision by the new Forest Act 2005 that the community get participated, The Kenya Forest Service has a double role; conserving the forest and at the same time improving the communityôs living standards. Towards this goal, Forest Management Plans need to be prepared with a focus to both the forestôs and the communityôs welfare. This will play a role in coordinating the various independent activities already in the buffer zone. Such avenues create a leeway

to the management of the buffer zone since no independent legal provision is available. This does not, however diminish the urgency to legally cover the buffer zone.

Meanwhile, the various stakeholders need to come together as provided for by The Environmental Management and Co-ordination Act 1999, Section 51(c), and map out the buffer zone to Kakamega Forest. Referring to chapter 2.4 of this study on ñ*institutional focus for biodiversity conservation*ò, joint planning and implementation, shared policy objectives, co-ordination in procedures, and modifying legal procedures, laws and by-laws will be key issues here. Other factors key to buffer zone creation are population pressure, size of the area, quality and quantity of biodiversity, cultural situation, social organisation and way of life, legislation and economic development. In deciding on the best policy option, it is also crucial to examine the economic opportunities and hurdles, the existing legal context and the condition of the conservation area itself, (IUCN 1998 quoted in Arthur and Greve 2000:13). These are interesting driving variables for policies on biodiversity conservation. The details of their effects and future influences on biodiversity conservation policies in Kenya are the subject of chapter 10 of this study. Meanwhile, a look at the policy provision on boundaries to forest ecosystems in Kenya.

6.1.9 Boundaries

The two most crucial boundaries for consideration by biodiversity interested policy makers and implementers are the physical and the user-boundaries.

i. Physical boundaries

Currently, the issue of physical boundaries in Kakamega Forest is not controversial. However, historically, there are policy related cases that have been reported as having affected law enforcement and compliance. One of them is the establishment of Nyayo Tea Zone. Nyayo Tea Zone is a stretch of a tea plantation hived off from Kakamega Forest. This was a political initiative meant to create a buffer protecting the forest from community interference. It is also said to have been a good excuse to harvest the Elgon teak trees that were in plenty here. Economic and political forces therefore pulled weight to ignore the obvious adverse ecological effects that resulted. Although no consultation was done with the community here, the plantation is appreciated as source of employment. It has also prevented the forest from having too many access routes especially for cattle. However, the long-term adverse effects of having lost a big stretch of forest cover may be immeasurable.

An interview with the assistant District Forest Officer revealed that encroachment on forestland is no longer a problem having aligned the boundaries in the year 2006. The only people living in the forest are in Chilobani village, which is right in the forest. These people have historically resided here and are not considered a threat to the forest. With the current government, the forest boundaries are quite stable and this has acted as an incentive to biodiversity conservation. This is why in the ranking (figure 6.1), boundaries hold number 9 out of the total 10. The physical boundary issue is considered settled unlike in the past.

There is also a paradigm shift due to devaluation. Looking at the Forest Act 2005, which is relatively new, having commenced on the 2nd of February 2007, more of the Ministerôs powers have been devolved. Referring to Section 28(1&2) of the Forest Act 2005, any variation of boundaries of state forests shall be undertaken only when;

> ***ñ****--- the proposal is recommended by the Forest Service --- and is subsequently approved by a resolution of parliament.****ò***

For the Forest Service to recommend such a proposal, it has to observe various conditions. Section 2(a-d) provides that the forest conservation committee for the area has to be consulted and is satisfied that the move does not endanger;

> ***ñ****(bi) ---any threatened or endangered species, (bii) ---catchment area, (biii) --- biodiversity conservation****ò****,* and that, *(c) --- an independent Environmental Impact assessment,* and, *(d) public consultation ---****ò*** *has been satisfactorily undertaken.*

If all these conditions are enforced, then abuse of forestland using boundaries as a tool will no longer be easily possible. This is because the above conditions call for a lot of scientific research and public consultation, making them less vulnerable to manipulation due to the large number of stakeholders involved. This will in turn create trust between the community members and the government. Consequently, law enforcement and compliance will be enhanced since those adjacent the to the forest will see it as a more permanent asset. The Kenya Wildlife and Conservation Act Cap376 is currently under review and this is one area of concern that needs to be addressed accordingly. The issue of changing boundaries should not be an exclusive decision of the minister, but rather, a participatory process as provided for in the new Forest Act 2005.

The other issue that goes hand in hand with the forest boundary is the issue of fencing. As a researcher, it looks prudent to have the forest fenced. After all this would make monitoring easy. However, none of the community members or the officials interviewed found it necessary. They all felt that with the new move of community participation (Sections 46-49), fencing is not necessary. This would mean alienating the same community to whose forest resource rights are being reinstated. The physical boundary of Kakamega Forest is therefore relatively well defined. Concern is on user boundaries.

ii. User boundaries

Due to the high population and forest dependence in the neighbourhood of Kakamega Forest, defining who has what rights to the forest becomes very important. According to the Forest Act 2005, Section 47(2)(a-k), the community has the rights to,

> ***ñ****--medicinal herbs, honey, timber and fuel wood, grass harvesting and grazing, forest produce for community based industries, ecotourism and recreation activities, scientific and education activities, plantation establishment through non-resident cultivation, silvicultural operations, community wood and non-wood forest based industries and other benefits that may be agreed on ---****ò***

This guarantees the rights of access and withdrawal. However, there are conditions set on who can access these rights. Part (iv), Section 46 of the forest Act 2005 on *community participation provides* that,

> ***ñ****A member of a forest community may, together with other members resident in the same area, register a Community Forest Association (CFA) under the Societies Act****ò***

Section 46(2) further provides that once the association has been registered, then the members can apply to the director of forestry to participate in the conservation and management of a state or local authority forest in accordance to the provisions of the Act. This guarantees those community members who are members of a Community Forest Association the rights to management, withdrawal, exclusion and alienation. The user boundaries according to the Forest Act 2005 are set around a Community Forest Association.

With the enactment of the new Forest Act 2005, community members adjacent to the forest have been given the legal mandate to be participated in forest management. This is not new for the Kenya Forest Service whose Forest Act Cap 385 (now repealed) also allowed the community controlled access to harvest dead wood, grass, herbal plants and even graze in the forest, though at a fee. What is new, however, is that the new Forest Act 2005 gives the community the power to be involved in the management of the forest resources. To operationalise this provision, the Act has established the Kenya Forest Service (Section 4), which is a body corporate. The Kenya Forest Service came into force on 1st February 2007. Until then, it was a referred to as the Kenya Forest Department. Making it a service has given it autonomous administrative powers unlike before. It can now source for funds and make decisions on how to disburse them internally. This may encourage more professionalism or even corruption as the case may be. However, more progress was reported by the Forest Officials while the community felt that nothing had really changed much. This is a relatively self-cleansing measure by the two parties, but to an outsider, the poor state of the forest did not give much optimism.

Community Based Organizations are now an integral part of forest management. In the case study, Shamiloli village, two Community Based Organizations in the form of Village Environmental Conservation Committees for Musembe and Shamiloli villages came together to form one Community Forest Association referred to as MUSHA. MUSHA and the Forest Service are expected to work as partners.

Box 6.1 The MUSHA Forest Association

This is a Community Forest Association for Musembe and Shamiloli villages. It was formed by merging the Musembe and Shamiloli Village Environmental Conservation Committees in the year 2006. It is in the process of being registered, but having been formed through the initiative of the Kenya Forest Service, it is officially recognized by the government. To be a member of MUSHA, a community member is expected to pay Kenya Shillings 50 as registration fee and a refundable Kenya Shillings 20 on monthly basis. It is on paying this fee that one is legally recognized as a forest user as provided for in the Forest Act 2005, Section 46. The aim of MUSHA is to assist the Kenya Forest Service conserve the forest as partners with the community and define the forest user boundary.

Source: Field interviews

Using MUSHA as a sample case, the system, opens an avenue for the Community Based Organizations adjacent to the forest to be an integral team player in forest management. Through MUSHA Community Forest Association, members can air their views to Kenya Forest Service and also share ideas. If well implemented, the system looks ideal. However, according to the old Forest Act Cap 385 (now repealed), community members were allowed to access the forest as individuals. The new Forest Act 2005 demands that one has to be a member of the Community Forest Association to be recognized as a forest user. What about those who may not afford the registration fee? In the case of MUSHA, a portion of the most vulnerable may be excluded from accessing the forest since they cannot afford or are ignorant of paying the registration fee. Practically, they will still access the forest, though *illegally*. This will distort the defined user boundary as per the forest Act 2005.

Although the 2005 provides clearly on who is legally defined as a forest user, implementing this provision is a big challenge. For example, many community members admit to free riding. 60 % of the interviewees admitted to having accessed the

forest without having paid the necessary fees. Harvesting of un-allowed forest products such as charcoal and live wood was also witnessed. Twelve of the eighteen boda-boda youths (bicycle-taxi operators) interviewed admitted to setting game traps in the forest for meat despite all these activities having been prohibited in section 52 of the forest Act 2005; except under a licence, permit or a management agreement. This means that the forest user boundary is not as well defined on the ground as it is on paper. This makes it not possible to fairly account for the number of forest users. This information would be necessary to the policy makers in order make informed decisions. The Kenya Forest Office for example did not have even a rough figure of the forest users in itôs area of jurisdiction. This is because even the fee paid is not a guide to the number of users since many more people access the forest illegally. Without the right information, how then is the office expected to make informed decisions?

This brings us back to the debate of the *tragedy of the commons* discussed in section 2.3.1 of this study. How well can the user boundary of a Common Pool Resource be defined? The Forest Act 2005 approach is commendable, but implementing the rules of access, withdrawal, management and alienation is evidently a challenge. In section 28 (2) of the Act, the service commits itself to biodiversity conservation, section 46 (e), 41(1) and 47(1) inter alia, touches on biodiversity conservation. However, this has not been achieved on the ground. Although biodiversity conservation policies also need to consider the adjacent communitiesô livelihood, the latter has taken the better part of the forest under the Kenya Forest Service. This is due to over harvesting of forest products thus compromising on biodiversity conservation and other non-extractive uses.

In conclusion, it is evident that the physical and administrative boundaries in Kakamega Forest are well defined and not contentious. However, user boundaries are yet to be as well defined as the Forest Act 2005 stipulates. This may be due to the fact that the Act is still at the initial stages of implementation. However such other factors such as the big number of users have been identified as being contributory. MUSHA forest Association for example reports an approximate number of 27 000 forest users. This includes the indirect harvesters who may not go to forest but whose products they consume. According to the 1999 population census, the average population per sq. km. was 433 people. The Kenya Forest Service considers a forest user to be within 5km from the forest border. This means that a horizontal 5sq. km stretch will accommodate about 2165 forest users. Although it was not possible to establish the wall perimeter of the forest to arrive at an approximate figure of the total users on the Kenya Forest Service area of jurisdiction, the number is relatively high. As a policy analyst, it goes against all policy formulation principles to have the Forest Act 2005 only recently reviewed, yet such important data as the approximate number of forest users missing. Is the Kenyan policy making process really informed by concrete empirical research? If it were, such essential data would be available.

The issue of user boundary is a very controversial issue in Kakamega. Although the issue of resource boundary is ranked 9 out of 10 in order of preference in figure 6.1, the Forest Officials sees it as carrying with it very many avenues for creating incentives and disincentives for biodiversity conservation. This is because all the other issues discussed here such as dispute resolution, sanctions, monitoring are all pegged on who is entitled to what rights in the forest. The interpretation of the community may have been defensive. They felt that everybody had a right to access the forest unconditionally. This may be misleading to a policy analyst, who, if informed by this notion, would end up giving too little attention to *user boundary definition.* The low preference given to this issue by the community should, to a policy maker, point towards a situation whereby an open access situation may be created by having everybody access a resource. A lot of

weight is therefore called for in regard to defining rules for user boundary. Economic forces and short-term benefits are compromising on ecological and cultural forces in regard to the forest. Cultural because the peopleôs traditions have been overcome by economic needs making them less important. This may be the reason why recognition of traditional rights comes last in this preference ranking.

6.10 Recognition of informal or traditional property rights

The Forest Act 2005, Section 22 provides for recognition of customary rights. This states that nothing in relation to the Act should prevent a forest community member from using,

> ***ñ****Such forest products as it has been the custom of that community to take from such forest otherwise than for the purpose of sale****ò***

This is subject to the prescribed conditions. In section 24(c) and 26(2)(a)(iii), the Act provides for the creation of local authority forests and declaration of provisional forests on areas that may be of cultural or scientific value. In section 33, a forest community or person has the right to apply for the conservation of a grove or any forest, which is part of a nature reserve,

> ***ñ****--for cultural, religious educational ,scientific or other reasons---****ò****,***

Section 46 provides that all indigenous forests be managed sustainably for the purposes of cultural use and heritage, among other uses. In section 47(1)(b), a Community Forest Association shall be approved by the director on formulating and implementing forest programmes consistent with the traditional forest user rights of the community, among other conditions.

In Kakamega Forest, there was no violation of these provisions reported. Such traditional right as land rights, rights of access and withdrawal are being respected. The Forest Service through the provisions of the Act has also given management and alienation rights through Community Forest Associations, which are at the initial stages of being operational, section 47(2). In one of the instances, there is a village by name Chilobani located right at the heart of the forest. This village is said to have been there for over a 100 years (interview with the village elder) and no move has been taken to revoke their property rights. The community still harvests honey, dead wood, thatch and fruits though at a fee.

Unfortunately, most of the traditional rituals that used to be carried out in the forest have been dying slowly. This was attributed to many people having been converted to Christianity that discourages such rituals. The community loss of forest access rights for a long time has also hastened the death of these rituals. The only Luhya sub-group now known for carrying out initiation rights in the forest are the Tiriki who live around Kaimosi to the South of the forest. During our focus group discussion, this was sited as one of the factors that make the community destroy the forest since it is no longer considered sacred. Traditionally, the sacred nature of the forest made everyone adhere to the set rules and regulations.

Formerly, this may also be attributed to the slow pace at which resource institutions have been changing to accommodate the local realities. The Forest Act Cap 385 that has now been repealed to give way for the Forest Act 2005 has been in force since 1942, incredible. For a long time, Kenya has been implementing the old colonial laws, which did not identify with the peoples culture. This has played a role in killing our culture. Regrettably, such legal instruments such as the Forest Act 2005 seek to protect such cultures, but they are long dead. Culture that could have gone a long way in protecting

the forest, such as sacredness of the forest cannot be revived, to the detriment of biodiversity. This is so for most of Africa as discussed in chapter 4 of this study. This is a lesson to us that culture is dynamic and formal institutions should be changed at such a pace that they accommodate cultural changes. However, once subjected to institutional shocks such as sudden implanted institutions that have no local identity, culture will suffer a slow death that will later be regretted. I could not very comprehensively interpret the Luhya sayings; but in my tribe, the Kikuyu, we have a saying that goes;

ñRurigi ruri nja rutiagaga giakuohaò

meaning that an idle string in the homestead may look useless now, but not for long. Therefore, although most of the cultural practices around Kakamega Forest have waned away with time, some of the traces may be useful in future and should be protected. For example, most people still use firewood for cooking. This is destructive culture for it has negative effects on the forest. But why wasnôt it as destructive in the past? The people still attribute this to culture. In the past, most households prepared meals in large quantities that could be eaten for at least two days. Today, eating habits have changed such that almost every household prepares two meals in a day demanding for more firewood. Secondly, today, most households use aluminium pots to cook. These are not as energy saving as the olden clay pots. Well, change is good for it makes us adapt to new challenges. However, we have now reached a point where our forests are so strained such that borrowing some of the good practices from our history is commendable. For example, there is a campaign on energy saving Jikos (cookers) in Kakamega, but we have forgotten the olden energy saving pots. They may be fragile but technology today can help us make them hardy, for example through reinforcing them with fibre.

Considering that this aspect of ñ*traditional rights*ò was ranked last in the communityôs order of preference shows just how unimportant it is to most people. But as policy makers, a few insights into culture would guide us in conserving not only Kakamega Forest, but also other forests whose institutional set up is comparable. In this chapter, section 6.1, we have sited the case of Mukogodo Forest in Kenya whose conservation has been attributed to the culture of the Masaai resident here. This is an example of the lucky face of culture that needs to be preserved.

