INFLUENCE OF FOREST GOVERNANCE PRACTICES ON FOREST PROTECTION IN KENYA: THE CASE OF NGONG HILLS FOREST

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DECLARATION

I declare that this thesis is my original work and has not been presented to any other university for academic work.

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DEDICATION

This research is dedicated to my wife Florah, my sons Victor, Gideon and Caleb and my parents Mr. and Mrs. Wesley Kimosop, for their motivation and support during my study.

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ABSTRACT

Forest Governance is critical in ensuring that forest resources are sustainably managed. It is also important in ensuring that decisions are taken and implemented for the realization of environmental, ecological, cultural, social as well as economic benefits. Despite all these benefits, Kenya faces a shortage of forests coverage, which is currently standing at 7.2% against the global requirement of 10%. Even more intriguing is the fact that there is continuous loss of large hectares of forests yearly due to illegal logging, unsustainable farming, encroachment and forest fires. The purpose of this study was to find out the influence of forest governance practices that is participatory planning, forest regulatory framework and enforcement of forest governance practices on forest protection in Ngong hills forest. This study was anchored on the Institutional theory and Stakeholder theory to explain the theoretical concept. This study adopted a descriptive research design to achieve the study's objectives. Data was collected from 168 respondents drawn from the target population using a questionnaire and key informant interviews. The quantitative data was analyzed using descriptive statistics while qualitative data was analyzed using content analysis. The study findings showed that participatory planning in forest protection was implemented to a moderate extent due to minimal involvement, inadequate cooperation and limited capacity building of stakeholders as held by 65% of the respondents. Additionally, the existing forest regulatory framework was moderately adequate but required further amendments to align various issues concerning promotion of forest user rights, its clarity and consistency with other related legislations as supported by 72% of the respondents. Further, the level of effectiveness in enforcement of forest governance practices was to a low extent due to resource constraints for continuous training and acquisition of necessary tools and equipment to support forest law enforcement as supported by 81% of the respondents. This implied that improving participatory planning, strengthening regulatory framework and investing in enforcement would improve forest protection significantly. The study recommends that Kenya Forest Service should adopt a holistic approach of implementing forest governance practices through enhancing participatory planning, strengthening and publicizing forest regulatory framework and encouraging collaborative enforcement for improved forest protection. The study findings may be of importance to Kenya Forest Service and stakeholders in forest governance in presenting ways for improving forest protection in Kenya. Additionally, the scholars would benefit from the study findings in further building literature on the theme based on the research gaps identified.

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DEFINITION OF TERMS

Dumping in forests refers to disposal of wastes in forest environment against the existing laws and regulations (ClineCole & Madge, 2017)

Encroachment refers to the entry into the forestry domain in contravention to the existing laws and regulations (Kenya Forest Working Group, 2017).

Enforcement of Forest Governance Practices refers to the various measures undertaken to ensure compliance with formal rules and regulations that are put in place to promote sustainable management of forests (IUCN, 2007).

Forest fires refers to burning of plants in their natural settings which consumes natural fuel and spreads based on environmental conditions (United Nations Spider, 2021)

Forest Governance is the process of formulation, articulation, administration and implementation of forest regulations owing to sustainable management of forests at local or national levels (IUCN, 2007).

Forest Protection refers to securing forests from potential threats which may lead to destruction and degradation of forests for example unsustainable logging, unsustainable farming and grazing, encroachment, some forest fires, and dumping in forests (Bruenig, 2016).

Forest Regulatory Framework refers to instruments put in place to ensure that there is an enabling legal and governance arrangement to support and facilitate sustainable use of forests (FAO, 2015).

Illegal logging means harvesting and utilization of wood products in contravention of established laws and regulations leading to negative socio-economic and environmental impacts (Forest Law Enforcement, Governance and Trade, 2021).

Kenya Forest Service is an agency of the Government of Kenya designated by the Forest Act of 2005 and as revised in 2016 with the mandate to conserve, protect and manage forest resources sustainably for current and future generations (Presidential Taskforce on Parastatals Reforms, 2013).

Participatory Planning is the process through which internal and external stakeholders are involved in devising of forest related activities as well as plotting a course of action (Bruenig, 2016).

Unsustainable farming in forests refers to utilization of forest resources for farming activities (crop or livestock keeping) in a manner that doesn't consider the needs of future generations (ClineCole & Madge, 2017).

ACRONYMS

ARPIP	Action Research into Poverty Impact of Participator Forest Management
CCTV	Closed Circuit Televisions
CFA	Community Forest Associations
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
FLEGT	European Union Forest Law Enforcement, Governance and Trade
FMIS	Forest Management Information Systems
GoK	Government of Kenya
ICTs	Information and Communication Technologies
ISO	International Organization for Standardization
KeNRA	Kenya Natural Resources Alliance
KFS	Kenya Forest Service
KFWG	Kenya Forest Working Group,
KII	Key Informant Interview
NEMA	National Environment Management Authority
PCM	Participatory Community Mapping
PFM	Participatory Forest Management
RCB	Resource-Conserving Behavior
UN-SPIDER	United Nations platform for space based-information for disaster management and emergency response
USA	United States of America
VPA	voluntary partnership agreements
VPLUPs	Village Participatory Land Use Plans

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter presents a background of the study of forest governance practices and forest protection in Kenya. Specifically, there has been a focus on participatory planning, forest regulatory framework, enforcement of forest governance practices as well as forest protection. The chapter also presents the statement of the problem, purpose of the study, objectives of the study, research questions and significance of the study. Further, it shows the scope of the study, delimitations, limitations, assumptions and theoretical conceptual framework.

1.2 Background of the Study

The concept of forest governance is a well-researched topic globally and regionally. Based on the decision reached during the 1972 Stockholm Conference, countries need to have sound land and forest use practices given that forests are the largest self-perpetuating ecosystems (Masese et al., 2017). The roles of forests range from among provision of environmental services to sources of economic products. Environmentally, forests being essential water towers are sources of rivers. They also mitigate floods, store, purify and recharge water, help in controlling soil erosion and siltation as well as regulate micro climate (Obati & Breckling, 2015). Forest governance according to Wirtz et al. (2021) involves the establishment of stable institutions to solve conflicts related to forests, quality of forest administration as well as coherent forest legislations (Oksanen, 2016).

In Philippines, Pulhin, Inoue and Enters (2007) argued that forest governance fail due to inadequate articulation of policy, conflicting policies and poor implementation. Their study suggested that the quality of good forest governance rely on good working relationship between decentralized systems, clear forest policies and existence of institutional structures. In regard to protection of forests in the Nordic countries, Gulbrandsen (2005) argued that forest governance measures arose as a result of the need to certify forest products, eco-labeling and forest holdings.

These practices ensured enhanced market participation by licensed forest organizations and reduced conflicts on forest related matters. Similarly, it was noted that forest governance practices are poorly implemented due to government disinterest, inconsistent forestry laws, increased corruption, discrimination in harvesting of forest products and ineffective enforcement of forest laws (Smith et al. 2006).

In Latin America, Brazil has made tremendous efforts to reduce illegal deforestation in the Amazon forest. The government initiated effective forest governance practices through introduction of certification of forest products. There was also an introduction of a council, Forest Stewardship Council (FSC), to handle forest related matters in the Amazon region to support forest conservation (Boucher et al. 2013). The two governance tools brought about standardization, allowed monitoring of forest products along the chain of custody and conformity to both national and international forest governance practices (Boucher et al. 2013). Further, in attempt to ensure the sustainable conservation and protection of Amazon forest, Inter-American Court of Human Rights provided an advisory opinion in 2017 and further landmark decision in 2020 in a case between Argentina and indigenous communities which granted

personhood status to nature (Schoukens, 2018). Additionally, Bangladesh, India and New Zealand followed suit by granting personhood status to three rivers (Willems, 2021). This paradigm shift is viewed as a progressive step in the area of governance of natural resources.

In Peru, an assessment of whether recent radical changes in laws governing forestry resulted in significant improvements in logging practices was carried out. It was found out that, effecting radical changes in logging practices is particularly difficult in countries with a history of governance failures in the timber sector. The governance failures that have promoted norms inconsistent with sustainable forest management are government's perceived lack of interest in long-term management of timber, inconsistent forestry laws, perceived discrimination against the timber sector, and ineffective law enforcement. As a result of these governance failures, loggers developed a short-term perspective on timber extraction and felt entitled to violate government's laws. Poor logging practices continued under the new law because of governance failures (Smith et al. 2006).

Biodiversity loss has majorly been caused by illegal utilization of natural resources despite efforts put in place by governments and other stakeholders due to weaknesses in enforcement of laws and regulations. Present day conservation efforts has adopted participatory approach that involves resource adjacent communities through provision of optional livelihood support programs, awareness creation and entrenching sustainable resource management. However, the enforcement sequence involving crime detection, apprehension, prosecution and incarceration are faced with numerous challenges related to ineffectiveness.

The outcome of an analysis carried out by the Conservation International suggested that for enforcement to be effective, the enforcement sequence should be viewed as a whole. This is because addressing the shortcomings of one step without the other would be counterproductive- which is the practice by many governments and agencies in conservation sector (Akella et al., 2017).

Regionally, forest governance is characterized by weak policies and inadequately developed forest institutions- despite the importance of forest ecosystems, as argued by Brandt, Nolte and Agrawal (2016). According to ClineCole and Madge (2017), although up to 16 percent of the forest cover in the world is in Africa, there has been massive loss of forest cover on the continent due to illegal logging, unsustainable farming, encroachment, dumping and forest fires. In the last decade, a total of 4 million hectares were lost annually.