Overview

Underlining *governance* and *biodiversity* as the base for this study, this chapter has at length dealt with the Forest Act 2005, which goes a long way in integrating the community. This enriches it with all the qualities of a Common Pool Resource. However, does the Act fulfill the desired qualities of governing biodiversity? The best way to govern forest biodiversity would be to leave the forest un-interfered with, and allow nature to take its course. However, in a country like Kenya where biodiversity is a source of livelihood, this sounds far fetched, and it really is. In the process of balancing biodiversity conservation and livelihoods, the former seem to be compromised. Although the Forest Act 2005 goes a long way in ensuring the ten principles (figure 6.1) are observed, biodiversity conservation is at threat in its area of jurisdiction. On the other hand, poverty levels are still high which means that neither conservation nor poverty alleviation goal has fully been achieved. Various possible reasons have been discussed in this chapter ranging from partial accomplishment of the expectations of the ten principles to political, social and economic reasons. On the other hand, the Forest Act 2005 may be defended as being too new to be judged, but it still encourages a lot of

extractive forest harvesting just like the repealed Forest Act Cap 385, the main deviation being that the new Act advocates for community participation. Considering the destruction that Kenyan forest were subjected to politically under the Forest Act Cap 385, will the small-degraded forest area left, and now being given back to the community, whose population has really grown, make a difference in their lives? Will biodiversity conservation still be a real goal? A lot is yet to be seen, but none of these has been achieved in the area of Kakamega Forest under the Forest Act 2005.

From a methodological point of view, the policy analysis framework for this study has proved quite useful to the analysis of this particular Act. It may therefore not be too early to conclude that these are crucial principles that a policy maker ought to seriously consider in formulating policies for the governance of biodiversity. However, although Ostrom 1990:90 gives us the 8 principles of which this study adds two more (figure 6.1), achieving the standards given in Kenya is not a foreseeable task. This is because all the principles have one denominator in common in that the community or ecosystem users are self-governing with unlimited powers over a resource. In Kenya, the government of the day has had these powers since colonial Era and still remains the superior player. As a result not much compliance to the set rules and regulations is witnessed since not all the stakeholders own these institutions. This has resulted to most of the challenges related to collective theory, which includes free riding, lack of trust e.t.c, as discussed in chapter 2.3.2 of this study. The tragedy of the commons also discussed in chapter 2.3.1 is quite evident. Instead, the system in Kakamega Forest highly deviates from the group theory, which argues that all members of a group will work together towards a common good. Evidently, individual goals seem to prevail.

In the forthcoming chapter, the The Wildlife (Conservation and Management) Act, Cap 376 and other practical experiences (not included in the Act which has already been overtaken by events) is evaluated by applying the same policy analysis framework as the Forest Act 2005. The Wildlife (Conservation and Management) Act, Cap 376 takes a different dimension in that it does not allow extractive forest harvesting, instead, it encourages non-extractive forest benefits and community participation is minimal. How well the Act fits into the policy analysis matrix or framework defined for this study and how effective it is in governing biodiversity in comparison to the Forest Act Cap 2005 is a reading worth interest.

7 Challenges related to the Wildlife (Conservation and Management) Act, Chapter 376

The Wildlife (Conservation and Management) Act, Cap 376 is applicable to National Parks, National reserves and local sanctuaries as provided for in sections 6, 18, and 19 of the Act. The Act though in force now, is at the very final stages of being reviewed. The wildlife bill that is supposed to give way to another Wildlife Act is awaiting parliamentary approval. Most of the provisions of the Wildlife (Conservation and Management) Act, Cap 376 are no longer a reality on the ground. For example, hunting which is provided for in part IV of the Act is no longer being practiced. This is what we have discussed earlier in the methodology chapter 5.3, that ñin some instances, policy may just be a formal recognition of practical experiences of implementing agencies and their interaction with other stakeholdersò. In this case all the stakeholders are aware of what ought to be done and what ought not be done in this section of the forest. As a researcher, it would be misleading to sit and analyse the Act page by page without having been to the ground. Although some of the Acts provisions are still in force, only a ground survey could help in sorting out what is and what is not relevant. Despite the fact that this study narrowly missed the new Act, analysing the current Wildlife (Conservation and Management) Act, Cap 376 of 1977 (reviewed 1985) gives us a chance to compare a relatively old Act in comparison to the quite new Forest Act Cap 2005. On the Other hand, the effects we are about to witness in the forest are as a result of this Act and not the new one.

The area of Kakamega Forest under the Kenya Wildlife Service extends to 44.2 square kilometres. The village case study used for institutional analysis is Buyangu village, which is adjacent to the forest. The Kenya Wildlife Service area of jurisdiction in Kakamega Forest is a national reserve. As provided for in the Forest Act 2005 Section 32(1), the minister may, on recommendation by the Forest Service, declare an area with,

> ***ñ**--- a particular environmental, cultural, scientific or other special significance, to be a nature reserve for the purpose of preserving its biodiversity and natural amenities thereof.**ò***

Section 32(3) further stipulates,

> ***ñ**No cutting, grazing, removal of forest produce, hunting or fishing, shall be allowed in a nature reserve except with the permission of the Director granted in consultation with other conservation agencies, which permission shall only be given with the object of facilitating research.**ò***

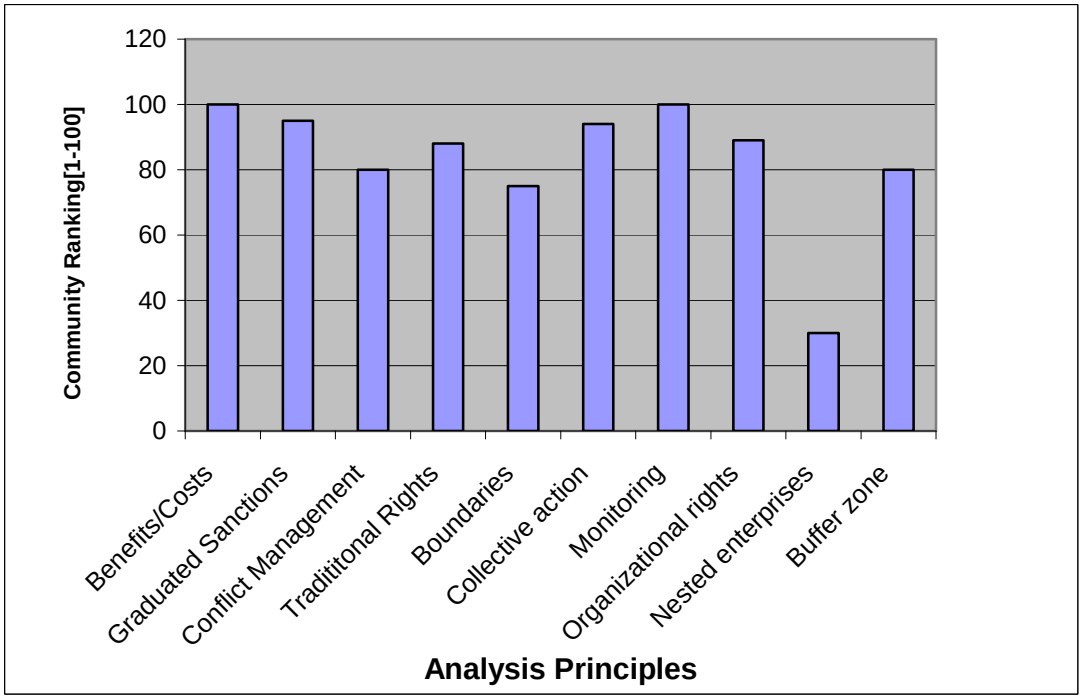
This statement therefore guides the management of the natural reserve section of Kakamega Forest. No direct harvesting is allowed and the management approach is quite protective. Incidentally, the Wildlife Act Cap 376 does not as clearly stipulate the approach for the management of a nature reserve, as does the Forest Act 2005, yet the mandate of managing nature reserves falls under the Kenya Wildlife Service. This is expected considering that the Act was last reviewed in 1985, thus lagging behind such new policy concepts in biodiversity conservation. This supports the debate on the need for informed ñinstitutional changesò covered in chapter three of this study. Formal institutions that are subject to policy influence need to be changed at a pace that reflects new developments in a society. Otherwise, failure to this will render the institutions outdated like is the case with the Wildlife Act Cap 376 today.

As noted earlier, the Wildlife (Conservation and Management) Act, Cap 376 is evaluated by applying the same policy analysis framework as the Forest Act 2005. In the same tune, an institutional ranking was undertaken with the community members in order to define which of the principles are most and least crucial to them.

7.1 Ranking of the institutional principles

Figure 7.1 indicates how the community members in Buyangu village ranked the key institutional principles.

Figure 7.1 Community prioritisation of the Institutional principles in Buyangu village



Source: Field data

i. Proportional equivalence between benefits and costs
ii. Conflict resolution mechanisms
iii. Collective choice arrangements
iv. Graduated sanctions
v. Monitoring
vi. Minimal recognition of rights to organize
vii. Nested enterprises (For resources that are part of larger systems)
viii. Buffer zone inclusion
ix. Boundary definition
x. Recognition of traditional rights

The first thing that captures the eye in this ranking is the close resemblance to the ranking on the Forest Act 2005 covered in figure 6.1. This means that community preferences in a comparable institutional environment will also relatively resemble. The only variation in this case is that the ranking of conflict resolution mechanisms and collective choice arrangements inter change positions. The policy stand on *conflict*

resolution mechanisms is more important to the community neighbouring the Kenya Wildlife Service than it in Shamiloli and Kaimosi villages that neighbour the Forest Service. On the other hand, *collective choice arrangements* as a policy principle assumes more importance to the community in Shamiloli village than in Buyangu village. All the other factors take constant positions. What reasons would one give for this trend? One, due to the semi-protective policies of the Kenya Wildlife Service, the natural reserve harbours a bigger number of animals. This includes wild pigs, monkeys that destroy farm crops. This causes human-wildlife conflicts to be quite common in this area unlike on the area governed by the Kenya Forest Service. This makes conflict resolution in Buyangu and other villages neighbouring the reserve a very crucial policy issue. Reasons accruing to the positions taken by the other policy principles are here below evaluated.

7.1.1 Proportional equivalence between benefits and costs

All the financial costs of running the Kakamega national reserve lies with the Kenya Wildlife Service. According to the Warden in Kakamega, the natural reserve is far from being self-sustaining. The warden reports the cost of running the reserve as being approximately ten fold itôs income. Community members are not involved in the management of the reserve thus no voluntary income is fetched from the adjacent communities in form of fees. However, involuntarily, the offenders are subjected to fines through court decisions. Unfortunately, these fines are not remitted directly to the Kenya Wild Service at local level. Instead, this is government income remitted directly to the treasury, defying the essence of decentralisation.

The other cost the community has to bear with is the destruction of crops at no compensation. Although section 62 of the Wildlife Act, Cap 376 provides for compensation for personal injury, death or loss of property, this is no longer forthcoming. The Service only compensates for loss of life at Kenya Shillings 200 000 and up to 50 000 for injuries. Since 1990, compensation to loss of property such as crops and livestock was stopped. The foresters report that the process was abused by having the damage on property over-valued thus meeting many exaggerated claims of loss of property. This has seriously aggrieved the community thus calling for an instant solution to the constant annual loss of crops to wildlife. The solution, according to the community is to have the position on compensation for loss of property reinstated.

On benefits, the Wildlife Service benefits by charging a fee for accessing the reserve area and for any other tourism activity that takes place here. As already stated, there is no community harvesting taking place in this area, however, thatch and grass harvesting is allowed on request, albeit seldom. Endorsing the The Wildlife Act 376, Section 32(3) of the Forest Act 2005 categorically stipulates that,

> ***ñNo cutting, grazing, removal of forest produce, hunting or fishing, shall be allowed in a nature reserve except with the permission of the Director granted in consultation with other conservation agencies, which permission shall only be given with the object of facilitating research.ò***

This means that the community members adjacent to the reserve cannot freely benefit from harvesting of forest products.

The other benefit is through tour guiding activities. There is a youth group referred to as KAFOGA (Kakamega Forest Guide Association). Some young men in the adjacent villages are allowed to guide tourists in the forest at a pay given directly to them. This means that the forest benefits quite a selective group but not the community as a whole. However, the community members enjoy other none use benefits such as security. Since

the gate leading to the reserve doubles up as the entrance to Buyangu village and is always manned, the villagers report extra security. They also inevitably benefit and appreciate the clean air and the beautiful environment that is envious to many, but this is not a priority in their lives. They want tangible benefits that go towards the improvement of their livelihoods.

They would like to see more people employed in the forest and share the proceeds of the forest reserve with the Wildlife Service. This was a sentiment highly sited by the community members. On direct benefits, the issue of grazing and harvesting of dead wood came up but in a reserved way. 70% of the focus group participants felt that as long as the forest proceeds are shared with the community, then the issue of harvesting is not necessary. But as of now, the policies of the Kenya Wildlife Service are too protective, they claim.

But how does this set-up relate to the standard policy rules set for this study? Concerning benefits and costs, the standard is that,

> *ñRules specifying the amount of resource products that a user is allocated are related to local conditions and to rules requiring labour, materials and/or money inputs.ò*

This is exactly what the community is asking for, to benefit from the proceeds of the reserve. Ironically, the users are limited to either tourists or researchers and only to a very limited extent do the community come in (just for thatch once in a while). Compared to the Forest Act 2005 where defining benefits and costs is now a tedious community-government affair, the wildlife Act has this issue quite streamlined. It is *either /or*, no room for discussion. The Wildlife Service has the entire mandate over the forest reserve. It decides on whom the users are, rules on labour, material and/or money inputs posing the question whether this is any longer a Common Pool Resource? Once protected, does an ecosystem qualify to be treated as a Common Pool Resource any more? Well, the nature reserve is indisputably well protected despite the fact that it does not in any way respect the studyôs set principle. On the contrary, the area covered by the Forest Act 2005 that respects these principles has all the signs of serious, almost destructive human interference. So, are these principles really beneficial to conserving biodiversity or are they fully livelihood oriented?

7.1.2 Conflict resolution mechanisms

The common conflict in Kakamega national reserve is human-wildlife conflict. For this and other conflicts, the Wildlife Act 376, Section 62(2) provides for the establishment of a District Committee to look into compensation issues. The committee consists of various public district and divisional heads, and most important in Section 62(2)(g),

> *ñThree other members appointed by the minister to represent the general public districtò*

But whether the community is involved in selecting the three is overlooked by the Act. The community reports no involvement at all. In case one is aggrieved by the decision of the committee, section 65 of the wildlife Act provides for an Appeal tribunal. In this tribunal, the general public provision conspicuous in Section 62 is missing. This makes the tribunal less representative. At the local village level, there are no avenues for dispute resolution. This means that any community member with a case to present to the committee will do it at district level. There are also no community forest oriented groups that may informally be consulted. The community remains on the receiving end while all the power is institutionally conferred on the Kenya Wildlife Service. This

position again diverts from our set institutional principle in relation to the forest that, ñusers and their officials have rapid access to low-cost, local arenas to resolve conflict among users or between users and officialsò. In this case, the party affected by human-wildlife conflicts is the community, yet the Act does not consider them as users. In their institutional wish list, the community wants a community committee formed to represent them in the management of the forest. The forest, according to them, remains a common property. But the Wildlife Act, though not explicitly stated, treats the forest as belonging to the Kenya Wildlife Service, which is an administrative arm of the government. This is effective in biodiversity conservation although missing in livelihood orientation.

7.1.3 Collective choice arrangements

Practically, neither the Act nor experiences on the ground provides for collective action between the Wildlife Service and the community. In Part II of wildlife Act, Cap 376, administration affairs of the nature reserve is a duty of the Kenya Wildlife Service.

However, most of the Wildlife officers interviewed referred me to the new Wildlife Act, now in the pipeline. The new Act will open up to community participation. ***ñEven in the formulation processò***, the Kenya Wildlife Service officers report, ñ*the community members have been consulted for their viewsò*. In the stakeholders meeting held on 11th December 2006 in Kisumu to deliberate on the review of the wildlife Act Cap 376, community members were involved. This is relative, since the community claim not to even be aware of the review of the Act. In the new Act, the studyôs policy principle in relation to collective action will hopefully be met. If it is, then, ñ*Most individuals affected by harvesting and protection rules,ò* will be ***ñ****included in the group who can modify these rules.ò* But as of now, community members demand to have the rights they had before the forest area was declared a national reserve in 1985. The Wildlife officers also feel that some involvement is necessary as long as it is not abused. The challenges of implementing rules in a communal way, they admit, are complex and must be appreciated. Once the Act opens up to the community, the administrative challenges will move to higher levels. In this case the manner of levying sanctions will be crucial.