The republic of South Africa moved away from the Communal Areas Management Programme for indigenous Resources (CAMPFIRE) due to management problems experienced from devolved decision-making practices. The current approach to forest governance is participatory management which was adopted in early 2000. The approach came with it strategies bearing key tenets of good forest governance including sustainability, involvement, transparency, capacity building, partnership among others. It also promoted participatory planning as a strategy for both state and private forest management. However, the drafters of the PFM policy cautioned that some of the programmes may fail if there is inadequate support (Grundy, I. M., & Michell, N., 2004).

The republic of Cameroon has made efforts to protect its forests through effective management of the parks and forest ecosystem.

Some of the practices they have put in place are mainstreaming sustainable forest management standards through voluntary, adoption of European Union's Forestry Law Enforcement Governance and Trade (FLEGT) approach and application of Best Management Practices. In order to reduce unsustainable logging, the enforcement of these initiatives was geared towards increasing the forest area under best forest management practices (WWF, 2016).

In the United Republic of Tanzania, management of forests is done through both community involvement as well as co-management approaches. The Forest Act supports Participatory Forest Management in two ways, namely: Enabling local communities to declare and ultimately gazette Village, Group or Private Forest Reserves, and allowing communities to enter into agreements with government and other forest owners for joint forest management agreements. Consequently, Tanzania now has one of the strongest local institutional frameworks for community-based natural resource governance in sub-Saharan Africa (FAO, 2015).

Locally, forest governance in Kenya is guided by regulatory frameworks in Articles 42 and 69 (1) of Kenya's Constitution 2010, Forest Conservation and Management Act (FCMA) 2016, Second Pillar of Vision 2030, Sustainable Development Goal (SDGs) numbers 1 and 9, Draft Forest Policy (Sessional Paper No. 1 of 2007), ratified international conventions and agreements among other National policies and legislative frameworks linked to forest management and conservation. These frameworks provide for mechanisms for prudent management of resources and

strategies for the attainment of 10% forest cover as per international standards (MENR, 2016).

In addition, Kenya Forest Service which is a state corporation established under FCMA, 2016 is mandated to conserve, protect and manage forest resources sustainably for the benefit of current and future generations. FCMA, 2016 provides for participatory Forest management through Community Forest Associations (CFAs) (MENR, 2016). Other joint agencies which KFS operates with include but not limited to Kenya Forestry Research Institute, National Environment and Management Authority, Green Belt movement, conservation donors, research and learning institutions among other actors (GoK, 2016).

Despite such a strong regulatory backing the Kenya Forest Service (2019) annual report showed that Kenya has a forest cover of 7.2% - thus a low forest cover country. There also exist poor forest governance practices in Kenya as shown by degradation and loss of forest cover to competing land use from agriculture, industries, human settlements and other infrastructural developments (Action Research into Poverty Impact of Participatory Forest Management (ARPIP, 2016). This is threatening the benefits of forests in terms of environmental and socio-economic values which improve both the natural ecosystems to the human welfare (Borner et al., 2016) as well as its support of livelihood of up to 1.6 million people (Clements et al. 2015).

The aforementioned issues have also been established in Ngong hills forest (KFS, 2020). The forest is surrounded by natives and immigrant communities who bought land and settled close to it and neighboring trading centers. The forest is thus presently, threatened by human activities in the area resulting in the loss of forest land

and tree vegetation to give way for National development projects like a railway line, illegal human settlements, uncontrolled grazing, dumping, forest fires and illegal logging among others (MENR, 2014). To interrogate the existing forest governance practices and its link to forest protection, Ngong hills forest was purposefully chosen because the forest activities therein are common in most forest stations across the country especially those with similar ecological characteristics, thus critical in addressing the key issues surrounding the research topic.

1.3 Statement of the Problem

Forestry sector play an important role in National Economic growth strategy through contribution of approximately 3.6% of Gross Domestic Product which amount to around 7 billion Kenya shillings. It is also a source of approximately 50,000 direct employments and another 300,000 indirectly. The sector also directly supports other sectors of the economy including agriculture fishing, energy, water, tourism, public administration and defense (UNEP, 2009).

Despite the benefits, Kenya losses an average of 12,600 hectares of forest per year which amounts to an average annual deforestation rate of 0.34% (Kenya Natural Resources Alliance (KeNRA, 2015). Between 1990 and 2005, Kenya lost over 5.0% of its forest cover, which is 186,000 hectares of forest. Additionally, threats such as illegal logging, encroachment, overgrazing, forest fires, pests and diseases persists thus eroding the ecological integrity of the forest ecosystems and reduce their capacity to provide the environmental goods and services on a sustainable basis (KFWG, 2017; Global Forest Resources Assessment, 2015).

Based on Forest Resources Management and Logging Activities in Kenya Report (2018), the Management of forests in Kenya suffers inadequate workable systems for accountability in its practices. Further, the inability of the institutions and professionals in the conservation sector to understand and adopt the increasingly changing dynamics in values and needs of the society is a concern yet the existing literature has hyped the existence of practices of professional forestry founded on knowledge and requisite experience as observed by Imo, M., & Imo, M (2012).

These statistics and studies imply that there are challenges with the existing forest governance practices thus, this study was an effort to better comprehend the influence of forest governance issues with a view of reviewing and aligning them to improve forest protection.

1.4 Purpose of the Study

The purpose of this study was to establish the influence of forest governance practices on forest protection in Ngong hills forest, Kenya.

1.5 Objectives of the Study

i. To determine how participatory planning in forest governance influences forest protection in Ngong hills forest, Kenya

ii. To assess the influence of forest regulatory framework on forest protection in Ngong hills forest, Kenya

iii. To examine how enforcement of forest governance practices influences forest protection in Ngong hills forest, Kenya

1.6 Research Questions

i. What is the influence of participatory planning of forest governance on forest protection in Ngong hills forest, Kenya?

ii. In what way does forest regulatory framework influence forest protection in Ngong hills forest, Kenya?

iii. How does enforcement of forest governance practices influence forest protection in Ngong hills forest, Kenya?

1.7 Significance of the Study

In order to achieve its conservation, protection and management mandate, the state's lead agency on forest governance- Kenya Forest Service, has put in place various strategies or practices. This study seeks to interrogate how participatory planning, forest regulatory framework and enforcement of forest governance practices influence forest protection in Ngong hills forest.

The findings of this study are essential in assisting KFS Management in decision-making on improving forest protection efforts in Kenya. Specifically, the Management will have myriad options on approaches to improved governance practices in forest protection.

The findings of this study will also assist the Government of Kenya to review its Participatory Forest Management Policy across the country for purposes of minimizing existing gaps and improving forest protection efforts in collaboration with relevant stakeholders.

Academicians, who are interested in further research on how forest governance can be improved, will find the study an invaluable source of information. To the forest law

enforcement officers, this study will be critical in highlighting better governance strategies for the protection and security of forests through the achievement of compliance. The CFAs and relevant stakeholders who work closely with Kenya forest Service will gain insights on the need for strengthening partnership on matters of forest protection and general conservation.

Further, this study is expected to provide an avenue for policy recommendations towards the improvement of forest governance in Kenya. In addition, through ensuring forest protection, the general population will be able to benefit by reaping the ecological benefits of forests such as sufficient rainfall as well as clean and healthy environment.

1.8 Scope of the Study

This entails range of understanding that was covered in this research from the concept, context and the location as well as the time of conducting the study (Pandey & Pandey, 2021). The conceptual scope of the study is to assess the influence of forest governance practices on forest protection in Ngong hills forest. Specifically, the study seeks to establish how participatory planning, forest regulatory framework and enforcement of forest governance practices influence forest protection in Ngong Hills forest. The contextual scope of the study is Ngong hills forest in Nairobi conservancy in Kenya. The time scope of the study was the year 2020-2022. Finally, the methodological scope of the study was restricted to descriptive design with a target population of 281 and sample size of 168. The study utilized both questionnaire and interview guide in data collection while analysis was conducted using descriptive statistics.

1.9 Delimitations of the Study

Study delimitations are choices made by the researcher to describe the boundaries that have been set for the study as well as defining the parameters of the assessment that aims to narrow the scope of a study (Field, 2005). This study was delimited to forest governance practices as well as forest protection. The study was also delimited to Ngong hills forest only.

1.10 Limitations of the Study

This study was expected to face challenges at the data collection stage. The respondents would fail to provide some useful information for fear of indicating sensitive organizational strategies regarding forest protection. This was however handled by the researcher obtaining permission from the relevant forest management before proceeding to collect data as well as assuring the respondents of their confidentiality by providing an option of signifying or not indicating their names on the questionnaires.

The study also faced a limitation in accessing the forest offenders to get their opinion on forest protection and governance issues. This was because of possible unwillingness to give honest responses for fear of being arrested. However, the researcher leveraged on the CFA members who understood the illegal activities better because the offenders live among them in the community.

The study respondents would be too busy to effectively respond to the questions. This was because the study targeted employees of Kenya Forest Service and Ngong Hills Metro CFA executive members. This was however remedied by informing the respondents of the magnitude and importance of the data that would be collected as

well as the ethical requirements expected of them upon consenting to participate in the study.

The timing of the study was during the unprecedented time of COVID-19. Therefore, challenges were expected to arise during the data collection process where physical contact was highly discouraged. However, there was a need for the researcher to observe the health guidelines from the Ministry of Health especially where the physical administration of questionnaires could not be avoided. The health guidelines included; washing hands, keeping social distance during the interview, wearing masks and sanitizing. Additionally, with permission from the HR office at KFS, emails would be used for those employees who were absent, working from home or on leave.

1.11 Assumptions of the Study

An assumption is an unexamined belief (Orodho & Kombo, 2003). This study assumed that responses to the questions in the questionnaires were truthful and honest. The study also assumed that the respondents understood the research tools and correctly interpreted the questions to give valid responses.

1.12 Theoretical Framework

The theoretical framework is the structure that supports a theory of a research study (Mathiyazhagan & Nandan, 2010). Theories provide an existing hypothesis about a phenomenon thus challenging the existing knowledge (Sutrisna, 2009). This study was anchored on two theories namely institutional theory and stakeholder's theory.

1.12.1 Institutional theory

Powell and DiMaggio (1991) championed the institutional theory as an emerging perspective in sociology and organizational opinion, and as a cultural construction of

organizations, states and identities (Lounsbury, 2021). The theory advanced conformation to rules, beliefs and values in the society for institutions to earn legitimacy in the eyes of the stakeholders and to survive. Therefore, it can be argued that the formative environment in which institutions operate greatly influences their decisions and survival (Powell & DiMaggio, 1991).

In the context of this study, the theory demonstrated its application in forestry protection, conservation and management. Forest management follows certain practices, policies, norms, regulations, rules, customs and guidelines in their day to day guidelines. This guides in their relationship with the forest dependent communities, community elders, women and youth groups, religious groups, public, forest adjacent communities, Non-Governmental Organizations and other stakeholders including; Ministry of Environment and Forestry- which oversights forest governance, Kenya Forestry Research Institute- which is an authority on forestry research, Water Resource Management authority- which regulates water resource use, World Wildlife Fund- which assist in funding conservation efforts, Kenya Wildlife Services which is an authority in wildlife conservation, Ministry of Lands- which is an authority over all forms of land in the Country, Ministry of Agriculture- which enhances food security, Kenya Water Towers Authority- which oversees conservation of water towers and Ministry of Finance- which facilitates all government functions and County governments which implements specific national government policies on natural resources and environmental conservation, among others.

The theory has been criticized by scholars such as Max Weber for not specifying the range of institutions that are susceptible to being affected by formative environment as

well as not identifying the determinants of changes in institutional structures which an organization can adopt (Cooper et al., 2008). Nevertheless, the institutional theory was not fully adopted in this study since it was limited to institutions both formal and informal hence the need for a second theory was inevitably necessary to accommodate other players in forest governance.

1.12.2 Stakeholders Theory

In the mid-1980s, Richard Edward Freeman came up with a stakeholder's approach to strategy and as a framework for Corporate Social Responsibility (Galant, 2017). He argued that managers in an organization should make decisions that take account of the interest of all the stakeholders. He believed that organizations succeed in their operations when they consider the interests of all those involved in the day-to-day activities such as customers, employees, government and communities aligned and going in the same direction. He defined the term stakeholder as, "any group or individual who can affect or is affected by the achievement of the organization's objectives" (Freeman, 1984).

The general idea of the Stakeholder concept is a redefinition of the organization to include other parties involved in day-to-day activities including; governmental bodies, political groups, trade associations, trade unions, communities, financiers, suppliers, employees, and customers. The organization itself should be thought of as a grouping of stakeholders and the purpose of the organization should be to manage their interests, needs and viewpoints. The theory took account of a wider group of constituents rather than focusing on shareholders and in the context of this study the

theory informs the employees, community, donors, agencies, individuals and government (Miles, 2011).

In application to this study, the theory was used to understand the parties responsible for forest governance and forest protection. It looked into ways in which KFS partner with relevant stakeholders in their forest protection mandate. The theory was however criticized especially for failing to address the contractual interests which underlie stakeholder relationships just as they do the agency relationship between managers and stockholders as prescribed by traditional economic theory. The involvement of stakeholders could be affected by their different interests. However, the theory did not fully document these interests which may create an agency problem (Mansell, 2009).

Another criticism of the theory was that even though the idea that a corporation's objectives should encompass the interests of non-shareholding groups is held as a fundamental step in establishing a socially responsible business outlook, the theory failed to indicate exactly which stakeholders are to be considered legitimate. The theory further assumed that there was a harmonious relationship of elements between which, in actuality, choices must be made (Phillips et al. 2003).

1.13 Conceptual Framework

A conceptual framework figuratively summarizes the relationship between the study variables (Mugenda & Mugenda, 2009). The relationship between the study variables that is forest governance practices and their indicators and forest protection and its indicators as presented in Figure 1.1.

Independent Variable   **Dependent Variable**

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┌─────────────────────────────────────┐
│ Participatory Planning              │
│   • Stakeholder involvement         │
│   • Capacity building               │
│   • Policy development              │
│   • Cooperation                     │
│   • Dispute resolution              │
└─────────────────────────────────────┘

┌─────────────────────────────────────┐          ┌──────────────────────────┐
│ Forest Regulatory framework         │          │ Forest Protection        │
│   • Awareness creation              │          │                          │
│   • Clarity in policy               │   ──────▶ │   • Forest fires         │
│   • Consistency of laws             │          │   • Illegal logging      │
│   • Overlapping jurisdictions       │          │   • Farming              │
│   • Forest user rights              │          │   • Encroachment         │
└─────────────────────────────────────┘          │   • Dumping              │
                                                  └──────────────────────────┘
┌─────────────────────────────────────┐
│ Enforcement                         │
│   • Agency Collaboration            │
│   • Personnel training              │
│   • Technological application       │
│   • Tools and equipment             │
│   • Infrastructure development      │
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Figure 1.1 A Conceptual model for Forest Protection, *Source: Author (2022)*

This study was conceptualized on the argument that good forest governance practice is predicated on knowledge of existing forest governance practices which include forest planning; regulatory frameworks and implementation of governance practices. The desired result of this study was reduced forest deforestation and degradation, and improved public awareness in forest protection.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed findings by other researchers and scholars, showing how the literature relates to the study objectives. Specifically, it covered literature on how participatory planning, forest regulatory framework and enforcement of forest governance practices influenced forest protection.

2.2 Empirical Literature Review

This section discussed empirical literature based on the objectives of the study. It presented a review of studies by other researchers and authors. The review covered information whose source was related to the topic and objectives of this study. It specifically endeavored to establish how participatory planning influence forest protection, assessed how forest regulatory framework influence forest protection and examined how enforcement of forest governance practices influence forest protection.

Forest Governance practices as operationalized as forest planning, regulatory frameworks and enforcement of governance practices, encompasses: formulation, articulation, administration and implementation of forest regulations. This was done with the aim of securing forests from potential threats such as forest fires, unsustainable logging, unsustainable farming and grazing, encroachment and dumping in forests.

2.2.1 Participatory Planning in Forest Governance and Forest Protection

Participation of local communities in forest management and decision-making has been promoted as a means of improving livelihoods and forest conditions. It is useful

in managing conflicts through mutual negotiations and compromise amongst stakeholders who may be faced with competing interests. This model aids in obtaining valuable information on what the public desires and its effects on conservation, protection management of forest resources in the area applied. Its implementation is aimed at increasing frequency of participation, sharing ideas, considering available options as well as making appropriate choices (Boukherroub et al., 2018).

Natarajan, Lock, Rydin and Lee (2019) examined how public participation in decision making processes within the United Kingdom's renewable energy infrastructure was carried out. The project had a provision for local people's representation and involvement but opportunities for discussions and negotiations of issues were limited. Through the adoption of focused groups, the study examined how involvement of the public on regulations within the renewable energy infrastructure was experienced. The study found out that it was necessary to adopt a full and equal access to decision making processes by going beyond the statutory requirements in large companies. It also demonstrated the importance of inculcating a culture of having local understanding to foster workplace synergy. While the current study focused on participatory planning and forest protection, this study dealt with participation and major infrastructure in a non-African context which might affect the generalizability of the findings.

Overdevest and Zeitlin (2018) conducted a comparative study of the implementation of European Union's Forest Law Enforcement, Governance and Trade (FLEGT) through the voluntary partnership agreements (VPA) in Indonesia and Ghana. The study findings indicated that the adoption of VPA in the implementation of FLEGT

increased the success rate. VPAs ensured there were stakeholder participation, independent monitoring and joint implementation review. It also enhanced the empowerment of domestic non-governmental organizations with local knowledge which enabled the local community to expose problems on the ground, hold public authorities accountable for addressing them and contribute to developing provisional solutions. However, the study is different from the current one which adopts a case study technique and carried out in Ngong hills forest in Kenya, thus posing contextual differences.

Peerapun (2018) carried out an action research study of participatory planning approach to urban conservation and regeneration in Thailand. He adopted intensive application of participatory techniques throughout the planning process as well as application of local- level workable models to direct all strategies and policies. The study found out that the approach was very successful and it became an outstanding case study for conservation and regeneration of urban set ups. However, the study was faced with some limitations. The methodology adopted was action research, which casts doubt on the reliability and validity of information gathered from participants. The conclusion drawn may not reflect the views of the larger population in the community because it relied on researcher's observation and participant's responses in a specific context. The study was done in Thailand, unlike the current study which is a case of Ngong hills forest-Kenya, thus suffers generalizability and contextual differences.