7.1.4 Graduated sanctions

Section 50 of the Wildlife Act Cap 376 provides that,

> ***ñ****Any person arrested under section 49 shall forthwith be taken before a court to be dealt with according to lawò*

The Wildlife Act 376, Section 49 provides for the offences that amount to a forest offence thus calling for arrest. The whole of the Wildlife Act 376:33-38, Part VI on ñenforcementò, which includes sections 49-57, stipulates what the Wildlife Act Cap 376 considers an offence. It also stipulates what an authorized officer of the Service is expected to do in reference to various offences. Of interest is The Wildlife Act 376, Section 54 and 56. Section 54 puts the duty of prosecution on public prosecutors unless the warden is authorized by the Attorney General to do so. Section 56 on the other hand provides for the sanctions or ñgeneral penaltiesò accruing. Section 56(1)(a) for example provides that,

> ***ñ****If the offence is committed in respect to a protected animal, ---, one will be liable to a fine not exceeding forty thousands shillings or to an imprisonment for a term not exceeding ten years or both****ò***

All the Wildlife officers interviewed felt that the court is usually very lenient on wildlife offenders. They report that the Wildlife Act 376 does not provide for the minimum charges against each offence, instead, it only indicates the higher limit. By choice or due to ignorance of the court, penalties are mostly imposed to lowest end possible. This is attributed to the court not really seeing the magnitude of the offence. For example, killing a monkey or cutting one tree in a forest of a million trees is to the court not that detrimental. But to the Wildlife officer who has an unavoidable sentimental value to the animal or plant, this is a big crime. Secondly the efforts he puts to monitor, arrest, prepare the charges and get an offender to court makes him feel that the matter calls for for heavier sanctions. On the other hand, the community members say that the court penalties are incredibly high considering that their income is quite low. Take this case for example, box 7.1,

Box 7.1 Court decision on forest offender

Bernard Musisi of Buyangu village, was arrested for cutting a tree in the forest. He was taken to Kakamega police station, stayed for one day and then presented to court. He was convicted and fined 500 shillings or three months imprisonment. He paid the fine and left

Source: field interviews

ñThis is an insult of the lawò, the forest officers disgustedly confess. But to the community, this is how laws ought to be implemented, in a fair manner. According to Section 56(d) of the wildlife Act, for such an offence whose penalty is not directly provided for by the Act, the offender should be liable to,

> ***ñ****--- a fine not exceeding two thousands shillings or to imprisonment for a term not exceeding six months or both****ò***

In this case, the court has settled at exactly half the stipulated penalties. Can it really be considered unfair? Subjectively, this is fair. In an effort to level the ground for what it considers fair sanctions, Wildlife Service recommends that the court prosecutors undergo sensitization programmes on environmental issues such that they are able to weigh environmental offences with the weight they deserve. Alternatively, Wildlife officers should be given prosecution powers. However, other stakeholders feel that the status quo should hold. The independence the court holds is necessary in making unbiased decisions. Secondly, if the officers are given prosecution powers, they are most likely to go too far to the upper limit provided for by the law making forest cases take too long to be resolved. This would also congest the prisons further because if the people cannot pay penalties, the option is to be jailed. Although this may discourage would be offenders, it will not lead to a win-win situation. To uphold the neutrality, the court should keep the prosecution powers.

However, if the new Wildlife Act is to participate the community like it has been widely claimed, then it is justified that there be a local dispute resolution mechanism between the community and the officials. The system should make sure that, ***ñ****Users who violate rules are likely to receive graduated sanctions (depending on the seriousness and context of the offence) from the users, from officials accountable to these or from both.****ò*** In such a system, both the wildlife officials and the community will amicably decide on the sanctions. This will create a win-win situation in imposing

sanctions to forest offenders. This however does not imply that monitoring should stop. This will still be necessary in order to keep off defaulters.

7.1.5 Monitoring

According to the (Wildlife Conservation and Management) Act, Cap 376, Part II on ñadministrationò, Kenya Wildlife Service is given the mandate of administering the provisions of this Act. In Section 3(2), the Director of the Service has the,

ñ*General superintendence of all matters within the province of this Act****ò***,

However, Section 5 of the Wildlife Act 376 provides that the director may delegate or assign any of his functions under this Act to any officer of the Wildlife Service, any officer of the Forest Service and the Fisheries Department or to any public officer approved by the Minister.

Turning to Part VI of the Wildlife Act 376 on ñenforcementò, any authorized officer is given the mandate to interrogate and arrest any person, of whom he has reasonable grounds to believe that he has,

ñ*--- Committed an offence under this Act---****ñ***

An authorized officer under to Section 2 of the Wildlife Act 376 means an officer of the Kenya Wildlife Service, a forest officer, a police officer or an administrative police. These are the provisions of the Act concerning monitoring. In Kakamega Forest the provisions apply. The Kenya Wildlife Service guards are in charge of patrolling the forest in order to keep off would be offender and arrest any offenders. The Kenya Wildlife Service and Kenya Forest Service guards undertake joint patrols from time to time. All other ñauthorized officersò have the powers to stop any act that goes against the provisions of this Act. For example, a police officer at a roadblock has the powers to stop anyone transporting forest products for interrogation and even arrest in case he feels that that there is need for further investigation.

But who are the most probable offenders? These are mainly the community members who live to the edge of the forest. The guards have actually managed to keep the community off the national reserve by persistently enforcing the protective policies that the Wildlife Act Cap 376 advocates for. This has seen the number of wild animals in this area increase, thus taking the human-wildlife conflicts to higher levels. The community reports more destruction of crops from the monkeys and the wild pigs at no compensation. The number of wild snakes has gone up making monitoring even easier since not many people will dare the forest. Significantly, the reserve is a hub of biodiversity in Kakamega Forest. The forest is beautiful and really well kept with no much human interference. So, is it really necessary that,***ò*** *Monitors, who actively audit physical conditions and user behaviour, are at least partially accountable to the users and/or are users themselves?****ò*** This is the studyôs policy principle in monitoring Common Pool Resources (figure 7.1). This does not in any way reflect what is happening in the nature reserve. However, all the challenges of managing a Common Pool Resource are kept at bay. There is no free riding and chances of the tragedy of the commons arising in the reserve are minimal. Property rights to the reserve are treated as privately belonging to the government. This is what has rendered the study principle stated above invalid. In this case, we are dealing with a private property, thus the institutional principles for Common Pool Resources are proving irrelevant.

In this chapter seven, ñMonitoringò is the fifth policy principle being analysed, as reflected in figure 7.1. From the first principle discussed in chapter 7.1.1 to the current

7.1.5, none has fitted into the situation of the governance of the nature reserve. The Kenya Wildlife (Conservation and Management) Act Cap 376 does not in any way adhere to the policy standards set in this study for the governance of biodiversity. Incidentary, results are positive with the Forest Act 2005 (chapter 6), where the users are the community members thus bearing a lot of Common Pool Resource characteristics. With the Wildlife (Conservation and Management) and Act, Cap 376, the results are so far negative. As a researcher, this is worrying. It leaves one wondering whether the methodology was at all right. And if it was, why are the results so valid and diverse? Well, it may still be too early to discard the methodology. A look at the organizational rights given to the users may break the trend.

7.1.6 Minimal recognition of rights to organize

According to the Wildlife (Conservation and Management) Act, Cap 376, users to a nature reserve are researchers and tourists. In defining a nature reserve, the Forest Act 2005, Section 32(1), provides that the minister may, on recommendation by the Forest Service, declare an area with,

> ***ñ****--- a particular environmental, cultural, scientific or other special significance, to be a nature reserve for the purpose of preserving its biodiversity and natural amenities thereof.****ò***

Section 32(3) furthers stipulates,

> ***ñ****No cutting, grazing, removal of forest produce, hunting or fishing, shall be allowed in a nature reserve except with the permission of the Director granted in consultation with other conservation agencies, which permission shall only be given with the object of facilitating research.****ò***

This statement therefore guides the management of the nature reserve section of Kakamega Forest. The Wildlife (Conservation and Management) Act, Cap 376 does not recognize the community members as users. Therefore, no organizational rights are conferred on the community. Nonetheless, communityôs stand remain the same; that a community representative body need to be considered in creating a bridge between them and the Kenya Wildlife Service. The community still considers the forest to be a Common Pool Resource. In principle, Common Pool Resource policies should confer, ***ñ****the rights of users to devise their own institutions which are not challenged by external governmental authorities, and users have a long-term tenure rights to the resource****ò***, The Wildlife (Conservation and Management) Act, Cap 376 falls short of this. It gives no room for community participation. This is a challenge that needs to be addressed in the current review of the Wildlife Act, Cap 376. It is well understood that the protective policies so far advocated for may not be overhauled at once. However, gradual restitution of the long lost resource tenure rights to the community is of policy concern.

The rights, as earlier emphasized, should not entail direct harvesting of forest products in the nature reserve. Considering the small area of the nature reserve, 44.2 sq. km. versus the high population density of approximately 493 persons per sq. km in Buyangu village (1999 population census), harvesting of forest products will most probably be detrimental to biodiversity. Instead, an avenue needs to be created where the proceeds that are fetched from the nature reserve benefit the community in a transparent manner. This is reported by the Kenya Wildlife Service as being in progress. The Service has for example issued a plot to build Buyangu primary school of which it has been instrumental in maintaining. However, the project is not highly appreciated by the community. They feel that the money fetched from the nature reserve is enough to

do much more for them. This is relative because Kakamega Forest is reported by the Kenya Forest Service and the Kenya Wildlife Service headquarters as being a financial liability. It is not a well-established tourist destination and fees charged on the beneficiaries are minimal. Unfortunately, this information is not shared with the community; thus the wrong notion of the income fetched from the forest. Therefore conferring some organizational rights on the community will be an incentive in building trust, thus improving relations amongst the stakeholders. Improved relations will enhance biodiversity conservation especially if both vertical and horizontal relations are enhanced. Vertical within a certain sector and horizontal across all involved sectors as discussed next on, ñnested enterprisesò.

7.1.7 Nested enterprises

As discussed in chapter 7.1.5 above, the Wildlife (Conservation and Management) Act, Cap 376, Part II confers all administrative powers of the Act on Kenya Wildlife Service. In Section 3(2), the Director of the Service has the,

ñ*General superintendence of all matters within the province of this Act****ò***,

However, Section 5 of the Wildlife Act 376 provides that the director may delegate or assign any of his functions under this Act to any officer of the Wildlife Service, any officer of the Forest Service and the Fisheries Department or to any public officer approved by the Minister. This means that the administration of the Act is distributed among various arms of the government. Unfortunately, going by the above provision, the system is heavily top-down. The minister and the Director have the option of delegating the powers of the Act to public servants of their choice. This is expected considering that the number of stakeholders in Kakamega for example is quite limited. It consists of researchers and tourists who are temporary beneficiaries thus demanding for no permanent administrative roles. However, if the community were involved, as it ought to be, then more powers would need to be conferred on them considering their permanent influence on the forest. A more bottom-up system would be called for. In principle, for a Common Pool Resource, appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities should be organized in multiple layers of nested enterprises (For resources that are part of larger systems), (figure 7.1).

Biodiversity is in itself quite diverse and inclusive thus being, ñ*part of larger systems****ò***. For its welfare, water, soil, air and the environment at large are crucial inter related-resources that cannot be managed in isolation. However in Kakamega Forest, the direct management of the nature reserve is the affair of the Kenya Wildlife Service. The management of biodiversity in Kenya is still quite sectoral in nature. Within the Kenya Wildlife Service, the administrative powers are reported as being well nested from the local level to the national level. Inter-sectoral collaboration, though being encouraged, is still not fully achieved. In Kakamega Forest for example, the District officers in charge of wildlife, forest, water, agriculture and the environment in general embrace collaboration by sometimes holding information exchange meetings as a team. In the current preparation of Management Plans for Kakamega Forest, all the stakeholders are involved which is very encouraging. However, this is not the norm but just an exception in this regard. Everyday implementation of the various policy provisions is sectoral driven. This is why one can easily demarcate the areas governed by Kenya Wildlife Service and that of Kenya Forest Service based on the physical

condition of the forest. Inter-sectoral collaboration is therefore an issue of serious consideration in the review of the current Wildlife Act 376.

What is completely lacking in the system is having the main stakeholder on board, the community. No provision is given for community participation in the administration of the Act. However, all stakeholders report consideration of this crucial policy provision in the new wildlife Act, now in the pipeline. Community participation should inter-link the forest to the adjacent community living in the buffer zone.

7.1.8 Buffer zone management

The (Wildlife Conservation and Management) Act, Cap 376, is silent concerning the buffer zone. It does not provide for its management in collaboration with the forest. However, implicitly, the issue of compensation for injury, loss of life, loss of crops or property to wildlife is mentioned in Section 62 of the Wildlife Act Cap 376. This means that the Act still considers the effects that the forest may have to the adjacent community, but what may need to be done to improve the situation has not been provided for. This is a condition that needs to be fulfilled in the new wildlife that is in the process of being approved. Since the Service commits itself to being in the process of embracing community participation, the issue of buffer zone as a policy issue is crucial. In this case, policy implementers will have the authority to officially involve the community in the management of the reserve. Although the reserve should not be opened up for harvesting of forest products by the community, it is important to make the community benefit from the non-harvesting benefits that the forest fetches. Developing alternative livelihood income sources in the buffer zone is the next best alternative. This will ensure that biodiversity is well protected, and its benefits will penetrate beyond the forest boundaries. This will go a long way in securing livelihoods thus keeping the community members off the forest but in a satisfactory way.

Although there is no legal provision that specifically deals with buffer zone management, practically, various projects have been initiated in the forest neighbourhood to enhance livelihood security. In Kakamega town, just next to the Kenya Forest Service district office, a honey and silk market has been put up. This is an initiative of various donors inclusive of the United Nations Development Programme, ICIPE among others. The market is meant to provide a ready market for these products with the aim of reducing forest dependency through improved livelihoods. In such areas as Ikolomani and in the neighbourhood of Kakamega town, silk farming is being practiced albeit on minute scales. A lot of advocacy is now called for to encourage more people to embrace the initiative. Other policy avenues also need to be explored with the aim of creating more incentives for those involved in such activities. This will however need to be discussed with the community for they will priotize their interests best at any point in time. In Buyangu for example, no such activities are in place. The community claims un-awareness of such developments. This may be elusive, but the fact that the Kenya Wildlife Service community officer is not even known to the people here points towards information deficiency. There is power in knowledge and such crucial information as alternative means of earning a livelihood ought to be on the front line in the priority list of policy implementers.

7.1.9 Boundary definition

Nations, individuals have been known to fight for generations over boundaries. In Kenya, a disputed 2007 election flared up an otherwise dormant conflict over land and

its boundaries. The physical boundaries to Kakamega Forest were not reported as being in dispute. They are intact and both the Wildlife Service and the community are satisfied with the situation. This is an incentive to the conservation of the forest because it is valued as a permanent resource. There is no fear in the community that some powerful forces are about to grab the forest.

The user boundaries in the Kenya Wildlife Service area of jurisdiction can also be said to be well defined, though most respondents felt that the position being held now is unfair. According to the Forest Act, Section 32(3),

> *ñNo cutting, grazing, removal of forest produce, hunting or fishing, shall be allowed in a nature reserve except with the permission of the Director granted in consultation with other conservation agencies, which permission shall only be given with the object of facilitating research.ò*

The products of a nature reserve are only meant for research. The fact that no one harvests from the forest is also such a consolation to the community because it creates some kind of equity. This is a positive departure from the past experiences where the community was kept off the forest while politicians and businessmen continued abusing forest resources. However, the community feels that the definition of user boundaries is very narrow for it keeps off the community who are the sole traditional users and custodians to the forest, and whose opportunity costs of giving up their forest rights is quite high.

7.10 Recognition of traditional rights

In chapter 6, we have realised that due to the dynamics of culture, ñtraditional rightsò as a policy factor no longer apply. Most of the traditional rituals that used to be undertaken in the forest are no longer being practised with the exception of Kaimosi where initiation of boys into adulthood is to date being undertaken in the forest. This should not however be interpreted to mean that community participation is not necessary, instead, it calls for the use of other tools such as participatory research that will allow the authorities to capture the communityôs social rights at a certain point in time.