The determinants of forest governance in Liberia in relations to citizen monitoring was examined in a study by Christensen et al. (2021). Through an experimental study, the

study established that involvement of community in forest governance led to a more informed forest governance and protection. Using on-the-ground environmental assessments and remotely sensed data, the study found no effects on forest use or deforestation. Households do not favor more conservation, and, thus, more inclusive management does not reduce forest use. The study used an experimental method hence presenting a contextual deviation from the current study which adopted a case study method of Ngong hills forest, Kenya. Further, the study by Christensen was carried out in Liberia and so its findings cannot be generalized to the current study because of varied socio-economic, religious and cultural interests.

Matsvange et al*.,* (2016) conducted a study on the role of communities in sustainable land and forest management in Zimbabwe. The study confirms the high rate of deforestation and the increased realization by communities to initiate practical measures aimed at protecting and sustaining forest and land resources from which they derive economic and social benefits. The results highlighted the value of community structures (Farmer Field Schools and Environmental Action Groups) as conduits for natural resource management. The interconnectivity among forests, agricultural systems and the integral role of people were recognized as key to climate change adaptation. However, the study focused on the role of communities in sustainable land and forest management as oppose to the current study that links participatory planning and forest protection.

In another interrogation, a study by Udeagha et al*.,* (2016) compared forest policy and administration in Nigeria and Tanzania. It was documented that while participatory

forest management practices were well adopted in Tanzania, the republic of Nigeria's approach was a total exclusion of local forest custodians.

The study however differs from this study in that while it adopted a comparative technique, participatory planning in forest governance in this study was examined in the context of how non-state actors including communities adjacent to forests and other relevant stakeholders apply sustained and critical engagement with state actors. Moreover, this study is a descriptive research while the reviewed study of 2016 was comparative in nature.

Mbeche et al (2021) examined the factors that support or constrain forest dependent people's participation in a Participatory Forest Management program in Mt. Elgon. The study utilized data from a cross-sectional survey of 924 forest-dependent households and probit model to assess households' choice to join PFM and then compute a Participation Index (PI) for forest users' participation across different stages of the PFM program – planning, implementation and Monitoring and Evaluation (M&E). Fractional regression approach was used to analyze the determinants of participation. The Study results show that over half (52%) of the respondents participated in Participatory Forest Management. The fractional regression model shows that transaction costs associated with access to markets, gender (being male), household expenditure and expected forest benefits positively influence household participation in PFM. However, the study was faced with the following limitations; first the study focused on the factors that support or constrain forest dependent people's participation in a Participatory Forest Management program which deviates from the current study linking forest governance practices and forest protection. The

study also used data from cross-sectional survey which does not analyze behavior over a period of time and flawed findings in case of conflict of interest with the funding source.

Another angle of stakeholder participation in forest management was adopted in a study by Guthiga and Mburu (2006) who analyzed local people's perception of management regimes by generating management satisfaction rankings by obtaining data from a sample of 376 households living adjacent to Kakamega forest. The study established that among the three analyzed regimes, the strictest was ranked highest overall for its performance in conserving the forest in its pristine state. However the study linked local communities' incentives with forest conservation but the current study linked participatory planning with forest protection.

The study was carried out in a rural set up- thus its findings may not be generalized to the current study in Ngong hills forest which is an urban setting.

Mutune et al., 2016) carried out a study on unpacking the impacts of participatory forest policies in Kenya. Despite establishing that members to the Community Forest Associations had accrued more benefits from their participation in forestry activities, the study still concluded that the present forest governance practices in Kenya seem not to take on participation in practice. However, this study had some limitations. The study used quantitative data only which is a deviation from the current study where it adopted both quantitative and qualitative data.

Focusing purely on stakeholder participation, a study by Kairu et al., (2018) sought an understanding of how state and non-state actors in Kenya negotiate the implementation of participatory forest management. The study established that there was widespread

implementation gap of this approach despite the ambitious intent enshrined in legislation and often partial implementation of devolved forest governance. According to these scholars, the locals still struggle to access and negotiate for benefit-sharing of valuable forest resources under participatory approach. Despite the contribution, their study was generalized to Kenya but this study is specific to Ngong hills forest and covers other forest governance issues which had not been examined in the study by Kairu et al. (2018).

2.2.2 Regulatory Framework of forest governance and Forest Protection

Regulatory frameworks in forestry sector are instruments for realizing objectives of sustainable forest governance. However, many forest ecosystems across the globe have registered incidences of forest practices carried out in unsustainable manner, illegal harvesting and trade in protected trees species. These incidences flout the existing regulatory exertions which lead to deforestation and degradation of forest resources. This is as a result of inconsistencies existing between the regulatory frameworks and actual practices which may cause framework failure (Smyle et al., 2016).

Sears et al. (2011), in a study on policy reforms in the Peruvian Amazon forest, found that although the new forest regulatory framework integrated the doctrines of good forest governance, there remained challenges of ambiguity and contradictions in the framework. The study suggested that the continued challenges faced by the forestry sector were as a result of the failure to integrate existing institutions' socio-economic and cultural practices. However, the study was conducted in Amazon Forest with unique ecological, socio-economic, cultural and geographical descriptions. Therefore,

such findings may not be generalized to the current study in Ngong hills Forest, Kenya.

Another study established the existing laws on forest protection in the main soy-producing countries in Latin America that is Brazil, Paraguay and Argentina. The study by Van Dam et al. (2019) used a quantitative technique based on Institutional theory. The results indicated that laws in Argentina, Brazil and Paraguay offered certain protection for forests, much less for many other ecosystems, and were not always well controlled. However, this study employed both quantitative and qualitative techniques and is grounded on stakeholder as well as institutional theories to describe forest governance practices and their influence in forest protection. The area of study in the current study is Ngong hills forest, Kenya while the previous study is Latin America- meaning, its findings cannot be generalized to Kenya because of ecological, geographical, socio-economic and cultural differences.

Socio-economic and political transformations were associated to the changes in patterns of forest policy and ownership of forests in Slovenia as well as the Federation of Bosnia and Herzegovina (Malovrh et al., 2021). The study analyzed how the forest regulatory framework affected the user rights of the owners of private forests, general governance of forests as well as enhancement of collaboration amongst private forest owners. The study found out that the regulatory frameworks emphasized on the provisions of forest management plans as an obligation for prudent management of forests.

The Slovenian Forest law had common forest management plans prepared for all types of forests while the Federation of Bosnia and Herzegovina had a distinct forest

management plan for private forests. It also found out that the private forest owners' involvement in the process of forest policy making was unsatisfactory. The study recommended for harmonization of forest resource interests by both public and private forest owners for better involvement and sustainable management of forest resources.

In deviation from the current study, this is a comparative study that sought to establish a link between forest regulatory framework and private forests management while this study looked at the link between forest governance practices and forest protection in Ngong hills forest which is a state- managed forest.

Bricolaged forest governance model was interrogated in Cameroon through a study by Ingram et al. (2015). Using a qualitative approach, the study indicated that trade-offs between livelihoods and sustainability of forests are most acute either when there are no governance arrangements; when arrangements do not take account of the susceptibility of a species to harvesting; or when they do not balance supply and demand. These lapses in forest administration were identified as drivers of forest deforestation and degradation. The study argued that the continued failure by formally established institutions to enforce laws and regulations that ensure sustainable trade in especially highly valued forest resources remains a challenge. The study concluded that the problem was as a result of poorly defined, illogical, inconsistently applied and randomly applied statutory framework. However, the context of this study is Ngong hills forest, Kenya and attempts to look into ways in which forest regulatory framework as a governance practice impacts forest protection. Additionally, this study adopted both quantitative and qualitative approaches as compared to the previous study by Ingram et al. (2015) that used only qualitative method.

Hamza and Kimwer (2007) also conducted a study to determine Tanzania's forest policy and its practical achievements concerning community-based forest management in Mitmiombo. The study used secondary data where a review of existing policy frameworks was conducted. It was established that the implementation of the Forest Policy of 1998 and Forest Act of 2002 resulted in decreased illegal harvesting of forest resources, encroachment, fire incidences and unregulated activities such as charcoal burning and timber harvesting. Elsewhere in the same country, Materu, Urban and Heise (2018) through secondary data, demonstrated that the forest legal provisions in Tanzania were not adequate in coverage and scope and were uncoordinated. The country lacked comprehensive legal framework to guide sustainable management of wetlands. The two studies however, depended on secondary data only but this study utilizes both primary and secondary data in a mixed methodology.

The current study also appreciates the presence of forest regulatory frameworks but endeavors to look at how they impact on forest protection in Ngong hills forest, Kenya.

Forests play a critical role in mitigating effects of climate change and supporting livelihoods of local people in Tanzania despite challenges of deforestation and degradation. Through the adoption of Driver-Pressure-State-Impact-Response (DPSIR) model, Crook (2020), evaluated the National policy of 1998, participatory forest management and the project on reducing emissions of deforestation and degradation to determine the success of forest management in Tanzania. The key finding of the study was that sustainable forest management was not fully realized due to insufficient forest protection policies and strategies. The study pointed out that the

policies and strategies for forest protection were ineffective in addressing the main causes of deforestation and degradation. However, the study established the link between Tanzania's forest policy and sustainable forest management while the current study applied institutional and stakeholder models in establishing the link between forest governance practices and forest protection. Further study by Crook only concentrated on weaknesses in policy and regulatory framework without delving into other factors including participatory planning and enforcement- which are discussed in this study.

Locally, a study was conducted to determine the role of law and policies in management and conservation of forests in Kenya. Through the adoption of institutional theory, the study by Chebii (2015) indicated that the Kenyan government has enacted several legislations and ratified international conventions to conserve, protect and manage forests. However, integration of sustainable forest management and conservation efforts by different actors in the sector remains a challenge (Chebii, 2015). The current study not only identified the challenges with the current regulatory framework, but also linked it with forest protection. Furthermore, other forest governance practices were identified by the study besides regulatory framework.

2.2.3   Enforcement of Forest Governance Practices and Forest Protection

The success of natural resources management systems depends on how effective the enforcement of laid down rules of behavior at international, national or local level, are carried out. Such systems require that they adopt measures that discourage resource users from tendencies of breaking rules. Enforcement in natural resource management,

entails undertaking measures to ensure compliance with formal rules as well as administering punishment for non- compliance (Ostrom, 2005).

A study was also conducted in the South Asian region by Gritten et al. (2019) to assess the forest governance challenges in the countries of the greater Mekong Sub-region. The theoretical framework of the study was the FAO forest governance framework which is used to understand forest governance in the context of a wide range of different actors with varying interests. The study used quantitative and qualitative analysis to indicate that there existed numerous challenges in terms of enforcement, and compliance to forest governance practices due to limited financial resources. The other inadequacies included non-adherence to standard governance tools. The current study deviated from this by not only focusing on the challenges faced in implementing various forest governance practices, but also linking them to forest protection through a regression model.

Keane et al., (2008) conducted a study on the sleeping policeman by understanding issues of enforcement and compliance in conservation in the United Kingdom. The study used various approaches to illustrate applicable models of enforcement and compliance in conservation to understand why individuals break rules and how optimal policy choices can reduce rule-breaking. The study used *Loxodonta africana*- the African elephant as a case study to illustrate how such models were applied in practice. The outcome showed that if compliance is not observed, rules lack meaning and so, for successful conservation to be realized, the enforcement efforts should be effective. The study found out that reducing investments directed towards enhancing enforcement function for instance acquisition of equipment, programs for personnel training or reducing frequency of patrols, increased the number of poaching incidences

which harmed elephant populations. The study concluded that practical conservation should be interested in enhancing enforcement strategies of achieving optimal benefits while augmenting enforcement budgets.

However, the study by Keane et al.*,* adopted modeling approaches and focused on the conservation of the African elephant as a case study. The study deviated from the current study where the focus was Ngong hills forest being the case study.

This study too, adopted both institutional and stakeholder approaches. The study by Keane et al., looked into issues related to enforcement and compliance in conservation but this study considered other governance issues apart from enforcement, which include participatory planning and forest regulatory framework- which present a wider scope.

Elsewhere in Indonesia, a study by Tacconi et al. (2019) compared the existing forest laws and policies in Indonesia with those in Brazil through a meta-analysis. It was revealed that Indonesia does not have a strategic approach to forest law enforcement compared to Brazil. It concluded that Indonesia should consider the features of Brazil's strategy in order to improve its forest law enforcement activities so as to be able to deliver on the reduction of forest emissions. The current study is a case study of Ngong hills forest and not a comparative study as employed by the reviewed work Tacconi et al. This study examined broad aspects of forest governance practices in the context of their influence on forest protection. An assessment of how forest regulatory frameworks influence forest protection is looked into as one of the objectives in this study.

Brown et al. (2004) established the role of independent monitors (external agencies) in forest law enforcement and governance to ensure control of forest crime. The study established that the involvement of independent monitors (external agencies) led to increased discipline within the state forest law enforcement agency and timber industry. The study however deviated from the current study which looked at enforcement of forest governance practices as one of the objectives - thus accessed more in-depth information.

Onjala (2011), carried out a study on firm compliance to regulatory enforcement of industrial wastewater in Kenya. Through the adoption of deterrence theory, the study examined the effects traditional regulatory enforcement instruments on firm' compliance to wastewater standards. The study looked into state of waste water regulatory compliance to water standards. The study collected data through both primary and secondary sources. The study identified weaknesses in the existing regulatory and enforcement system. The study used deterrence theory which presented conceptual deviation from the current study which utilizes both institutional and stakeholder theories. The study linked regulatory enforcement instruments with industrial wastewater standards which deviate from the current study that links governance practices with forest protection.

2.3 Summary and Research Gap

From the reviewed studies, the concept of forest governance is widely viewed as a new approach to forest sciences and practices that go beyond the confines of the state and include both governmental and non-governmental actors at various levels from local to global (Anderson, 2004). Consequently, this led to a network- like- arrangements, self-

regulation by forest industries, the emergence of private and public-private partnerships, certification programs and valuation of forest goods and services (Agrawal et al. 2008, Kickert et al.1997, Visseren et al., (2007) as cited by FAO, (2015).

Scholars, whose work has been acknowledged, contend that forest governance is critical in addressing the drivers, pressures and impacts of forest degradation and deforestation as well as assuring sustainable management of forest resources (Maxim, Spangenberg and O'Connor, 2009). However, the literature reviewed showed that the implementation of forest governance practices in the protection of forests is faced with a myriad of challenges (Guariguata and Brancalion. 2014, Taskforce Report on forest resource management and logging activities in Kenya. April 2018).

The researcher agrees with the literature review which showed that the concept of good forest governance is widely accepted as key to assuring the protection of forest resources. The reviewed literature further showed various theories supporting the need for good governance in the forestry sector with the inclusion of relevant stakeholders for improved forest resource protection.

The results of various empirical studies carried out both nationally and globally by researchers presented study gaps concerning theories, methodologies and contexts applied. Specifically, there were different theories utilized in the various studies while in terms of methodology, either qualitative or quantitative techniques were used. Comparatively, this study adopted both qualitative and quantitative techniques of data collection. The various studies used varied theories to explain their respective variables which cannot be generalized to this study. Methodologically, the various

studies adopted wide-ranging study designs, instruments, data analysis and sampling methods.

Most of the studies used correlation, causal-comparative, experimental and explanatory designs while the current study adopts descriptive design to achieve study objectives. Further, this study focuses on areas of forest governance aimed at enhancing forest protection for environmental goods and services through private, public and stakeholder partnerships, improvement of forest regulatory frameworks, and their effective enforcement. These would guarantee sustainable use of resources for present and future generations. It was due to the aforementioned, that this study looked into the influence of forest governance practices on forest protection in Ngong hills forest, Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This study sought to find out the influence of forest governance practices on forest protection in Kenya, a case of Ngong hills forest. This chapter specifies the research design, research site, and target population, determination of the study sample, the proposed data collection methods, data processing and analysis, as well as ethical considerations.

3.2 Research Design

Kumar (2015) defines research design as planning, structuring and strategizing of the investigation for acquiring responses to research questions or problems. The plan is an outline of the activities or programs of the research. This study adopted a descriptive research design that involved observing and describing the behavior of study subjects without influencing them in any way.

The study adopted a descriptive research design since it was suitable in describing the research problem as well as establishing a link between forest governance practices and forest protection. Additionally, a descriptive research design supports the use of mixed methodology, which was relevant for this study in not only seeking to quantitatively establish relationships, but also to qualitatively get in-depth insights from the respondents on the problem matter.

3.3 Research Site

The study was conducted at the Ngong hills forest which is located at the northern tip of Kajiado County and is approximately 25 kilometers from Kenya's Capital City-

Nairobi. It lies at an altitude of 8,071 feet above sea level, and overlooks the Great Rift Valley towards the west side slopes. The forest blocks under the Management of Ngong hills forest station include Oloolua, Kibiko and Ngong hill top- all covering approximately 4,311 hectares. It falls under 1°18′59.12″S 36°44′30.13″E Coordinates (KFS, 2020). The map of the research site is as shown in appendix IV.

The vegetation in Ngong hills forest includes exotic tree species like Pine, Cypress and Eucalyptus as well as indigenous tree species like Acacia and Croton species among others. The forest is also a host of a variety of animals like wild pigs, buffaloes and gazelles- whose movement is determined by drought, availability of forage and availability of water. Some of the areas of interest in Ngong hills forest include: the high points of communication masts, the energy power generation sites, vantage points with a panoramic view of Great Rift Valley and Nairobi City for tourists, sporting activities due to favorable training altitudes, religious retreat sites and beautiful grounds for hire (MENR, 2014).

The study site was chosen because Ngong hills is one of the busy forests with various activities thus a practical area to learn and understand governance practices exemplified by the forest station's administration in liaison with relevant stakeholders. Further, the forest is adjacent to a major urban area and is faced with pressures from adjacent communities whose livelihoods depend on the forest. The area is cosmopolitan with a history of illegalities ranging from illegal grazing, dumping, encroachment, illegal logging among other vices. Therefore, the study site was suitable for this study since there is a functional forest station office with staff

deployed to protect and secure the forests hence ideal to assess the influence of forest governance practices on forest protection.

3.3.1 Climate

The rainfall occurs during the months of October, November and December for the short rains, while long rains occur during March, April and May. The differential patterns are influenced by the altitude of the area- with annual rainfall ranging between 400 and 1,200mm per year. The forest is also a water catchment area and is the source of Motonie River and forms the upper catchment area for Kiserian and Athi rivers (MENR, 2014).

3.4 Target Population

Population in statistics is the specific group about which information is desired. According to Field (2005) a population is a well-defined set of people, services, elements, and events, groups of things or households that are being investigated. This study targeted the employees of KFS from Nairobi Conservancy, who are 276.

These employees were obtained from various departments: Corporate Services, Forest Conservation and Management, Forest Protection and Security, Human Resource, Strategy, Partnership and Resource Mobilization, and Legal services. Additionally, the study targeted 5 executive management committee members of Ngong hills Metro Community Forest Association that covers Ngong hills, Kibiko and Oloolua forest blocks which are administratively under Nairobi Conservation area. According to the administrative arrangement of KFS with communities and for ease of management, there was only one Community Forest Association per station. Therefore, a total of 281 respondents were targeted.