Kenya Wildlife Serviceôpolicy does not consider the community as partners in forest management. Recognition of their property rights is therefore not a factor in the policy process so far. This does not linger well with the community who feel alienated from the forest resources in comparison to those areas under the Kenya Forest Service. Biodiversity conservation by the Kenya Wildlife Service is again commendable, but isolated from the factors on the ground. As a custodian of the forest, Kenya Wildlife Service need to consider the host community as a beneficiary to forest returns without compromising biodiversity conservation. What the community calls for is the sharing of forest proceeds with Kenya Wildlife Service. The Kenya Wildlife Service officials on the other hand feel that this is necessary, but since Kakamega forest is still not a major tourist destination, it does not fetch much income to run its budget and enhance its community projects. This is attributed to the long distances from most international airports and the fact that Kakamega Forest, though a hotspot in flora, fauna and bird watching does not harbour such popular wildlife as lions, zebras, elephants e.t.c. that are a favourite of both local and foreign tourists. However, such community culture as bull fighting, traditional dances, initiation procedures and other social attractions could be included in the marketing package for Kakamega as the only real tropical forest in Kenya today. This is why the Kenya Wildlife Service still needs the community in the management of the forest.

A comparative analysis of the Forest Act 2005 versus the Wildlife Act Cap 376

In the above two chapters, we have covered a relatively new policy document, the Kenya Forest Act 2005 and the Kenya Wildlife (Conservation and Management) Act Cap 376 which was last reviewed in 1985. The Kenya Wildlife (Conservation and Management) Act Cap 376 has proved quite effective in biodiversity conservation while the Kenya Forest Act 2005 has its area of mandate quite degraded thus being a threat to biodiversity conservation. On one hand, the Kenya Forest Act 2005 is commendable in participating the community although this does not seem to have impacted significantly on poverty reduction. Instead, it has created a case of full forest dependency with the community looking at the forest as a major source of a livelihood. On the other hand, the Wildlife (Conservation and Management) Act, Cap 376 protective policy has forced the community to concentrate on their farms as the main source of a livelihood since forest access is not possible. Unfortunately, living standards here are comparatively as low as those in the areas governed by the Forest Act 2005. The question arising now is which of the two policies is the better option for biodiversity conservation, the focus of this study?

Holding all other factors constant, the Kenya Wildlife Service policy of biodiversity conservation is better. However, it isolates itself from the poverty realities on the ground. If the Service opens up to community participation (not necessarily harvesting), it would remain the best option for biodiversity conservation. The Kenya Forest Service policy on the other hand is destructive to biodiversity and still not effective in poverty reduction. This calls for an approach that encourages less forest harvesting and interference. The tool at hand for the Kenya Forest Service is buffer zone management and Participatory Forest Management, which are currently being introduced. The approach should be more alternative livelihood oriented with the aim of diverting the communityôs attention from the forest to their own farms. This is because it is evident that Kakamega Forestôs carrying capacity cannot sustain the community population currently depending on it.

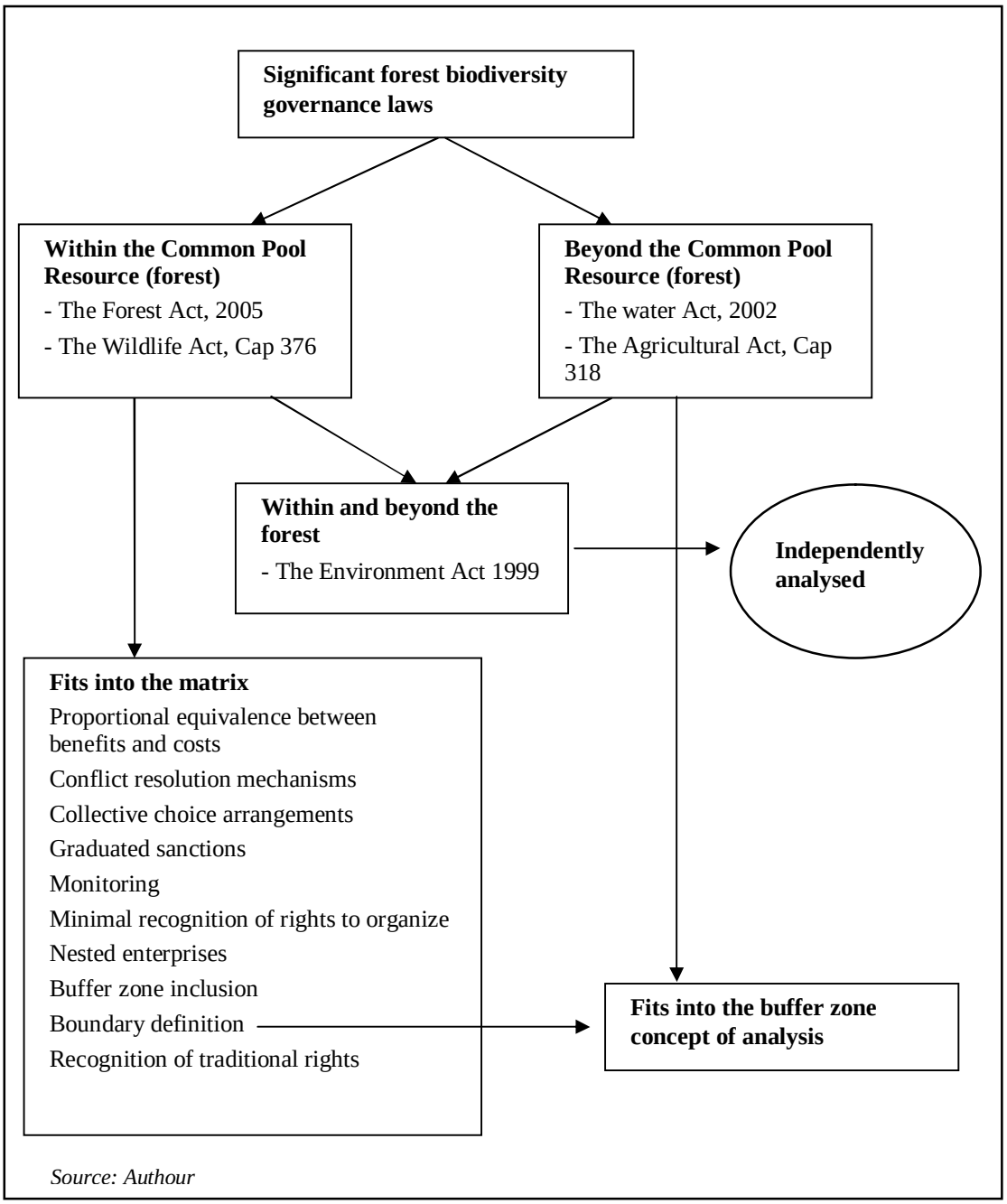
From a methodological point of view, unlike the Forest Act 2005, the Wildlife Act Cap 376 has not fitted into the Policy matrix framework for this study. Under all the ten categories discussed, this Act provides different results. The main reason noted is that the Act bears more the qualities of a protected ecosystem than a common property. This means that this policy matrix is only well defined for Common Pool Resources that are governed as such. This however does not discourage the approach to the analysis. Instead, it points out to the fact that the results of a policy analysis may not always align to the framework set (Box 2.1). But whichever direction the results take, a lot is to be deduced. In this context, the Forest Act 2005 and the Wildlife Act Cap 376 have taken completely positive and negative directions respectively. This has made the results more informative and interesting to follow as presented above. In this regard, it has clearly emerged that the matrix is effective to a well-defined ecosystem thus making us explore alternative avenues of analysis for the forthcoming policy tools whose mandate is geographically not as defined as a forest. The subjects of discussion here will be the Water Act 2002, the Agriculture Act Cap 318 and the Environmental management and coordination Act, 1999.

8 Other supplement laws and resulting challenges

Unlike the Forest Act 2005 and the Kenya Wildlife (Conservation and Management) Act, Cap 376, the supplement acts covered here do not deal directly with the forest. They play a supplementary role. In this regard, the forest is a concern of the ministry of Water since it is a water catchment area. On the other hand, the buffer zone of Kakamega Forest is a predominantly agricultural area, thus the administration of the agricultural Act will have some effects on the forest conservation. The Environmental Management and Co-ordination Act 1999 plays a supervisory and coordination role ensuring that all the above stakeholders in the environment are in control of their particular components of the environment. Therefore, the team is not complete if one of the above is left out.

However, methodologically, one hurdle stands on the way to doing this. In chapter 7, it has been discovered that all laws and regulations not bearing Common Pool Resource characteristics do not fit into the policy analysis matrix framed for this study. Incidentally, the agricultural Act Cap 318 and the Water Act, 2002 fits well into the buffer zone concept, which has been singled out, as a significant factor in the governance of Kakamega Forest. It is under this concept that the two will be analyzed. Since the Environmental (Management and Coordination) Act, 1999 has an encompassing supervisory legal role over all the above, it will be evaluated independently from this unique perspective (Figure 8.1).

Figure 8.1 The policy analysis framework



8.1 The water Act, Agriculture Act and the buffer zone legal concept

An area of controlled land use, a buffer zone, as earlier explained refers to an area, often peripheral to a protected area, inside or outside, in which activities are implemented or the area managed with the aim of enhancing the positive and reducing the negative impacts of biodiversity conservation on neighbouring communities (Wild and Mutebi 1996) and vice versa. The goal is to create a balance between community benefits and biodiversity conservation. In Kenya, community benefits tend to compromise on biodiversity conservation to a great extent. This may be attributed to the fact that although the forest has a fairly thorough legislation, there is no legal provision for the management of forest buffer zones. What exist are various laws and regulations

on the management of the various environmental components. These includes the water Act 2002; the agriculture Act, Cap 318; and multiple land laws such as the Survey Act, Cap 299, the transfer of property Act, the land acquisition Act, the Registered Land Act Cap 300 among others. This sectoral nature of governing environmental components has resulted to multiplication of actors in the buffer zone whose activities cannot be commended as being very well collaborated (oral interview, National Environment Management Authority official). In this section however, the laws are analysed on sectoral bases as implemented on the ground.

The Water Act, 2002

The buffer zone to Kakamega Forest is predominantly a small-scale subsistence agricultural area. It is a fertile area, with an average annual rainfall of approximately 2000 mm per annum (Participatory Forest plan 2005-2015:6) and average land sizes of about 1.4 acres per household of about 5 members (District Development Plan2002-2008: 8-12). Due to the high rainfall, Kakamega Forest is a major water catchment area for Lake Victoria and thus a focal interest area for the Ministry of water and irrigation. Under Section 7 of the water Act 2002, provision is given for the formation of a Water Resources Management Authority, which is represented in Kakamega by the Lake Victoria North Water Board. Sections 8 (I&j) of the water Act 2002 further charges the authority with the duties of managing catchment areas and liasing with the relevant stakeholders. The stakeholders include the Kenya Forest Service, Kenya Wildlife Service, and Ministry of agriculture, National Environmental Authority, the community and any other party with a stake in water as a resource. In order to cross the gap created by the sectoral nature of governance, the water enforcement officer, Kakamega, reports that a lot of community meetings are held by all the stakeholders in unison. This makes it possible that each party is aware of the others activities. In case of need for collaboration, the ground is open for a Memorandum of Understanding strategy between different parties on the way forward. Unfortunately, each ministry has established its own community working associations independently. The water office had 17 Water Resource Users Associations during the data collection period of this study. The Forest Service had 5 Community Forest Associations while the ministry of agriculture had independent community working groups. This emanates from the sectoral nature of the legal system. However, harmonising the working system here would improve results.

Concerning forests and their buffer zones, the water Act 2002, Sections 14 and 15 respectively, provides for their special management as catchment areas under the catchment management strategy. To cater for the unique nature of each area, section 15 of the act provides that,

> ***ñ****Following public consultation the Authority shall formulate a catchment management strategy for the management, use, development, conservation, protection and control of water resources within each catchment area****ò***.

In response, various water Resource Users Associations (WRUA) are in place all along every river from the source downstream. These associations consist of community members with interests in the particular river or water resource. Each association is endowed with the responsibility of making ground rules for the management of that particular section of the river. This caters for the special need of the buffer zone. As discussed in section 2.4 of this study, informal agreements and by-laws could fill the legal gap created in the buffer zone and ensure that a local governance system runs. Although community participation is reported by the District Water Office staff as being successful in the management of water resources in Kakamega, various obstacles

can still be identified. On one hand, water in Kakamega is in plenty (table 8.1), therefore, the community do not realise the need for special management of water resources. Water is to the community an infinite resource.

Table 8.1 Water sources in Kakamega District

No. of households with access to piped water	12, 480 (total number households 125,901)
No. of households with access to potable water	125,901
No. of protected wells and springs	886
No. of dams	1
No. of boreholes	156
No. of boreholes that are operational	78
No. of permanent rivers/streams	8
No. of households with roof catchments	338
Average distance to nearest potable water point	500m.

Source: Kakamega District Development Plan 2002-2008:11

From table 8.1, all households have access to portable water, which is evident that water is not a scarce commodity here. As a result driving the community to consistently act to preserve water bodies is not easy.

Sanctions on water offenders are also reported as being too lenient. Section 105 of the water Act 2002 lumps all the offences together and stipulates that,

> ***ñ****A person who is guilty of an offence under this Act, or under any rules or regulations made under this Act, shall, if no other penalty is prescribed in respect of the offence, be liable to a fine not exceeding one thousand Kenya Shillings or to a twelve months imprisonment or to both.****ò***

This to the policy makers is fairly vague and detrimental to any offences that may be committed by the large-scale agricultural industries present here. This has however been taken care of by the Water Resources Management rules of 2007 which has broken down the penalties depending on the magnitude of the offence. However, water offences in this area are rare since the resource is in abundance and most consumers are domestic consumers. However, instances of water pollution are feared due to the poor waste disposal in the fast growing urban areas. The other shortcoming noted in the Water Act 2002, which is national, is that is that it does not cater for Trans-boundary waters, yet some of the rivers in Western Kenya originates or even flows into the neighbouring countries Uganda or Tanzania. This is an area that the water officers feel need urgent attention to avoid future country-to-country conflicts over natural resources.

At the local scene, the abundant water as a resource would be expected to enhance agriculture, thus improved livelihoods in the buffer zone. This would go a long way in reducing forest dependency, but this is not the case. Poverty levels are quite high in Kakamega District, which is predominantly agricultural, and the forest is still looked upon as a major source of income. There is no commercial farming or major industrial use of the water in the rural areas, yet the area is sufficiently food deficit. The water does not therefore contribute much to the financial welfare of the community here.

The agriculture Act Cap 318

Agriculture is the mainstay of Kakamega as a District. According to the Kakamega District Development Plan, 2002-2008, 75% of the population works in the agricultural sector. This sector contributes 62% of the total sectoral household income (Table 8.2). This is a big contribution to the micro economy of Kakamega District. Unfortunately, agriculture is not well paying in Kenya especially due to the production of similar goods. This creates a situation where supply surpasses demand. As a result, most people in Kakamega can be classified as poor in the sense that they live on less than one dollar a day (Kakamega District Development Plan 2002-2008:11). This definition is subject to discussion because in most agricultural societies, it is possible to live on less than one dollar in a day and still not be absolutely poor. This is especially so if the farmer is self reliant in food and fuel from his farm. In such a society therefore, the relatively well-off farmer may live on less money in a day than the poor since he can cater for most of his needs from his farm. Poverty levels are therefore not absolutely monetary, rather they should include other variables that determine access to basic needs.

Referring to table 8.2, the number of people classified as absolutely poor are 369,559 translating to 57.47% of the total population. This means that more than half of the population is absolutely poor.

Table 8.2 Selected socio-economic data for Kakamega district

Total District area	1,394.80 sq. km.
Total No. of households	125,901 (approximately 630 000 people)
Absolute poor people	369,559 (57.47%)
Contribution to national poverty	5.89%
Average farm size (small scale)	1.5 acres
Main food crops	Maize, beans, finer millet
Main cash crops	Sorghum, cassava, sweet potatoes, banana, tea, coffee, sugarcane
Main livestock bred	Local Zebu
Land carrying capacity	1.5 livestock/unit
Size of gazetted forest	282 sq. km.
Size of non-gazetted forest	209.2 sq. km
Main forest products	Timber, charcoal, medicine, poles
% of people engaged in legal forest related activities	1%
Sectoral contribution to household income; Agriculture Rural self employed Wage employment	 62% 8% 20%
% of households using solar power	0.1 %
% of households using firewood/charcoal	95%
% of households using kerosene, gas or biogas	
District literacy level	Not available

Source: Kakamega District Development Plan 2002-2008:11

Kakamega District alone contributes 5.89% to the national poverty (table 8.2). This is why forest dependence is very high. The community looks at the forest as denied

wealth. Complying with the set laws then becomes very difficult. Law enforcement is also not easy especially in monitoring all the people trying to get access to the forest resources at whatever cost. The effectiveness of the agriculture Act Cap 318 therefore goes a long way in determining the conservation of forest biodiversity in Kakamega Forest.

The sector vision for the ministry of agriculture is, ñSustainable and equitable rural development for allò while the mission is ñto contribute to poverty reduction through promotion of food security, agro industrial development, trade, water supply, rural employment and sustainable utilization of natural resourcesò (ibid). The sector has a wide mandate necessary for such core sector; however, much is yet to be achieved. On one hand, Kakamega suffers from institutional inertia. According to the agricultural officers, the people are very conservative and not willing to adopt new farming technologies. They are still rearing their old traditional Zebu cows that are not productive in milk. This attitude is a big drawback in improving the peopleôs livelihoods, thus reducing forest dependency.

On the other hand, the kind of land tenure in Kenya is mainly freehold on most agricultural land. This is treated as strictly absolute and the officers have no power to enforce the provisions of the agriculture Act. Farmers are free to farm as they wish and adopt new technologies at will. This is demoralising to the officers for it is rare that their efforts pay (oral interview with the assistant District agricultural officer, ,Kakamega). This, coupled with the small farm sizes makes the returns from agriculture not promising. The average farm size in Kakamega is 1.5 acres for a household of five people on average (table 8.2). This is relatively too small to comfortably cater for the food of such a household. This land is also subject to degradation due to continuous farming without time being given for leaving it fallow. This is has caused a lot of soil erosion which has had serious silting effects into the rivers (District Agricultural Officer, Kakamega). Although land sub-divided to less than 0.25 acres is considered a plot and is subject to tax, this has not prevented informal subdivisions. To survive such measures, local elders have taken up the role of informally sub-dividing land between family members. The land divided in this informal manner sometimes remains in that status for decades. This is because land is not commonly used as security, thus no need for a title. Secondly, traditional institutions are still highly trusted and no one will go against the eldersô decision. Rural freehold land in Kenya is not subjected to any tax for as long as it is 0.25 acres and above. This was meant to promote agriculture. But on the other hand, land tax could be used as an incentive to promoting the same. The agricultural officers would for example be promoting some of the crucial agricultural practices by waiving tax on those who comply. But this is missing and it may not be too late to introduce it.

Although the agriculture sector is one of the best funded by the government, the high population that demands its service stretch the resources too far. At a projected population of 524 persons per sq. km (table 8.2) by the year 2008, Kakamega District boasts of a total population of approximately 750,000 people. This may be lower today due to the unforeseen political massacre that has just taken place between December 2007 and January 2008 (personal eye witness, author), but this is no consolation. It further depicts just how much the Kenya institutional set-up is flawed.

To cater for the high population, various income-generating activities are in progress in the buffer zone. There is silk and bee farming being promoted at Ikolomani and many farmers are practicing it. A silk and honey factory has also been constructed in Kakamega to cater for marketing of the same (figure 8.2). Despite all the efforts being employed here, institutionally, it is necessary to cater for the buffer zone in order to

harmonise the many efforts at hand. The main option given by at least 80% of the interviews is to clearly mark the buffer zone to the forest. Once this is done, the jurisdiction challenges can be met by placing the buffer zone under the same administration as the forest. This will make it possible to govern the buffer zone in harmony with the forest and be instrumental in its protection. If the merging of these two ministries is challenging, then there is still the option of enhancing collaboration between the various stakeholders, which is the challenges being so often sited as lacking.

In Kenya, the Environmental Management and Co-ordination Act, 1999 has been charged with the role of consolidating the multiple institutions dealing with the environment since 1999. However, the problem of buffer zone management does not seem to have been rendered less challenging.

8.2 The encompassing legal role of the Environmental Act, 1999

The Environmental Management and Co-ordination Act, 1999 commonly known as EMCA came into force on 14th January 2000. The mandate of enforcing the Act falls under the (NEMA), which is a government parastatal in operation since 1st July 2002. The Authority is mandated by Section 9(1) of the Environmental Management and Co-ordination Act, 1999 to exercise general supervision and coordination over all matters relating to the environment. It is the principle instrument of the government in the implementation of all environmental policies. Section 9(2)(a-q) of the Environmental Management and Co-ordination Act, 1999 outlines the core functions of the National Environmental Management Authority. These functions include,

> ***ñ****(a) Coordinating the various environmental management activities being undertaken by the lead agencies, (f) advice the government on legislative and other measures for the management of the environment, (m) undertake, in cooperation with the relevant lead agencies, programmes intended to enhance environment education* ---***ò*** among others.

The ñ*lead agencies****ò*** include the ministries of water, agriculture and tourism, Kenya Wildlife Service, The Kenya Forest Service, Non-Governmental Organizations and every other organization with a stake in the environment. In relation to forests, the Act provides for the protection and creation of forests for as long as this does not prejudice the traditional rights of the local communities resident here (Environmental Act 1999:100, Section 48). This section states,

> ***ñ****--- the Director-General may, with the approval of the Director of Forestry, enter in any contractual arrangement with a private owner of any land on such terms and conditions as may be mutually agreed for the purposes of registering such land as forest land****ò***

Section 49, puts weight on the promotion of renewable sources of energy and planting of woodlots, in collaboration with the lead agencies. It states,

ñthe Authority shall, in consultation with the relevant lead agencies, promote the use of renewable sources of energy by promoting research, creating incentives---ò Section 51 and 52 provides for the conservation of biological diversity insitu and ex situ, respectively,

> ***ñ****The Authority shall, in consultation with the relevant lead agencies, prescribe measures adequate to ensure the conservation of biological resources in-situ and in this regard shall issue guidelines for---(a)land use methods that are compatible with*

*conservation of biological diversity,(c) selection and management of buffer zones near protected areas,----**ò***

while Section 52 states,

ñ**The Authority shall prescribe measures for the conservation of biological resources ex-situ especially for those species threatened with extinction**ò

Going by the above quotations, the primary role of conserving a particular component of the environment lies with the lead agency. However, in case the lead agency fails to take action on being notified by the National Environmental Management Authority, then the Authority can take the necessary rectification measures. In this case however, the lead agency bears the cost of the duties undertaken by the National Environmental Management Authority, as provided for in section 6 of the Environmental Act 1999:67. The National Environmental Management Authority therefore does not only perform a passive supervisory role, but has the powers to act for the sake of conserving the environment.

In Kakamega, biodiversity conservation is more in situ based. There are activities and efforts in conserving the forest, but not much in supplementing these efforts outside the forest ecosystem. This is the situation despite the fact that section 51(c) of the Environmental Act 1999:102 provides for the selection and management of the buffer zone. Although the forest department considers a forest user to be living some 5km along the forest boundary, no scientific research done supports this. The Environmental Management and Co-ordination Act, 1999 mandates the National Environmental Management Authority with the duty to do research, however not much environmental data is available in the district office. The department blames this on lack of both human and financial capacity to undertake research. On the other hand, there are many organizations that have undertaken research in Kakamega Forest but no feedback or even publications are sent back to local players.

Concerning Section 49 on renewable energy, not much has been achieved. Like in all parts of Kenya, there is still an over-dependence on wood fuel for cooking. In the urban areas especially, charcoal is popular for cooking and this has a great effect on the forests. A look at Part V of the Act on ñ*protection and conservation of the environment**ò*** gives us a long list of conditions that need to be fulfilled towards this goal. Unfortunately a lot is yet to be done.

The most sited reason for this is that the laws analysed here are all too new to have presented results. This is relatively true since the dates of enactment ranges from 1999 for The Environmental Management and Co-ordination Act 1999 to 2005 for the Forest Act. However, the transition period seems to be taking too long. Take for example the forest Act 2005, even laying a base for Participatory Forest Management is yet to take shape. On the ground, the old Forest Act 385 way of doing things is still evident. If the Forest Act 2005 is such a challenge to implement, how much more challenging will The Environmental Management and Co-ordination Act 1999 be considering that it has the supreme role of coordinating all the other Acts? All the four National Environmental Management Authority officers interviewed were of the view that collaborating all the environmental sectors is not an easy job considering that they are all in different ministries and have their particular legal tools to implement. When it comes to working as partners, that is no problem, but not in playing the supervisory role. Unfortunately, no incidents were reported on this particular role of poor collaboration. The information given by one-ministry officers concerning the other is extremely elusive. This is deliberate just in case the information lands on the wrong hands. This calls for a lot of internal research within the government administrative system in order to improve

regional governance. This should also be extended to issues that are ailing the policy implementation within the government system. Otherwise, such general factors such as lack of enough staff was sited as a slowing factor in policy implementation. Illustratively, The National Environmental Management Authority office, Kakamega North District is also in charge of Kakamega South District, Mumias District, Malava District and Butere District. This is actually a wide geographical area to be catered for with resources meant for one district. However other internal reasons like poor administration at the top were sited though quite elusively.

In this regard, it was interesting to find out how the supervisory role of the National Environmental Management Authority may be improved as provided for in the Act. The private sector was sited as one player not very active in environmental conservation, but could be involved in monitoring the public sector. There is one role provided for in Part VI and Part VII of the Environmental Management and Co-ordination Act 1999 on carrying out Environmental Impact Assessments (EIA) and Environmental audits (EA). An Environmental Impact Assessment is a critical examination of the effects of a project on the environment. It is carried out at the onset of a project to evaluate and get ways of mitigating the adverse effects of the projects and enhancing on the positive ones. An environment Audit on the other hand is a systematic, documented, periodic and objective evaluation of how activities and processes of an on going project conform to the approved environmental standards. The second schedule of the Environmental Act 1999 provides for the projects that must undergo Environmental Impact Assessment. These too must undergo Environmental Audits periodically. Included in the list are,

- ñ(4) Dams, rivers and water resources
- (7) Forestry related activities including; timber harvesting, clearance of forest areas, reforestation and afforestation.
- (8) Agriculture including; large-scale agriculture, use of pesticide, introduction of new crops and animals, use of fertilizers, irrigation.
- (13) Natural conservation areas including, creation of national parks, game reserves and buffer zones; establishment of wilderness areas, formulation or modification of forest management policies, formulation or modification of water catchment management policies, policies for the management of ecosystems, especially by use of fire, commercial exploitation of natural fauna and flora, introduction of alien species of fauna and flora into ecosystems.

Environmental Impact Assessment and Environmental Audits are undertaken by private individual experts or firm of experts registered by the National Environmental Management Authority. Therefore, if they are dutifully and professionally undertaken by these private experts, the National Environmental Management Authority would implement and enforce them with a lot of neutrality. This way, the private sector will play a role in the Environmental policy implementation process.

In chapters 6, 7 and 8 above, we have analysed in detail the institutional challenges on specific legal instruments related to biodiversity conservation in Kenya. In chapter 9, forthcoming, the cross cutting sources of these challenges are evaluated.

9 Assessing the underlying causes of institutional failure in Kakamega Forest

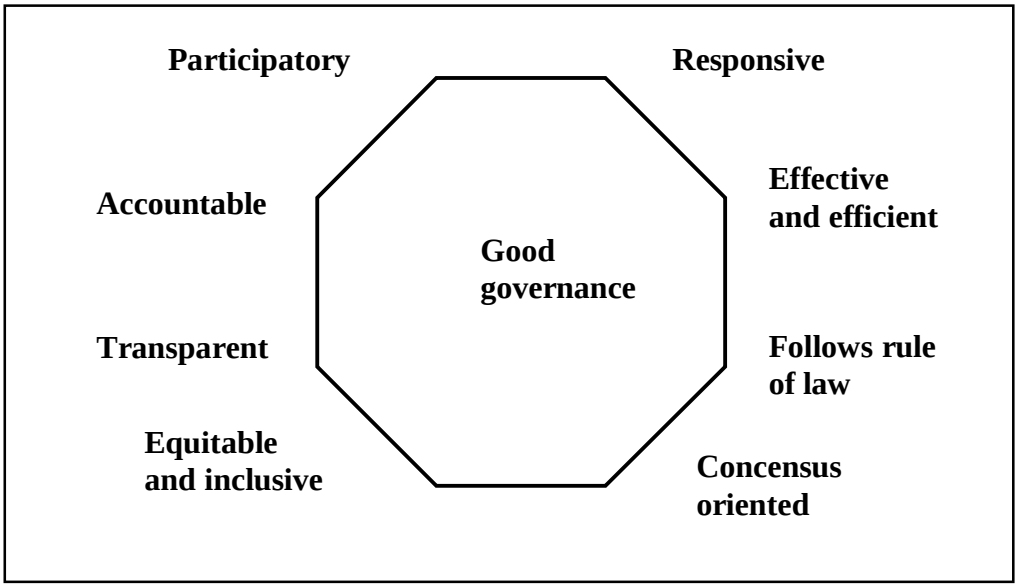
This chapter evaluates other factors rather than direct institutional weaknesses discussed in chapters 6, 7 and 8 that may lead to institutional failure in the governance of biodiversity.

As Bruce (1990:59) rightly argues, even after common property arrangements have been initiated, the state does not drop out of the picture. In most cases, the state protects its stake by holding the land for itself and only confers management rights to the local community. In Senegal for example, a new forest code was put forth by the government to protect the Baobab tree, and a permit was to be issued by the Forest Service for its cutting (Stienbarger et al 1990). The village forest protection committee could not issue such a permit and yet, it was responsible for implementing this law. This parallels well with the Kenyan situation where forestland is registered as government land. However, every activity that Community Forest Associations wish to undertake in the forest has to be approved by the Forest Service. ***ñ****We still cannot fully entrust the community with our forests. It is still too early****ò;*** is the representative view of one of the foresters in charge of Isecheno Forest Station. This makes the community members to protest quietly since their expectations, as co-owners to the forest are not respected. These conflicting views of the government institutions and community institutions are consequently portrayed in non-compliance to the set laws and regulations making the rule of law less effective.

With the example of such countries as Nepal and India where community forest governance has been reported as successful, Kenya has now introduced this perspective in the forest governance system. However, the government still remains a major and dominant player in the governance of the forest resources. In this scenario then, the governance system in the country plays a great role on the success of forest management. Unfortunately, good governance still remains a debate to most countries. It has not been possible to actualise it. This is evident in the various sectors that by their nature as public goods remain in the realm of the government. Common Pool Resources are a good example.

Interpreting "the governance of biodiversityò as defined in chapter 2.2 of this study, ñthe governance process involves addressing the institutions that regulate relationships between actors in the use, control and management of biodiversityò (World Bank 2002). Governance focuses on the formal and informal actors involved in decision-making and implementing the decisions made. Government is one of the actors in governance while other actors involved in governance vary depending on the level of government that is under discussion. In the forest sector in Kenya, other actors include villagers, Community Based Organizations, NGOs, research institutes, religious leaders, village elders or the civil society at large. At the national level, in addition to the above actors, media, lobbyists, international donors, multi-national corporations, may play a role in decision-making or in influencing the decision-making process. The final decision reflects good governance if the process bears, at least, but not limited to most of the 8 characteristics presented in Figure 9.1

Figure 9.1 Characteristics of good governance



Source: UNESCOP:2008

Good governance should ensure that corruption is minimized, the views of minorities are taken into account and that the voices of the most vulnerable in a society are heard in decision-making. It should be responsive to the present and future needs of a society (UNESCOP 2008). According to Thomas Weiss (2000:801*)* quoted in Sadashiva Manjunath (2007:8), good governance is the, ñuniversal protection of human rights, non-discriminatory laws, efficient, impartial and rapid judicial processes, transparent public agencies, accountability for decisions by public officials, devolution of resources and decision making powers to local levels, and meaningful participation by citizens in debating public policies and choices.

Towards this goal, decentralisation emerges as a very strong initiative in achieving good governance in all sectors of an economy. The rationale for decentralisation is linked to subsidiarity, the principle that the lowest level of government that can perform functions efficiently and effectively should be the one to do so. In Kenya, decentralisation is now a policy concern as evidenced by the relatively new policy documents analysed in chapters 6 and 8 of this study. Looking at the Forest Act 2005, a lot of forest management duties are now being decentralised to the local level through Community Forest Associations. However, it is important to remember that decentralisation is not a panacea (Byrne and Schnyder 2005:5). Rather, decentralisation carries the risks of problems such as corruption being replicated at the local level, not to mention its not being fully implemented by those unwilling to give up power to local governments. A key potential stumbling block then is political will. Kenyaôs record of decentralisation has generally been reported as lacking in various ways. On one hand, corruption has been reported at all governance levels and this has had a great toll on forest destruction especially during the previous 1978-2002 political regime. On the other hand, Devas et al (2004) highlights Kenya and India as countries whose decentralization process has eroded of local government responsibilities while undertaking decentralization on piecemeal i.e. by not considering the various faces of decentralisation in a holistic manner. Decentralisation is a multifaceted concept, coming in a variety of different ñstrengthsò (deconcentration, delegation, devolution) and taking different forms (political, administrative and fiscal), a combination of which should occur in any decentralisation process (Byrne and Schnyder 2005:5).