Table 3.1: Target Population

Category	Classification	Population
KFS Employees in	Top Management (KFS Grade 1- 4)	18
Nairobi	Supervisory staff (KFS Grade 5 - 9)	123
Conservation area	Supervisees (KFS Grade 10 - 13)	135
Ngong Metro CFA	Executive Management Committee Members	5
Grand Total		**281**

KFS personnel records (June, 2020), Ngong Metro CFA Register (June, 2020)

3.5 Study Sample

The section presents the study sample size determination procedures as well as the sampling procedure.

3.5.1 Study Sample Size

Israel (1992) supported the determination of a smaller sample other than a census if the target population in a study is above 200. As a result, this study adopted sampling since the target population is above 200, precisely 281.

Sample size refers to smaller sub-unit of the targeted study population (Kumar, 2015). Mugenda and Mugenda (2013) and Kumar (2015) have suggested various approaches for the determination of smaller sample size when the target population is big, for instance, taking a sample size between 1% and 30% of the target population or using an appropriate formula.

In that case, this study determined the sample size using Yamane (1967) formula to determine the sample size of the respondents from KFS at an error term of

$$n = \frac{N}{1+ Ne^2}$$

Where

n is the sample size

N is the population of the study which is 276

e is the error term set 5% in this study

Substituting the values in the formula as shown below

$$n = \frac{276}{1 + 276\,(0.05)^2}$$

n = 163

Therefore, the study sample size of the target respondents from KFS were 163 respondents.

3.5.2 Study Sampling Procedure

The Sampling procedure illustrates the approaches used to identify the categories of respondents for the study (Kumar, 2011). This study adopted multi-stage sampling procedures. First, the target respondents from KFS were stratified based on employee placement that is top management, middle level and low-level management. After stratification, a proportionate sampling method was used to determine the sample size in each level. Simple random sampling was then applied to sample the respondents in each level.

In regard to sampling of participants for the interview, 5 Ngong Metro CFA Executive Management Committee Members and 6 top management employees from KFS were sampled through expert sampling procedure. The need to have an interview with KFS top management team is because they are directly involved in the formulation of the forest governance policies. Those respondents who participated in the KII did not fill the questionnaires in order to reduce bias.

According to Stattrek (2015), the sample size in respective stratum is arrived at using proportionate stratification formula as follows;

$n_h = (Nh/N)*n$

Where;

n_h = the sample size for stratum h

N_h = Population size for stratum h

N= Total population size

n= Total sample size

For example the sample size for stratum (Top Management) is calculated as;

$n_h = (Nh/N)*n$

$= (18/276)*163$

$n_h = 10.63$

$n_h = 11$

Table 3.2 presents the stratification of the sample size.

Table3.2. Sample Size

Category	Classification	Population	Sample Size	Percentage (%)
KFS Employees	Top Management (KFS Grade 1- 4)	18	11	7
in Nairobi	Supervisor staff (KFS Grade 5 - 9)	123	73	43
Conservancy	Supervisees (KFS Grade 10 - 13)	135	79	47
Ngong Metro				
(CFA)	Executive Committee members	5	5	3
Total		**281**	**168**	**100**

Researcher, 2021

3.6 Data Collection

3.6.1 Data Collection Instruments

This study adopted a questionnaire as the instrument to gather both quantitative and qualitative data. The questionnaire was structured to contain both closed ended and open-ended questions. Each item in the questionnaire was developed to address a specific objective of the study. In this study, quantitative data was collected through closed ended questions in structured questionnaires, while qualitative data was collected through use of open-ended questions. The questionnaires were issued to KFS employees in management positions based in Nairobi conservancy. The questionnaire instrument was ideal for this study because it picked measurements on observations, feelings, values and behavior of subjects.

The likert scale was the appropriate scale to be used in this study- which rates the subjective and qualitative components of research (Mugenda & Mugenda, 2013). A Key Informant Interview (KII) guide was also used to collect in-depth qualitative opinions on the subject matter from Ngong Metro CFA Executive Management

Committee Members and top management employees from KFS. The qualitative data was used to qualify the quantitative data collected through questionnaires.

3.6.1.1 Questionnaire

The questionnaires used in the study were designed based on the research objectives. It was structured into five sections.

Section I contained questions on the general information, section II asked questions on participatory planning in forest governance, Section III asked questions on forest regulatory framework, Section IV asked questions on enforcement of governance practices and the last section, Section V, asked questions on forest protection.

The questionnaire consisted of questions on the demographic characteristics of the respondents and questions covering the study objectives. The questionnaires enabled anonymity in order to provide honest opinions on the study theme (Cooper & Schindler, 2003). Among the advantages of a questionnaire were its simplicity, collection of data which is easy to analyze and covering a large contextual ground in a short period of time. The questionnaire was structured to contain both open and closed ended questions and allow probing where necessary.

3.6.1.2 Interview Guide

An interview was conducted to enhance depth or complement the quantitative data collected. A KII guide (Appendix III) was adopted. Interviews allows for probing hence were suitable in collection of in-depth data. The researcher conducted face to face interviews on 5 Ngong Metro CFA Executive Management Committee Members and 6 KFS top management employees who were sampled through expert sampling. These key informants are involved in formulation and review of forest governance

practices- thus their importance in this study. They were drawn from Forest Conservation and Management, Forest Protection and Security, Corporate Services, Legal Services and Strategy, Partnership & Resource Mobilization directorates. However, the members of KFS top management who were not interviewed participated in filling of the questionnaires- for purposes of reducing biases.

3.6.2 Pilot Testing of Research Instruments

Pilot testing of the research instrument was necessary in order to reduce instrumentation errors, enhance reliability as well as validity (Mathiyazhagan & Nandan, 2010). The pilot study was undertaken at Kiambu Ecosystem area. This area was specifically sampled for the pilot study because it did not form part of the study area in this study.

Additionally, its proximity to Nairobi Metropolitan made it share the forest governance challenges which Ngong hills Forest faces.

This piloting was undertaken on 14 KFS employees in management positions who were similarly expected to be aware of governance factors related to forest protection. The 14 respondents made up 9% of the sample size which was in accordance with Cooper and Schindler (2003) that a sample size for a pilot study should be between 1% and 10% of the main study's sample size. The participants of the pilot study were excluded from the main study to avoid bias.

3.6.3 Instrument Reliability

Tavakol and Dennick (2011) described reliability as the consistency in measurement. It helped to test whether there was consistency in responses of the same instrument in

repeated trials. This study tested for reliability through internal consistency measure where a Cronbach's Alpha (α) value of above 0.7 demonstrated reliability in accordance with Cronbach, (1951) and Mugenda & Mugenda, (2003). SPSS version 24 was used to calculate this value. The data used was the outcome of the pilot study conducted on 14 respondents.

As indicated in Table 3.3, all the independent variables had alpha coefficient values higher than 0.7 (α>0.7) implying that the instrument was reliable for data collection.

Table 3.3: Reliability Test Results

Scale	Cronbach's Alpha	Number of Items
Participatory Planning	0.942	6
Regulatory Framework	0.896	6
Enforcement	0.705	6
Forest protection	0.885	5

Source: Research Data, (2022)

3.6.4 Instrument Validity

Mugenda and Mugenda (2013) described validity as the correctness, significance and usefulness of the inferences a researcher makes. Validity shows whether the instrument accurately measured what it was supposed to capture. This study tested content validity through expert judgment. Additionally, the opinion of the supervisors was also sought in rating the validity of the instruments. Their opinions were incorporated in the questionnaire.

3.6.5 Data Collection Procedure

The data collection procedure process started with getting a letter of approval from the university. With that letter, a research permit was applied from NACOSTI as shown in Appendix V. With the two documents, introductions were made to the relevant authorities, explaining the purpose of the study before seeking audience. Those respondents who consented to participate to the study were involved. Those who didn't consent were not allowed to participate. The procedure was a drop and pick method where the questionnaires were distributed and after one week, picked again.

Those respondents who had not responded in a week were allocated one more week to do so. The respondents who could not manage hardcopies due to Covid-19 protocols, emails were utilized to share the questionnaire and the same response time was applied. Questionnaires were issued by the researcher to the 157 KFS Employees based on employee placement in Nairobi Conservancy. The researcher administered the KII on the 6 KFS top management team and 5 Ngong Hills Metro CFA Executive Management Committee Members who chosen through expert sampling. The 11 interviewees were chosen from their stratum due to the key role of steering governance practices in their areas of responsibility through planning, decision making and monitoring implementation. The interviews were conducted separately for each KII so as to pick salient views of specific categories of respondents.

3.7 Data Processing and Analysis

Upon receipt of quantitative data responses from the respondents, it was checked to ensure they were complete and accurately entered. The data was then captured in a computer system for analysis. Data analysis refers to the process of converting raw

data into meaningful information that can guide making inferences about a phenomenon (Gall et al, 2007). Being a mixed-method study, qualitative and quantitative data analysis methods was adopted. The raw data was coded by apportioning a unique code for each entry including attaching an interpretation to each fragment for purposes of analysis. The quantitative data was obtained from the Likert scale questions and was analyzed using the Statistical Package for Social Sciences (SPSS) version 24. The study utilized descriptive statistics to analyze the data and resulting data was presented in form of tables, charts and bar graphs. Qualitative data was obtained from the open-ended questions in the questionnaire as well as the key informant interview (KII) captured as direct responses from respondents in form of verbatim extracts. This was categorized into themes and analyzed through content analysis where the main theme of each question is established and compared (Kothari, 2011).