- Political decentralisation aims at improving the active participation of the population in political decision-making processes. It implies that locally elected authorities must bear more responsibility towards those who elected them and that they must better represent local interests in political decision-making processes.
- Administrative decentralisation distributes the responsibilities to fulfil public duties among governmental authorities on various state levels.
- Fiscal decentralisation is an essential component of each form of decentralisation. A decentralized unit cannot accomplish its duties independently unless it has access to required resources and has the power to make financial decisions (SDC 2001)

In the case of Kakamega Forest, all the institutional challenges presented in chapters 6,7 and 8 imply that Kenya is yet to achieve good governance in the forest sector. Although reflecting a decentralised system, a lot of political and fiscal power is reported as being quite centralised. Constitutionalism and adherence to the laws of the land is minimal. In such a situation, various governance evils such as corruption, state dominance and partial law enforcement emerge. Whether these are the roots or the fruit of bad governance is hard to tell, but the obvious adverse effects they have on the majority of the forest resources and involved stakeholders are indisputable as hereby highlighted;

I. None-transparent decision making and implementation processes

Transparency means that decisions taken and their enforcement are done in a manner that follows rules and regulations. In Kakamega, it was not possible for the community to tell whether forest laws and regulations are followed or not because they do not know them in the first place. They do not know what penalty goes with what crime. The officers on the other hand feel that the community is ignorant of doing what the law requires of them. This creates a conflict in the interpretation of various laws concerning the forest. Again, this calls for a vigorous civic education process. Information should be freely available and directly accessible to those who will be affected by such decisions and their enforcement. The information provided should be in easily understandable forms and media. In Kenya, once the laws are made in a more top-down process, communicating to the majority of the community members becomes difficult since they are all written in English. Interpreting the legal language is not easy even to a relatively educated person. This is a hurdle that needs to be bridged through translation to a language closer to the people, which is Kiswahili. Once the people have the right information, then sanctions levied for non-compliance will have a base.

II. Unaccountability between the stakeholders

Who is accountable to whom varies depending on whether decisions or actions taken are internal or external to an organization or institution. In Kakamega Forest, the government holds the forest in custody for the community. This means that the government should be accountable to the community. However, public monitoring institutions are not in place. The government is accountable to no other force and this is why forests have been subject to abuse for a long time in Kenya. The only force that bears the burden of holding the government accountable is the media and to some extent, the civil society which is getting relatively weak on the natural resource front. One of the reasons given during the field survey is the shift of donor focus to more urgent social issues such as health matters. Once the donor focus shifts, the civil society also changes course in order to be able to tap the donor funds; sometimes for selfish reasons. This means that the conservation of natural resources in Kenya is at the mercy of the donor policy and not a moral duty to the Kenyans.

Although the media is held accountable by the government through the media Act, cases of media harassment have been rampant. This has for example led to the delay in passing of the media bill by parliament as the media fights for more rights while the government seeks to curtail its powers further. A case of ñpreaching water and drinking wineò, the media contrasts the unwillingness of the government to be held accountable while wanting to hold every other sector hostage. The role of the media in reporting on natural resource misuse in Kenya cannot be underestimated, however, lack of an independent judiciary nullifies the process of taking any legal action against the government.

The civil society in Kenya has been quite active in lobbying, advocacy and even on being involved in actual management measures. However, being funded by donors as a way of channelling funds to the grassroots, the civil society has a lot of detachment from the government. This makes itôs accountability to local system elusive and to some extent questionable. Unless ignited by politicians, the civil society or the media, community organizations in Kenya have been known to be passive players holding no one accountable but being accountable and subjective to all forms of laid down regulations. This lack of participation has continued to tone down the voice of the majority and most vulnerable stakeholders in the natural resource management front.

III. None or partial participatory law-making and enforcement process

Participation by the community members is a key cornerstone of good governance. However, most stakeholders especially community members are not involved in the overall law making process in Kenya. In one of the meetings attended in Shamiloli village, the forest officer was introducing the forest Act 2005 to the community members. The contents of the new Forest Act were completely new to them. This means that the people had not been part and parcel of the law-making process. In the case of the Kenya Wildlife Act, Cap 376 review process, several community members were involved as community representatives. However, representative democracy does not necessarily mean that the concerns of the most vulnerable in a society would be taken into consideration in decision-making. They need to be part of the process to the decision-making stage. Participation needs to be informed and organized. This means freedom of association and expression on the one hand and an organized civil society on the other hand. Although the civil society is well represented in Kakamega, it is lacking in both know how and financial capacity. Capacity building is therefore a priority in this area. According to the Kenya Wildlife Service warden Kakamega, the benefits of participation are understood, but the budget is sometimes quite restrictive on how far down the law-making process can go. As for the review of the Wildlife Act Cap 376, meetings were held at provincial level. This means that only a few selected community members could get involved, yet majority will be affected by the enforcement of this Act.

Good governance requires fair legal frameworks that are enforced impartially. It also requires full protection of human rights, particularly those of minorities. Impartial enforcement of laws requires an independent judiciary and an impartial and incorruptible police force. In Kakamega, cases of corruption are reported between the forest officials and the influential community members. The rich can bribe their way through big forest crimes while the poor have to face the law for minor forest offences. Corruption is an evil that should by all means be discouraged.

IV. Unresponsive law reform process

In Kenya, law reform has been very slow in the near past. The constitution, which is the pillar of all other legal regulations in Kenya expired more than five years ago and its review was rejected in the 2005 referendum. Although subjected to a lot of undue political pressure, its rejection reflected the lack of faith that the majority have on the countryôs legal tools.

Some of the laws analysed in chapters 6,7 and 8 of this study have also been reviewed after the year 1999 since independence. The Forest Act 2005 replaces the Forest Act Cap. 385 revised 1982. In section 1.1 of this study, ñinstitutional changesò has been cited as one of the conditions necessary in achieving the right incentives/disincentives for law-compliance because societies are dynamic in nature and this is greatly reflected in a societyôs institutions. Lack of law reform therefore means that the laws do not reflect the reality and may therefore not achieve the set goals. Kenya is now in a transition period from a highly command and control oriented system to a participatory system. However, the new participation oriented laws are being implemented hand in hand with the old highly command and control laws. For example, the Forest Act 2005 is newly reviewed while the Timber Act Cap 386 is a revised edition of 1972 (See table 9.1). Implementing the two sets of laws simultaneously is not very logical. They both reflect different conditions and societies due to time difference.

Table 9.1 Review dates for some resource management laws in Kenya

	Set of laws	**Year of review or revision**
1.	The Environmental Management and Co-ordination Act (EMCA	1999
2.	Forest policy	2005
3.	The new forest Act, 2005	2005
4.	The Timber Act	1972
5.	The wildlife (conservation and management) Act (Cap 376)	1977
6.	The Antiquities and Monuments Act	1984
7.	The Agriculture Act (Cap318)	1980
8.	The Tea (Amendment) Act	1999
9.	The Coffee Act	2001
10.	The Sugar Act	2001
11.	The National Policy on Water Resources Management and Development	1999
12.	The water Act	2002
13.	Lakes and Rivers Act, Cap 409	1962
14.	The Physical Planning Act, Cap 286	1996

Source: Filed data

In the case of the Wildlife (Conservation and Management) Act, Cap 376 of 1977 analysed here, most of the Actôs provision are no longer operational. It is therefore not possible to tell the exact legal position of such a sector. This and other laws that impact on forest biodiversity need consideration for review.

V. A Judiciary missing in independence

The judiciary, executive and legislation in Kenya are all treated as arms of the government. The president has the powers to elect judges, ministers and the heads of parastatals as well. This lack of separation of the judiciary function from the executive and the legislation has widely interfered in the affairs of the judiciary and corruption has been reported at all levels. There is no political good-will to undertake reforms and release the judiciary as an independent arm of the state. The Judiciary in Kenya also need to be accountable to the public who are affected by its decisions or actions. In Kenya, the court is treated with lots of supremacy. This calls for public monitoring, which has been initiated in Indonesia (Box 9.1) and some progress reported.

Box 9.1 Public monitoring of the judiciary in Indonesia

> Public monitoring of the judiciary process is important to improve forest law compliance. An important recent development has been the establishment of watchdog groups to monitor the judiciary process in West Kalimantan and Jikalahari. These groups are composed of voluntary NGO and government representatives, and have come together following commitments made at multiple stakeholder consultations on forest crime. However, these fledgling organizations lack financial resources and expertise, and rely on voluntary staffing, so their sustainability is doubtful. Under the Indonesia-United Kingdom Memorandum of Understanding, NGOs in West Kalimantan will receive support for monitoring cases against illegal logging offenders.

Source: FAO Forestry Paper 45: 49

A similar process for Kenya will make the public more responsive to the laws if they are part of their making and implementation processes.

VI. Highly centralised and sectoral governance system

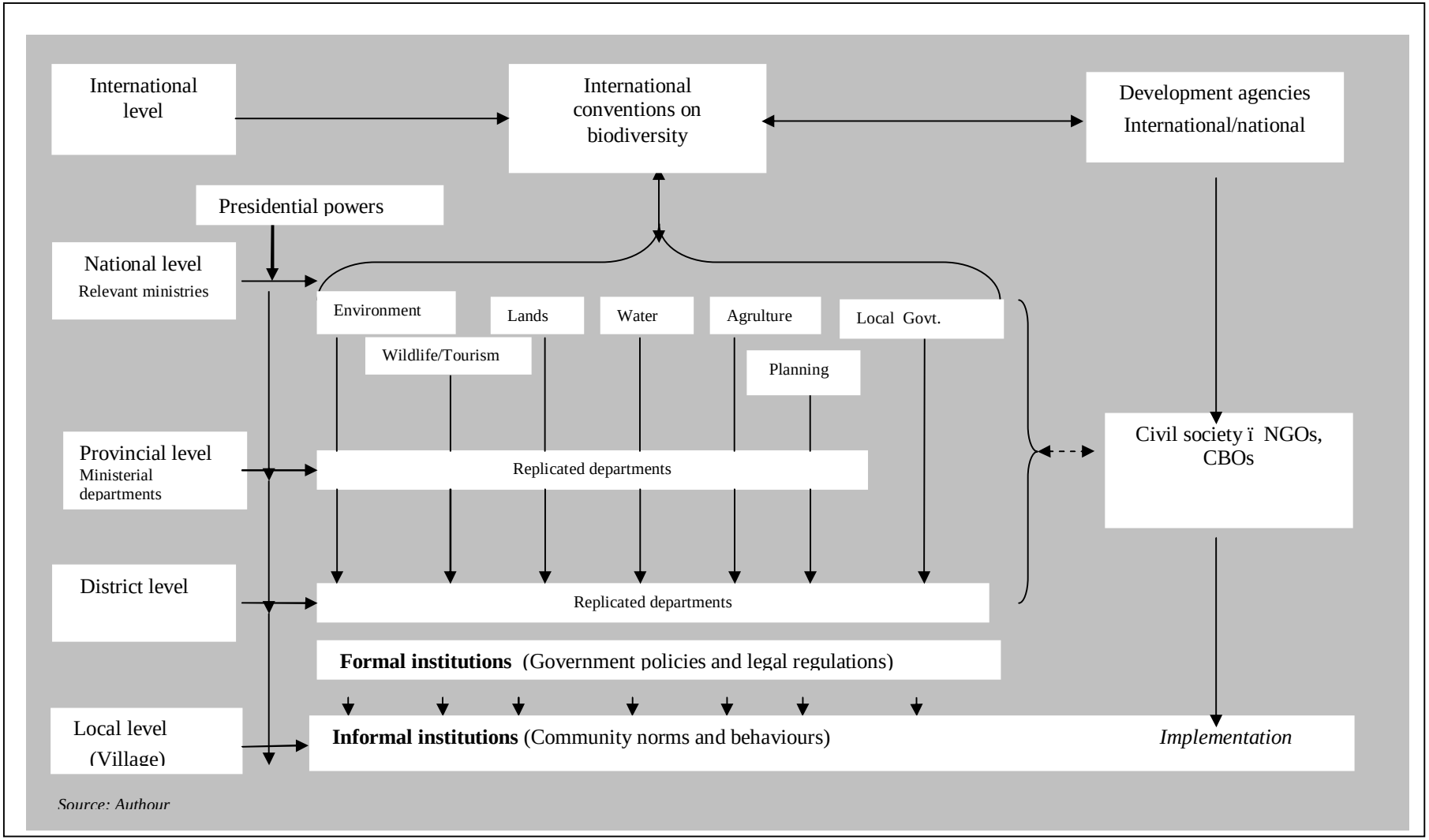
Looking at Figure 9.2, it is possible to tell how much the natural resources in Kenya are partitioned. Different ministries are in charge of different resources. The line ministries have a very linear administrative system from the national to the local community level. Although they collaborate through a Memorandum of Understanding strategy, the results are not as harmonised as they would be if related resources were administered in a more holistic manner. The Ministries have further been partitioned after the 27th December 2007 election chaos in the process of creating more Ministries to reward all the political parties in the coalition government. This partitioning of natural resource administration for political reasons without any due professional advise is ill advised and goes a long way in making a complex system even more complicated.

As presented in the figure, the president still has very strong powers in Kenya and the constitution allows him to make declarations that can be implemented at whatever level. On the other hand, the international agencies and donors involved in the conservation of natural resources normally go down to the community through the civil society without involving the government. The end result of this is a multiplication of institutions at the local level that are neither harmonized nor monitored (Figure 9.2). The community is exhausted with activities that are so isolated that the impact is in most cases not felt. On the other hand, the division of the civil society and the government creates a kind of competition that further weakens the already weak vertical and horizontal collaboration between the stakeholders.

Due to the highly centralised system, bureaucracy becomes a hindrance to some forest conservation activities. In the case of Kakamega Forest, most of the Community

Forest Associations have taken very long to be registered due to bureaucracy related to the Societyôs Act. Decentralisation and devolution have not reached a point where the impacts can be felt. For example, all the forest proceeds have had to be sent to the treasury and then trickles down with the national budget. The money collected in form of fines also goes to the treasury. This means that there are no incentives to the local office to earn more income, which is demoralizing. On the other hand, some decisions that have major effects on the community and the Forest Service working relations are still made in the headquarters, Nairobi. For example, the Pan Paper plantation project adjacent to Shamiloli village was commissioned in Nairobi without involving the local stakeholders. This nullifies the need for protocol since it is not respected. Most of the government initiatives are therefore treated with suspicion since forest decisions are not consensus oriented.

Figure 9.2 The linear institutional system in Kenya



10 Towards a strategy for institutional success in Kakamega Forest; factors to consider

In general, the type of policy approach to biodiversity conservation depends on a number of factors: size of the area, quality and quantity of biodiversity, population pressure, cultural situation, social organisation and way of life, economic and legislation development. In deciding on the best option, it is crucial to examine the economic opportunities and hurdles, the legal context and the condition of the conservation area itself (IUCN 1998 quoted in Arthur and Greve 2000:13). In this context, these factors are divided into,

- Natural resource based factors
- Socio-economic and political factors; and
- Institutional/policy factors and
- Measures to influence policy

For a policy approach to be effective, it is important to consider the natural resource factors that are direct-ecosystem based that determine how an ecosystem is to be managed owing to its physical area and the quality/quantity of biodiversity. The socio-economic status of the buffer zone further determines the kind of policy approach since an ecosystem cannot be governed in isolation. Further, actual institutional/policy factors need evaluation, which finally leads us to measures required to influence policy in order to absorb emerging policy recommendations for implementation.

10.1 Natural resource based factors

These are direct resource based factors.

Forest Area

Different sources give different areas for Kakamega Forest. However according to field interviews with the Kenya Wildlife Service warden Kakamega, the forest currently extends to approximately 240 square kilometres. Kenya is one of the countries whose forest cover is less than the recommended 30%. Currently, the forest cover in Kenya stands at approximately 2% of the total country area. There is need therefore for Kenya to advocate for the policy of keeping its forests intact and establishing more forests. However in this era, Participatory Forest Management is being encouraged from all avenues after the ñprotective policyò campaign has failed. In going the participatory way, however, it is important to consider that the Kenyan forest area is too small to sustain the relatively high population adjacent to most of these forests. The kind of activities in Participatory Forest Management should therefore focus more on the bigger area outside the forests and not solely on the micro forest areas.

On the first Participatory Forest Management conference held in Nairobi on 6th-8th July 2007, various case studies on Participatory Forest Management were presented. Rukundo Ndamira presented the case of Echuya Forest in south Western Uganda (see Box 10.1).

Box 10.1 The case of Echuya Forest

In Echuya Forest project, community members identified intervention measures such as collaborative forest management, strengthening soil and water conservation, alternative income generating activities, bamboo domestication, tree planting, revolving fund schemes and capacity building, among others. The results were reported as follows:

- 282 trenches dug and stabilized with trees and pasture grass to tackle soil erosion
- 9 tree nurseries on commercial basis established
- 3 women groups supported in mushroom growing
- 3000 bamboo rhizomes planted on-farm
- 2138 avocado plants and 25,824 seedlings of passion fruits planted
- 400 bee keepers supported with 1005 beehives and trained in modern beekeeping
- 4 micro finance groups trained in basic business skills and micro-finance management
- 1 women group and 50 farmers benefited from the revolving fund
- forest management committee to represent the communities in developing Collaborative Forest Management agreements formed
- draft collaborative Forest Management agreements developed
- Batwa community allowed free access to bamboo

Source: Rukundo Ndamira, Participatory Forest Management conference, Nairobi 6th-8th July 2007

The lesson learnt from this case study is that other interventions along Participatory Forest Management encourage communities to actively participate in forest management activities. This also acts as an incentive to complying with the set laws and standards, as most of the stakeholders will own a participatory process. To the policy makers, this is an important lesson for Kakamega Forest.

Quality and quantity of biodiversity

Despite the small size of Kakamega Forest, it is still recognized as a biodiversity hot spot. The participatory Forest Management Plan for the forest 2005-2015:7-14 lists some of the flora and fauna present in the forest. This includes birds, mammals, reptiles, amphibians, butterflies and other insects. Bird Life International in collaboration with Nature Kenya, among other actors, has identified Kakamega as one of the important bird areas (Bennun and Njoroge, 2000:242) in Kenya. The richness of biodiversity in Kakamega is thus worth protecting.

The idea of having one section of Kakamega Forest as a natural reserve with strict non-harvesting laws and regulations is in this regard quite informed. What is lacking however is equity in sharing the reserveôs proceeds with the adjacent community whose opportunity cost of having the forest here is obvious. Embracing community participation by the authorities will be more fruitful especially if the focus of the projects is not wholly forest-oriented. The case of Echuya Forest (Box 10.1) is a good insight of how such an arrangement needs to be approached. In the case of the Echuya Forest, most of the activities undertaken are not forest oriented. Instead, these are activities meant to divert the attention of the community members from the forest to other income generating and empowerment activities on their farms or through self-help groups. Once the community is empowered, compliance to the forest laws and regulations laid will also be enhanced since the people are part and parcel of the process. On the other hand, the benefits being enjoyed by the community are in extension due to the forest thus enhancing its long-term importance to the community.

10.2 Socio-economic and political factors

Considering the small forest areas we have in Kenya, it has been argued above that a lot of attention also needs to be paid in the areas adjacent to the forest, that is, the buffer zone. One of the factors crucial to the management of a forest buffer zone is population. Other factors include land tenure, cultural and gender issues, cooking energy sources, poverty and political factors.

Population

Kakamega district is one of the densely populated districts in Kenya (Kakamega District Development Plan 2002-2008:20). The population density is approximately 524 persons per sq. km at a growth rate of 2.8% per year. It is therefore very crucial to undertake a vigorous family planning campaign in order to lower the rate of population growth to manageable levels. One of the causes given for the high growth rate is social insecurity making children a form of social security. In this regard, the more the children one has, the more secure he is since there are more people to take care of him in old age. This situation fuels population growth.

Considering that the buffer zone to Kakamega Forest is assumed at 5 km from the forest edge (oral interview, District Agricultural Officer, Vihiga) the number of people to be involved in the Participatory Forest Management programmes is very big. This is one challenging factor to the introduction of Participatory Forest Management. In general, the higher the population pressure, the smaller the protected areas and the buffer zones will be, and in most cases, the more intense the repression will be. In the context of Biota Project under which this study has been undertaken PLUP (Participatory Land Use Planning) whose focus is more on people is recommended (for more insights on the advantages of Participatory Land Use Planning please see section 2.4 of this study).

Participatory Land Use Planning is an approach based on securing the livelihoods of the people in the buffer zone of an ecosystem. Since Kakamega District is a predominantly agricultural area, promotion of agricultural production is very crucial. Unfortunately, land in Kakamega is very scarce due to the high levels of fragmentation in order to keep up with culture and population growth. Kakamega District relies heavily on agricultural products from other parts of the country such as milk from the Nandi hills, horticulture from central Kenya and cereals from the Rift valley. Although this creates local market necessary for the sustenance of rural economies, Kakamega also needs to participate in this economy by being not only a recipient, but also a supplier of some of these agricultural products. The heavy reliance on sugarcane mono-cropping whose returns are moderately poor and at very long time spans need to be discouraged. Instead, diversification of crops and upgrading of livestock is a prerequisite to ensuring livelihood security as one of the strategies to save Kakamega Forest. The main cash crops grown in Kakamega District includes sorghum, cassava, sweet potatoes, banana, tea, coffee and sugarcane; while the main food crops include maize, beans, finer millet and local Zebu as the most popular livestock breed (table 8.2). According to the agricultural officers, harvests are very poor due to lack of open reception to new technologies and the high prices of farm inputs. The solutions to these problems are diverse. On one hand, a vigorous awareness creation and capacity building is required in order to encourage and enable the community to embrace new ideas and be receptive to change. On the other hand, such strategies as provided for by the Agricultural Act (see context chapter 8) need further implementation to ensure that the vision of the ministry of agriculture, which is ñsustainable and equitable rural

development for allò is achieved. For further information on how to improve agriculture in Kakamega District, please refer to the results of our partner BIOTA project of E14B, Bonn University sub-project.

Land tenure

Kakamega Forest is considered government land while most of the land in the neighbourhood is absolutely free hold. Being on government land, the forest has been under a protective policy since colonial days. This makes the community not identify the forest as their own property held in custody by the state. This is interfering with the introduction of Participatory Forest Management since the communities are still not sure of the resource tenure. Long-term resource tenure needs to be conferred to the community in order to encourage long-term Participatory Forest Management projects.

In the buffer zone, the kind of interpretation on land tenure here makes the community not to feel obliged to respond to any new agricultural technologies being introduced. They can do as they wish with their own land. At policy level it is necessary to introduce some incentives/disincentives in order to persuade the community to respond to change, thus, making biodiversity protection a success. Such measures may include some form of taxation on those who have no woodlots on their farms for example, and rewards to those who grow alternative crops that may be rare but useful to the people here, et cetera. These are just examples which could be effective on one area and not the other depending on communityôs preferences. Otherwise, any initiative to introduce foreign packages may prove futile since change is never easily achieved.

Culture and gender inequality

In Kakamega district, the Abaluhya community dominant here have preserved some of their traditional culture. In every village, there is an elder whose role is to oversee village social activities and arbitrate in case of disputes. He is not in the government administrative line. However, even government officers here use their services a lot to communicate to the community since they are highly respected. Since no legal provision for the management of buffer zones is in place in Kenya, such informal avenues can be complimentary to the policy provisions. Once employed, compliance to the formal laws and regulations will be improved since the institutional set up will be harmonised.

Culture in Kakamega District seems quite discriminative on women. Women are the main farm cultivators, but since the system is patriarchal in nature, they cannot inherit land. Men are the main decision makers on property issues although many of them go out of their homes for alternative employment and may sometimes be away for long. However, about 90% of the women interviewed felt satisfied owning land that is registered in their husbandsô names. Most of them are allowed to manage the land as they wished; but disposal of farm products such as trees and livestock is a decision normally made by men. Moreover, the fact that women are culturally not allowed to plant some crops such as bananas and it is the role of men to plant trees may affect agro-forestry and food security measures. This is catered for in the sense that other family relations such as brother-in-laws may undertake these duties on the womanôs request thus catering for the husbandôs absence. Alternatively, through women groups, women are able to own land and even organise for tree planting. Women groups are thus a big contribution to the management of the buffer zone. Women groups also gives the women a chance to lead and contribute to meeting agendas. In mixed group

discussions, most women remain passive but transform to being very active once the groups are separated.

Although gender predetermines different expectations about appearance, qualities, behaviours and roles assigned to men and women in a society, the Abaluhya women like most other African women in the rural areas are yet to get influential in decision-making. They hold lower social, economic and political positions. Such social ills as wife battering, sexual abuse of the girl child, non-spousal violence and rape have been reported in Kakamega (Kakamega District Development Plan 2002-2008:20). This has physical, psychological and social problems like loss of life, depression, suicide and even isolation. This impacts negatively on poverty reduction and sustainable growth.

On the other hand, women are numerically advantaged. They are the majority in the district labour market. Unfortunately, most of them are concentrated in the lower job groups or work on their own farms (ibid). Those working on their farms have little or no control over the returns. Earnings from such cash crops as sugarcane and tea are usually collected and exclusively spent by men (oral interviews, Roho Moja Namulekhwa women group). Women are thus left extremely poor, yet they are the defacto family heads. The alternatives they have include harvesting such forest products as firewood and thatch for sale. This means that to secure the forest, women needs must exclusively be taken into consideration. This includes empowering the already active women groups on the ground. In the case of Echuya forest in box 10.1, it is evident that some of the successes story reported is through dealing with exclusive women groups. This contributed to the success of the participatory forest management initiative. In Kakamega Forest, women also have the adverse numerical disadvantage of being the majority petty forest offenders. Empowering them will divert the attention of a big number of forest offenders to other more beneficial activities.

The main challenge the women want addressed is on registration of women groups which members of the women groups felt that it was too bureaucratic. As a result, 80% of the women groups interviewed were not registered. This keeps them away from qualifying for formal loans from banks, which would go a long way in improving their status. Although being registered landowners may also guarantee women credit using land as security, rarely do the community here use land as collateral. This is considered a taboo and abuse to cultural land due to the risk of default, thus auction. Banks and other credit institutions are also reluctant to securing loans on most of such land which is normally very small in size and also due to the fact that its cultural value makes it very difficult to get a buyer in case of an auction.

Cooking energy sources

The other factor that adversely impacts on forest conservation is firewood harvesting. About 99% of the rural population use firewood for cooking because it is cheap and also readily available from the forest. Although harvesting of dead wood is allowed, demand exceeds the availability of dead wood at any particular point. So women turn to cutting live wood, which is left as dead wood for the next collection. The big number of firewood collectors also means more stress on the forest.

There are such women groups as Mwikwiri that have been promoting energy saving Jikos, but the response was not very good. They were considered inconveniencing to many users since warming oneself on the fireside in the evening is not possible. This means that the same Jikos needs to be improved such that they cater for the custom of sitting round the fire as people socialise in the evenings. On the other hand, energy saving Jikos need to be promoted as earlier mentioned. The old clay pots can also be enhanced to cater for the peoples changed cooking needs today. Encouraging the

community to accommodate agro-forestry on their already small farms is also necessary. Charcoal burning is also a common offence in the forest since demand for charcoal is quite high and steadily growing in the urban centres. With the price of petroleum products going up, most people are now abandoning gas and oil paraffin as a source of energy and the main alternative cheaper cooking energy is charcoal. This means pressure on the forest as more forest offenders try all means to harvest forest trees to benefit from the increasing charcoal prices and demand. So far, the use of biogas as a possible alternative source of energy has not been readily explored, but it is now a follow up factor to be covered in the third phase of BIOTA project E14B, Dortmund University.

Another factor arising from a combination of most of the above factors and which contributes to forest degradation is poverty.

Poverty

Poverty in Kakamega district is defined as ñthe inability to access basic needs such as food, clothing, shelter and other socio-economic amenities such as health and education facilitiesò (District Development Plan 2002-2008:22). Those in this category are classified as living on less than one dollar a day. Kakamega District contributes 5.89 per cent to the national poverty (see Box 8.2). Some of the factors given for this situation include the large and rapid increasing population, which has resulted to sub division of land to uneconomical sizes. Inaccessibility to credit due to prohibitive interest rates and lending requirements, poor access roads to agriculturally rich areas and the high rates of mortality and morbidity are the other factors contributing to poverty. High disease incidences, idleness, laziness, lack of entrepreneurial and employment opportunities, low incomes, over dependence on one cash crop especially sugarcane also add up to the poor economic situation. Low agricultural and livestock production due to low rates of adoption to new technology and poor marketing systems, high drop out rates from primary schools also exacerbate the situation further (ibid). As a result, over-dependence on the forest by the adjacent communities is evident.

In order to save the forest, the high poverty level in the neighbourhood is a dominant factor that calls for serious consideration. In the above sub-chapters, various recommendations on how to improve the peoplesô livelihoods have been given in regard to population control, improving agricultural production, seeking alternative non-farm employment opportunities, addressing land tenure and gender challenges. Fighting poverty calls for a holistic social, economic and political approach to development issues that encourage equity, checks on corruption, respects the rule of law addressing upcoming issues as need be. Having largely dealt with the most significant socio-economic issues with respect to Kakamega District above, we now address political issues currently affecting biodiversity conservation.

Political factors

The main political hindrance we have had in Kenya is lack of political good will. Today, political goodwill may have improved in comparison to the previous Moi regime in the sense that forests are no longer subjected to destruction through the abuse of political power. However, rebellion has taken a tribal dimension. Due to the tribal clashes interpreted as post-election violence between December 2007 and January 2008, tribal cleansing has been achieved. This means that the staff of Kakamega Forest must be Abaluhyas. Every tribe has to live within its customary boundaries. These are the informal or social institutions discussed in this study. These institutions were ignored in

policy making and were treated as forgotten. All the traditional communal land boundaries have been replaced by administrative boundaries. Unfortunately, the people know and still passively respect the traditional boundaries. If the people were involved in the policy making process after independence, these issues would have been ironed out.

Today, this calls for a re-visit of the countryôs policies on all sectors. On one hand, the situation might ensure higher law-compliance since every community will be dealing with their own tribesmen in all sectors. On the other hand however, there may be lack of crucial expertise needed to manage natural resources in various parts of the country. It is still too early to give a conclusive statement, but on the natural resource front, a lot has been and will be lost due to this period of political turmoil. Such industries as tourism, which is the strongest pillar of conservation in Kenya, have collapsed and it may take several years for such industries to recover. This will impact on the participatory conservation policies now being introduced in Kenya.

On the other hand, some of the internally displaced people have now resorted to illegal occupation of forestland. Although Kakamega Forest has not been reported as affected, such forests such as Mau Forests have (Box 10.2).

Box 10.2 Poll violence threaten the survival of key water source

> ñConflicts do not just destabilise human lives. The environment also suffers when mobs take advantage of a breakdown in law and order to invade forests and plunder other natural resources.
>
> January was a particularly bad month for the 400,000-ha Mau Complex, one of the key water sources in Kenya. Taking advantage of the post-election violence, hordes of people invaded the forest and hived off land for themselves. Others cut down the threatened Podo tree species to burn charcoal.
>
> Conservationists who have mapped the extent of the destruction have warned that invaders could destroy the forest. ñThere has been trouble there over the last two months,ò says Mr D.S. Mbugua, the director of Kenya Forest Services. He is worried by the human encroachment of three of Mau Complexôs 12 forests ï South West Mau, Trans Mara, ol Pusimoru and Maasai Mau. According to him, the situation is serious.
>
> The post-election violence displaced numerous Forest Department workers from Narok and Trans Mara districts. ñThere were raiders inside the forest. (The remaining) staff were overwhelmed. In fact because of the eviction of some ethnic communities, a number of the forest stations were unmanned,ò says Mr Mbuguaò

Source: Daily nation 11th March 2008

Many more cases of forest destruction are expected as these displaced families all over the country search for land for settlement and farming. Many more unaffected people will take advantage of the situation to encroach the forests in Kenya. This calls for a lot of political good will to reverse the situation.

In order to achieve such political goodwill and other factors discussed in this study for the benefit of conserving biodiversity and securing the communityôs livelihoods, the majority have to be in a position to influence the policy process in order to accommodate the many ideas that goes unnoticed. How this can be achieved is discussed in the following section.