3.8 Legal and Ethical Considerations

Ethical considerations were considered while conducting the study. Specifically, the study ensured respondent's anonymity and confidentiality. Their names were not indicated on the research instruments.

Additionally, the respondents were asked to consent before they give their opinions. Their right to withdraw from the study at any given time was also respected. The researcher explained to the respondents that the data collected was purely for academic purpose only and that the information was not to be used for any other purpose than academics. Further, an introduction letter was sought from the University, a permit from NACOSTI and a letter from Kenya Forest Service authorizing data collection

within Nairobi Conservation area before commencing the data collection process. To conclude, the dissemination of study's findings will be done before an Ethics and Review Committee or a panel before publishing it in an appropriate journal so as to contribute or add to the existing body of knowledge.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 Introduction

This study sought to find out the influence of forest governance practices on forest protection in Ngong hills forest, Kenya. To achieve this, three objectives were formulated: to establish how participatory planning in forest governance influences forest protection in Ngong hills forest, to assess how forest regulatory framework influences forest protection in Ngong hills forest as well as to examine how enforcement of forest governance practices influences forest protection in Ngong hills forest. This chapter presents the response rate, demographic information, descriptive findings as well as the correlation and regression analysis results. Additionally, the findings are compared to other studies.

4.2 Response Rate

There were a total of 168 respondents targeted by the study. Respondents from KFS were 163 out of which 157 of them were to respond to a questionnaire and 6 were to participate in a KII. On the other hand, the remaining 5 respondents were from the Ngong metro executive committee members who participated in the KII. Therefore, a total of 157 questionnaires were administered out of which 99 questionnaires were responded to. For KII, all the targeted 11 respondents participated. An overall response rate of 110 (65.5%) was obtained. A response rate above 50% is considered satisfactory (Smith, 2015). Additionally, Flick (2015) recommended a response rate above 60%. In that case, the response rate in the current study was satisfactory to make generalization on the entire population.

Table 4.1: Response Rate

Description	Targeted respondents	Response	Non-response	REMARKS
Questionnaires	157	99	58	KFS employees
Interviews	11	11	0	5 (CFA) & 6 (KFS)
Total	**168 (59%)**	**110 (65.5%)**	**58 (34.5%)**	

4.3 Biographic Data

This section presents the bio-data of the respondents for purposes of gaining insights of the research topic and the kind of people participating in the study. Such information included the respondent's gender, level of education, position held and work experience.

4.3.1 Respondents' Gender

This study sought to find out the gender of the respondents. The gender requirement was necessary in ensuring that the respondent's views and opinions were gender sensitive. It was also critical in the eventual generalization of findings of this study. In this regard, the study had a total of 110 (65.5%) respondents out of which 73 were male and 37were female. As such, both genders had unique factors influencing their participation in forest protection. The study showed that more male participated in forest protection of Ngong hills forest as compared to the female gender as indicated in Figure 4.1 below;
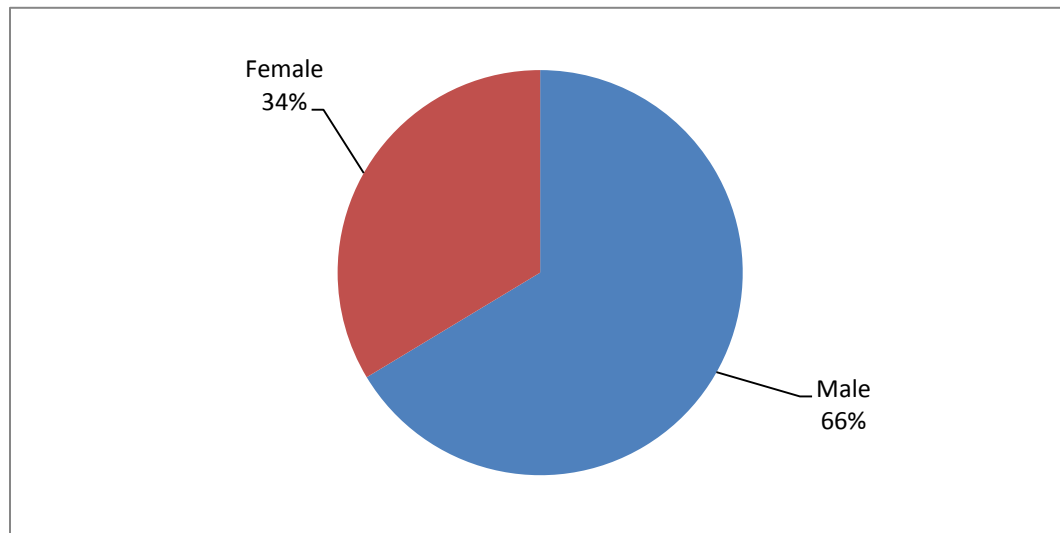
Figure 4.1: Respondent's Gender, *Source: Research Data (2022)*

4.3.2. Respondent's Level of Education

This study endeavoured to describe the respondent's level of education. This was geared towards ensuring that the respondents understood forest governance practices in relation to forest protection. The respondent's understandability was to enable them successfully answer the questionnaires and participate in interviews. Further, their grasp of forest governance issues would assist KFS and Ngong Metro CFA to adjust and align their approach to forest governance in order to improve forest protection.

As shown in Figure 4.2 below, out of the 110, majority of them, 49.5% (n=55), had a diploma as their highest education level followed by a degree, 37.4% (n=41), to imply that they were literate. Those with a postgraduate degree were 11.1% (n=12) while only 2% (n=2) had a certificate. As such, most of the respondents were equipped with forestry skills because 98% had a Diploma and above. In practice, most of the forest governance practices in Kenya forest Service are implemented by the technical level staff deployed at supervisory level and falling under this category. This implied that

most of them understood the study topic thus were in a better position to articulate forest governance issues in Ngong Hills forest, Kenya.
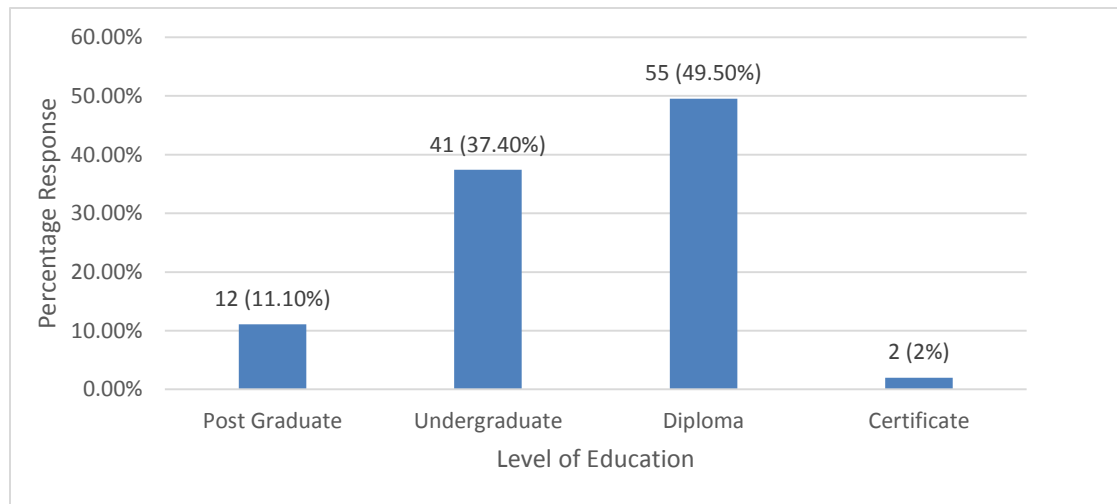
Figure 4.2: Respondent's Level of Education, *Source: Research Data (2022)*

4.3.3 Respondent's Work Experience

The study sought to assess the respondent's work experience to gauge the adequacy of experience and knowledge on forestry practices in Ngong Hills forest, Kenya. This was necessary in ensuring that the views of respondents on forest governance practices in relation to forest protection, was credible for purposes of reliability. In light of this, Figure 4.4 indicated that out of the 110 respondents, majority of them, 52.5% (n=58) had a work experience above 10 years while 47.5% (n=52) had a work experience between 8 and 10 years.

Figure 4.3: Respondent's Work Experience, *Source: Research Data (2022)*
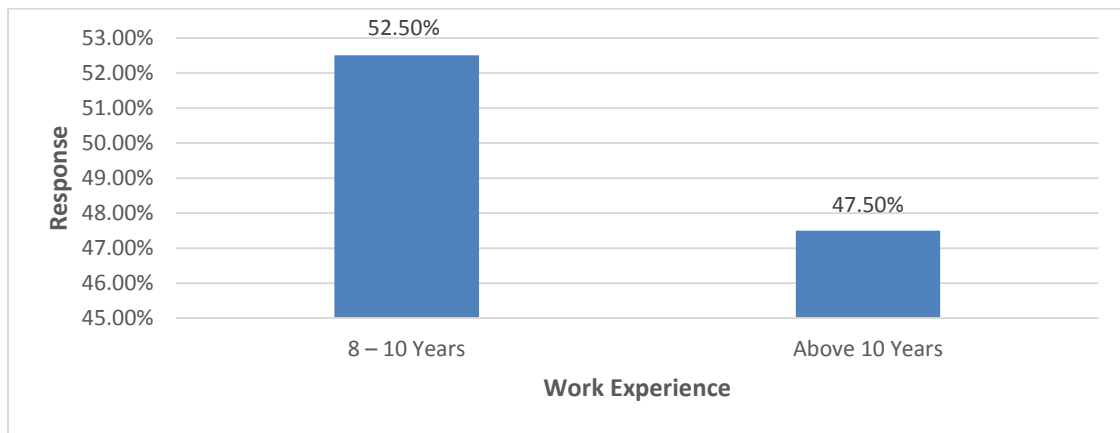
Figure 4.3 showed that most respondents had an experience of more than eight years thus implying that they were aware of forestry management systems and practices. Their contribution to this study was critical in tapping reliable information on the study topic.