10.3 Influencing policy

The objective of policy research is to inform policy. ñPolicy research analysis aims at assisting and advising policy makers on how to make better policy choicesò (KIPPRA 2005:20). ñIt also enables them to assess the success with which earlier policy targets

and objectives have or have not been met and the potential impact of policy optionsò. However, in many instances, policy research does not reach the target clients. This is mainly blamed on the mode of policy communication among other factors. In addressing communication in the process of undertaking a policy research, it is important to,

i. maintain communication when undertaking the policy research
ii. ensure that policy research is undertaken through a participatory process
iii. translate data collected, analysed and interpreted into a policy research report
iv. and finally, plan for lobbying and advocacy.

In this context, the first three factors have been addressed, however, the fourth and most crucial factor is yet to be addressed, that is lobbying and advocacy. The purpose of lobbying and advocacy is to influence the formulation of the relevant policies such that they are accepted by the government as meeting its goals for economic development, reflective of a well thought strategy and owned by those who will implement them (ibid). This is in most cases an element not addressed in academic research projects such as this one. As a result, so many resourceful research results are lying in libraries and not much has been done to implement or even borrow from them in making decisions. The challenges that may come with lobbying and advocacy in terms of finances, embracement of new ideas and the risk of adopting new approaches are hereby appreciated; however, it still is the best way to make policy research meaningful.

In so doing, it is important to address the lack of political goodwill that is evident in most developing countries. In Kenya, for example, the parliament has the power of approving every law of the land, yet avenues available to address the members of parliament on new ideas are minimal. Today, conferences and workshops are a real source of the current effects of policies operating in a country. However, the common role of sector ministers in Kenya is to simply open the conferences and leave the professionals to continue with the debates, yet, they are most instrumental in approving and lobbying for any policy improvements emanating from such informative forums. In order to improve on the mode of policy communication, it is necessary that policy researchers,

i. time policy reports
ii. ensure accuracy, fairness and balance of the reports
iii. use appropriate technical writing style
iv. foster proper appearance of the reports
v. tailor policy report format, style and language to the audience
vi. enhance persuasion for ñbuy-inò
vii. address all stakeholders (KIPPRA 2005:20)

Addressing these factors, backed by the necessary logistics will make the work of a policy researcher worthwhile in informing policy makers of the ground factors that need attention at any particular point in time. This process addresses all policy levels, that is, the micro, meso or macro levels of an organization, a community, and a nation and also applies to international policies.

This report is considered quite timely considering the current international debate on biodiversity conservation. Such forums as the recent 9th meeting of the Conference of the Parties (COP) to the Convention on Biodiversity Conservation (CBD) on the 19th -

30th May 2008 are evidence to the urgency involved in biodiversity protection. This report contributes to such measures in that it meets factors i-iv as enumerated above; it is written in language that is appropriate for the majority of readers, fair and well formatted. The challenge however lies in addressing the last three factors. To address most of the community members in Kenya, various handouts need to be extracted from this report and translated to Kiswahili, which is the national language. On the other hand, chances for advocacy and persuasion for buy-in may be a goal beyond the researcher who exited Kakamega Forest after field survey with no strategic plans for a come back. Selling the results to not only all, but even to a majority of the stakeholders is not a task so far in the pipeline. However, many stakeholders in Kakamega Forest complained that researchers never provide a copy of their findings to them for a follow up. In this regard, various copies will be delivered to the stakeholders with the aim of disseminating the information further. In addition to disseminating policy research findings, other institutional recommendations specific for Kakamega Forest are here below presented.

10.4 Institutional factors

Picking up the institutional challenges discussed in chapters 6,7 and 8, this section highlights the main institutional recommendations necessary for enhancing biodiversity conservation in Kakamega Forest.

1. Bridging of the formal and informal institutional disconnect

The disconnect between formal and informal institutions arises due to lack of community participation in the policy formulation process. As a result, policy makers address issues that concern the community without consulting them. More often than not, this makes the kind of incentives and disincentives set not reflect on the status of the community. The purpose of institutions is to create the right incentives and disincentives for the stakeholders in order ensure compliance to the set laws and standards. Through participation, the community can be able to set priorities on the kind of incentives/disincentives that they feel will be effective.

Community participation in Kakamega will encourage community ownership of the forest conservation measures and thus higher compliance to forest regulations. Some avenues of participation include public ñbarazasò or meetings to discuss on forest issues. Other public gatherings common in kakamega and which can be used to discuss forest issues with the community include Community Based Organizationsô meetings (appendix 3) and church gatherings. These are two very influential entities that attract a majority of the population. Village elders are also respected as the community spokesmen and any information delivered through their consent or through them is considered more authoritative than would be a message from the public administrators. To crown it all, community members need to be given some management responsibilities such as monitoring, benefit sharing, imposition of sanctions, conflict resolution details of which are discussed in the context chapters 6 and 7.

II. Harmonisation of forest regimes

As discussed in chapter 1, the administration of Kakamega Forest is currently under three major regimes, which include the Kenya Forest Service and the Quakers; and the Kenya Wildlife Service. These regimes create a kind of inequity by their preferential treatment of the community. The idea of having one section of Kakamega Forest as a

natural reserve with strict non-harvesting laws and regulations is in this regard quite informed. However, what is lacking is equity in sharing the reserveôs proceeds with the adjacent community whose opportunity costs of having controlled use of the forest are high.

The Kenya Wildlife Service none-harvesting policy is commendable, but the service needs to open up its policy to community participation in harmony with the other two regimes. Direct extraction activities should be discouraged or strictly monitored for they encourage forest destruction due to the large number of forest users. However, sharing the reserve returns by funding projects of community preference is recommendable.

III. Communication and information dissemination

The official language in Kenya is English while the national language is Kiswahili. Another 43 languages are spoken in Kenya based on the various ethnic groups. However, all administrative documentation is in English inclusive of all policy papers, laws/regulations and even national identity cards. Although the current literacy rate for Kakamega District was not available (table 8.2), the majority cannot read and understand the contents of these documents. This hinders effective communication. The need therefore arises for all public documents to be produced also in Kiswahili, the national language.

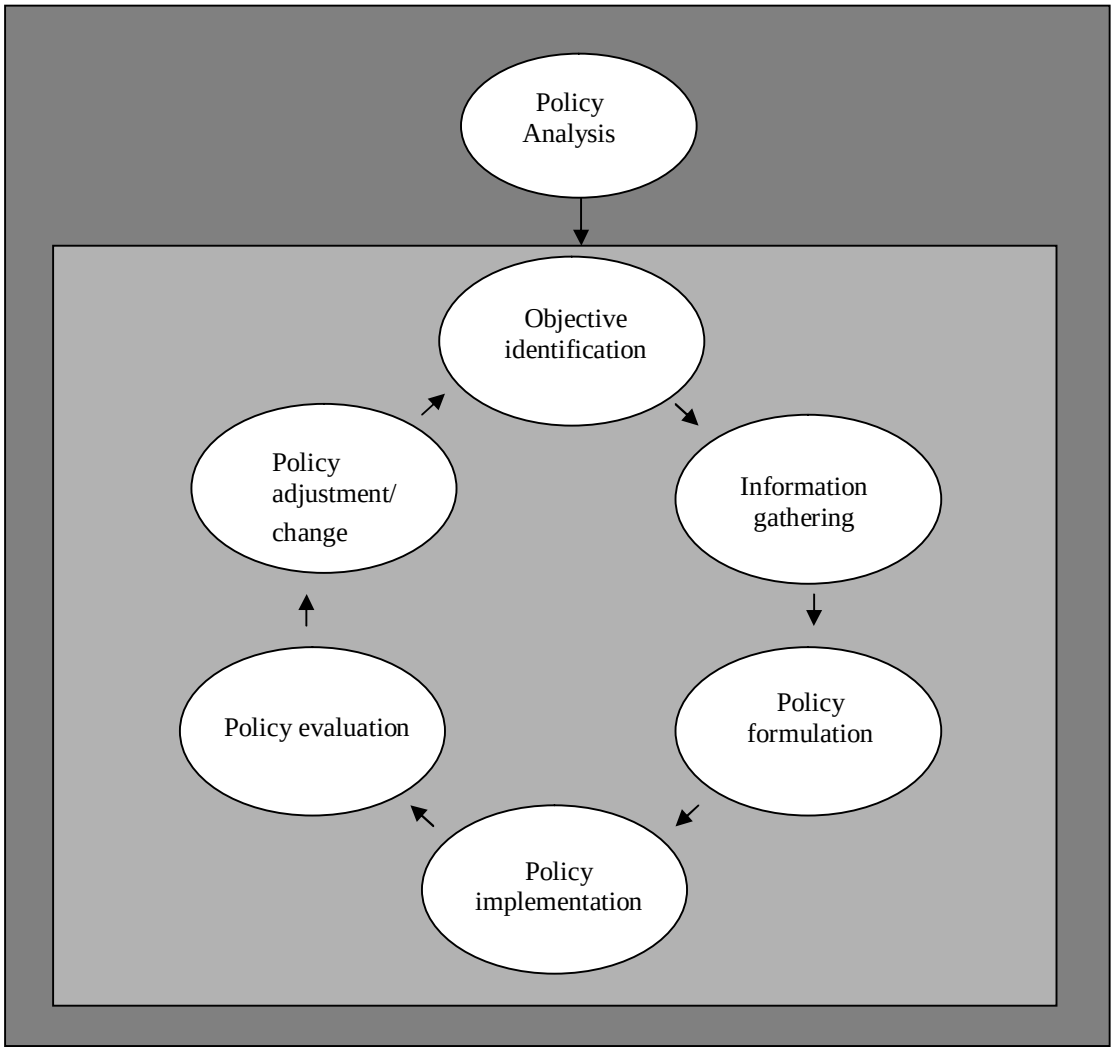
The contents of public documents are normally sensitive and most respondents during this survey felt that this could only be done through the government initiative. However, a partnership between the government and the civil society will be necessary in undertaking the actual translation and disseminating this information to the concerned stakeholders. In the short run however, it would be prudent to produce extractions in form of posters and pamphlets, which are a quicker, cheaper and convenient way of communication. In case of forest conservation for example, one can consider those issues that directly affect the community such as harvesting. It is possible communicate such information by making attractive posters that the community members can easily read and even hang in their houses. This is an attractive way of disseminating information.

IV. Bufferzone management

Standing at only 2% of the country area, the carrying capacity of forests in Kenya is not enough to meet all the demands expected of them by the high number of users. Moreover, forests have been subjected to a lot of political abuse and corruption in the last two decades. With Participatory Forest Management policy coming right on the heels of this era, no grace period has been given for the forests to rejuvenate, lifting biodiversity degradation to higher levels. In response, the study recommends intervention measures that focus more on the socio economic status of the buffer zone as discussed in section 10.2 above. What is so far lacking in Kenya and most other African countries is the provision of a legal provision covering forest buffer zones. Although a better-collaborated system among the stakeholders is recommended in the short run, legal provision covering the buffer zone is emphasized on.

In departure, the Kenyan situation is evidence that having biodiversity related policies on the ground do not necessarily mean success in biodiversity conservation. Instead, such policies must be implementation and compliance to such regulations stimulated in order to achieve the expected results. In the long run, results should be fed back into the policy system establishing a cycle of policy analysis (Figure 10.1).

Figure 10.1 Policy analysis cycle



Source: KIPPRA 2005:46

This cycle should constantly run from objective identification after which information is gathered and policies formulated. On implementation, policy evaluation needs to be undertaken at various intervals depending on the success of the policies. This will lead to policy adjustment or change based on actual implementation results, which will in return either build on the objectives already set or create new ones. Policy analysis is therefore not a one time adjustment, but a constant process. But as we stand, this study reflects the current policy or institutional environment in Kakamega Forest.

11 Conclusion

In conclusion, this chapter evaluates the study from an academic perspective. At the end of every academic research, it is advisable to reflect on the goals set and evaluate the extent to which they have been fulfilled or unfulfilled giving reasons for different scenarios.

11.1 Scientific reflections

At the beginning of this study, it was necessary to set a hypothesis, research questions and the objective in order to create a working platform.

I. Hypothesis

The study presupposed that ***ñ****the sectoral approach to the governance of biodiversity ecosystems in Kenya produces negative incentives that are a serious hindrance to biodiversity conservation.****ò*** This has been proved partially true because in analysing the various policy tools for Kakamega Forest (context chapters 6, 7 and 8), the various adverse effects emerging from the sectoral approach to forest management are evident; however, the effects are not wholly adverse. On the other hand, the sectoral governance system creates a comparative analysis such that at the end of the day, it is possible to evaluate and see which of the policy tools is best suited for what purpose. Moreover, it happens that not only the sectoral nature of governance affects biodiversity conservation in Kakamega Forest, other external factors impact on the same as chapters 9 and 10 elaborates.

II. Research questions

Looking at the research questions, it has been possible to progressively answer all of them in the study. The questions were,

- What are the current formal and informal property institutions governing biodiversity in Kakamega Forest?
- How well have they been implemented and complied with?
- What is the way forward for sustainable management of biodiversity in Kakamega Forest?

Both the documentary and physical sampling has given us a comprehensive list of the institutions at play in Kakamega Forest thus answering the first research question. In analysing these institutions, we have realised that the main problem lies in the low levels of compliance. Although all the policy provisions have not been implemented, the most crucial ones as in property rights are being enforced though with a lot of challenges. These include the rights to access, withdrawal, management and exclusion, thus answering our second question. The main trend noted in institutional changes is that the policies are now more participatory. In creating the right incentives or disincentives, a lot is yet to be achieved as varying issues discussed throughout the text elaborates. On the way forward as the fourth question demands, activities that discourage forest harvesting are recommended calling on more policy attention on the buffer zone and at the same time channelling forest non-harvesting benefits to the community. The four questions created a focus for the study, otherwise, more issues beyond but related to the questions have come up and are discussed at length.

III. Objective

The objective of the study was to ñpropose possible institutional pillars necessary for building institutional incentives and disincentives for sustainable management of biodiversity in Kakamega Forest.ò Concerning the proposed pillars, a framework was created that acted as a guide to this policy research (Box 2.1). These are considered the pillars necessary for the governance of Kakamega Forest.

IV. Contribution to the scientific debate

In undertaking this policy analysis, Ostromôs (1990:90) design principles have been employed at large (Box 2.1). However, on further evaluating the situation in Kakamega Forest, it has been discovered that a lot of other external factors beyond institutions also affect the governance of Common Pool Resources. In response, two more principles were evaluated as being very relevant to the situation in Kakamega Forest. One factor is the ñrecognition of traditional rightsò in the governance of Common Pool Resources. This factor has not proved as effective as always advocated for. Reasons realized are that culture is dynamic and a lot of what we refer to as ñtraditional rightsò are either forgotten or overtaken by economic pressures. As a result, what policy makers need to look for in the management of biodiversity are the social constraints that are evident in a society at any point in time. If any elements of traditional rights still exist or are crucial, they will emerge in this exercise.

The other factor is ñbuffer zone institutionalizationò which has emerged as the major policy factor so far neglected in biodiversity conservation. Critically looking at Ostromôs (1990:90) eight institutional design principles, they are very crucial for a well-defined Common Pool Resource. However, they treat Common Pool Resources with a lot of isolation in the sense that other external factors beyond institutions do not seem to play a role. Such factors as livelihood security being a major contribution to the governance of Common Pool Resources do not emerge as strongly in Ostromôs case as it practically does in the Kenyan situation. This study however argues that to conserve Common Pool Resources, in this context forest ecosystems in poor economies such as Kenya, it is very crucial to consider a buffer zone policy guidelines that should complement the already existing Forest regulations. The need and urgency of buffer zone regulations at both national and international level is therefore worth further debate and consideration.

11.2 Space for further research

In the course of this study, various subjects of research in relation to biodiversity conservation came up but could not be comprehensively covered considering the scope of the study. In this regard, further research is called for in the following:

- alternative sources of community livelihood and related infrastructure
- single out the role of gender in biodiversity conservation
- the role of international policies to biodiversity conservation/degradation (world trade rules, Bio fuels, Carbon trade)
- conditions for buffer zone legislation

To protect biodiversity, it is important to improve the community livelihood security around Kakamega forest. Further research is needed on this in order to identify the possible and viable alternatives. This study is already in progress in the next third phase of this project, BIOTA East Africa, Dortmund University. Since there are different

cultural roles for men and women, and majority of the stakeholders in Kakamega are women, it becomes crucial to find out what roles each gender group could comfortably undertake in biodiversity conservation.

Beyond Kakamega Forest, the role of international policies on biodiversity conservation needs to be researched on in order to identify their levels of implementation and compliance, thus their effectiveness in biodiversity conservation. Factors necessary in legally covering buffer zone management to enhance on forest conservation also call for further research. The end of this study therefore marks a beginning for many other issues that need to be considered in the fight against biodiversity degradation.

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