4.4 Objective-based Responses

4.4.1 Participatory Planning in Forest Governance and Forest Protection

The first objective of the study was to establish how participatory planning in forest governance influence forest protection in Ngong hills forest. The respondents' rated statements on participatory planning were sought to establish how it is linked to forest protection on a likert scale of 1 = Never, 2 = Low Extent, 3 = Moderate Extent, 4 = High Extent and 5 = Very High Extent. The responses were provided as percentages as presented in Table 4.2.

Table 4.2 Responses on participatory planning in forest governance

Statement To what extent:	1	2	3	4	5
Has KFS built the capacity of stakeholders to participate in decision making	5%	7%	65%	15%	8%
Do you participate in development of management plans in governance of forests? *(Note: Management plan refers to KFS management plans)*	2%	5%	70%	9%	14%
Are the special interest groups involved in decision making processes on forest governance? *(Note: special interest groups are women, youth, marginalized and people living with disability)*	18%	51%	25%	4%	2%
Does KFS involve various stakeholders and agencies in joint identification of possible forest protection conflicts	2%	5%	17%	68%	8%
Does KFS involve various stakeholders and agencies in joint action on dispute resolution in forest protection	3%	2%	16%	72%	7%
Does KFS involve various stakeholders and agencies in joint cooperation on implementation of planned activities	3%	4%	10%	75%	8%

Source: Research Data (2022)

The study results in Table 4.2 demonstrated that the capacity of stakeholders to participate in forest management activities was conducted in Ngong hills forest to a moderate extent as supported by 65% of respondents followed by high extent rate at 15%. However, 5% of the respondents disagreed with the statement. The findings also showed that employees participate in development of management plans in governance of forests to a moderate extent at 70% while 14% supported the statement to a high extent. This was supported by an interviewee who had the following to say;

> …. participatory planning is manifested by minimal involvement of the lower team members. Specifically, supervisors and supervisees are not adequately involved in formulation of management concepts and plans as well as the decision making implementation programs. This is because in some instances, external consultants who may not have adequate background

> information are contracted to do them thus impacting negatively
> on service delivery.... *KII 1, 20th December, 2021*

Additionally, it was shown that the special interest groups, which are women, children and people living with disabilities were involved in decision making processes on forest governance to a low extent at 51% and was followed by 25% at a moderate extent while 18% of the respondents disagreed with the statement. This rating was supported by an interviewee who had the following to say;

> ...in regard to participation, there is agreement in some areas for joint forest management. Additionally, formation of conservation committees is participatory but to a low extent during implementation process.....*KII 2, 20th December, 2021.*

However, the involvement of various stakeholders and agencies in joint identification of possible forest protection conflicts along other potential threats to conservation was supported to a higher extent at 68%. This was followed by a rating of moderate extent at 17% followed by a very high extent rate at 8% while 2% never supported the statement. Additionally, the involvement of various stakeholders and agencies in joint cooperation on implementation of planned activities was achieved to a low extent at 72% and followed by a moderate rating of 16%. However, 3% of the respondents did not support the statement.

This was supported by key informant interviewees who had the following to say;

> ...engagement of stakeholders in management is important because it widens the opinions and makes its implementation easier to achieve. The stakeholders also feel valued and that their perspectives count for something in the management of the forests. *KII 3, 23rd December, 2021.*

> ...Participatory forest management plans are not detailed and do not have clear management actions for sustainable management of specific forests. In the absence of such action plans, then it becomes difficult to actualize the corporate level objectives… It will be better if such details are incorporated into the plans... *KII 4, 28ᵗʰ December, 2021.*

> …the Forest Management Plans are put in place but with minimal commitment to jointly implement the activities. Nothing can be achieved in the absence of goodwill and commitment from the leadership and stakeholders … .*KII 5, 28ᵗʰ December, 2021.*

These findings imply that forest governance is moderately playing a role in forest protection. The study takes the view that increasing participatory planning is critical in attaining the desired forest protection while ensuring that the beneficiaries of the forest continue to draw their livelihoods from it. This stems from the thinking that involvement of all stakeholders in the planning process will enable them buy into the forest protection governance framework and related activities.

4.4.2 Forest Regulatory Framework and Forest Protection

The second objective of the study was to assess how forest regulatory framework influence forest protection in Ngong Hills forest. In this study, forest framework refers to instruments or means for realizing objectives of sustainable forest governance. They are forest related policies and legal provisions that guide management of forest resources. They include of the Kenya's Constitution 2010, FCMA, 2016, Second Pillar of Vision 2030, Draft Forest Policy, Sustainable Development Goal (SDGs), ratified international conventions and agreements among other National policies related to forest management and conservation.

These frameworks provide for mechanisms for prudent management of resources and strategies for the attainment of the international standards of 10% forest cover

(MENR, 2016). Therefore, to assess their views on the efficacy of forest regulatory framework in forest protection, this study sought the respondents' statements. The respondents' rated statements on forest regulatory framework were sought to establish how it is linked to forest protection on a likert scale of 1 = Never, 2 = Low Extent, 3 = Moderate Extent, 4 = High Extent and 5 = Very High Extent. The findings in this regard were as presented in Table 4.3

Table 4.3: Forest Regulatory Framework and Forest Protection

Statement To what extent:	1	2	3	4	5
Does KFS create awareness to the stakeholders on forest regulatory framework	5%	10%	72%	6%	7%
Is the existing forest regulatory framework clear and understandable	4%	69%	14%	11%	2%
Is the existing forest regulatory framework consistent with other related legislations	6%	72%	7%	9%	6%
Does the existing forest regulatory framework promote values and principles of public service among KFS employees	18%	51%	25%	4%	2%
Does the forest regulatory framework have overlapping jurisdictions	11%	16%	58%	7%	8%
Does the existing forest regulatory framework promote forest user rights	7%	9%	48%	23%	13%

Source: Research Data (2022)

The findings showed that creation of awareness to the stakeholders on forest regulatory framework was carried out to a moderate extent at 72%, followed by a low extent rating of 10%, very high extent at 7%, a high extent of 6% while 5% of them disagreed with the statement. The respondents also agreed that the existing forest regulatory framework was only clear and understandable to a low extent at 69% followed by a moderate rate of 14% and 4% of others did not agree with the statement.

Further, the respondents supported that the existing regulatory framework is consistent with other related legislations to a low extent at 72%. This was closely followed by a high extent rating at 9%, moderate extent at 7% and a rating of very high extent as well as those who disagreed equalized at 6%. These views were supported by an interviewee who had the following to say;

> ...there is a need to enhance the penalties in the Forest Conservation and Management Act 2016 to act as a deterrent to future offenders. I am convinced that in the absence of stiff penalties, offenders will do a cost benefit analysis and repeat the crimes if the benefit outweighs the cost…. *KII 5, 3rd January, 2022.*

In addition, views were sought to understand if the existing regulatory framework promoted values and principles of public service amongst KFS employees to ensure professional ethics were adhered to in forestry practices. The findings showed that most of the respondents viewed that the framework only promoted the values and principles of public service to a low extent at 51% followed by a moderate extent rating at 25%. However, 18% of them held the view that such values and principles were not promoted at all.

Further, there was an agreement that the existing regulatory framework had overlapping jurisdictions to a high extent at 58% while 16% agreed with the statement to a low extent as 11% others disagreed.

The forest regulatory framework was envisaged to provide an enabling environment for the forest protection and general conservation efforts to take place for the benefit of present and future generations, in terms of processes and procedures. One of the purposes of the regulatory framework is to promote the rights of those involved in

conservation efforts. This study sought the respondents' views on the extent to which the existing forest regulatory framework promote the user rights. It was found out that 48% of them rated it to a moderate extent, 23% to a high extent, 13% to a very high extent and 9% to a low extent while 7% disagreed with the statement. This finding was supported by interviewees who had the following to say;

> ...there is a need to realign the regulations with other relevant laws to avoid overlapping. Additionally, KFS should enter into memorandum of understanding with other agencies and establish binding agreements with sector players on Conservation, Protection and management cooperation and collaborations to enhance coordination and achieve consistency... *KII 6, 4th January, 2022.*

> ...there is deficiency attributed to the ineffective regulations currently in place. If they were aligned with the law to reflect realities in the field, they may be fit for purpose... *KII 7, 6th January, 2022.*

> ...the enforcement personnel need capacity building especially on issues regarding forest regulation. Things keep on changing and so the staff implementing the laws and policies needs to be aware of the ever evolving dynamics in the sector... *KII 10, 11th January, 2021.*

The respondents were also asked to indicate whether they thought the existing forest regulatory framework need amendments. The results in Figure 4.4 indicated that majority of them (82.8%) agreed that there was a need to amend the existing forest regulatory framework to accommodate emerging needs of the sector and to strengthen the provision for effective implementation. This agrees with the previous findings that the framework lacked clarity, understandability and consistency thus required to be reviewed. On the whole, the forest regulatory framework as evidenced by the findings

needs to be synchronized so that there is complementarity across all laws and that all stakeholders have a clear cut role in the protection of the forest.
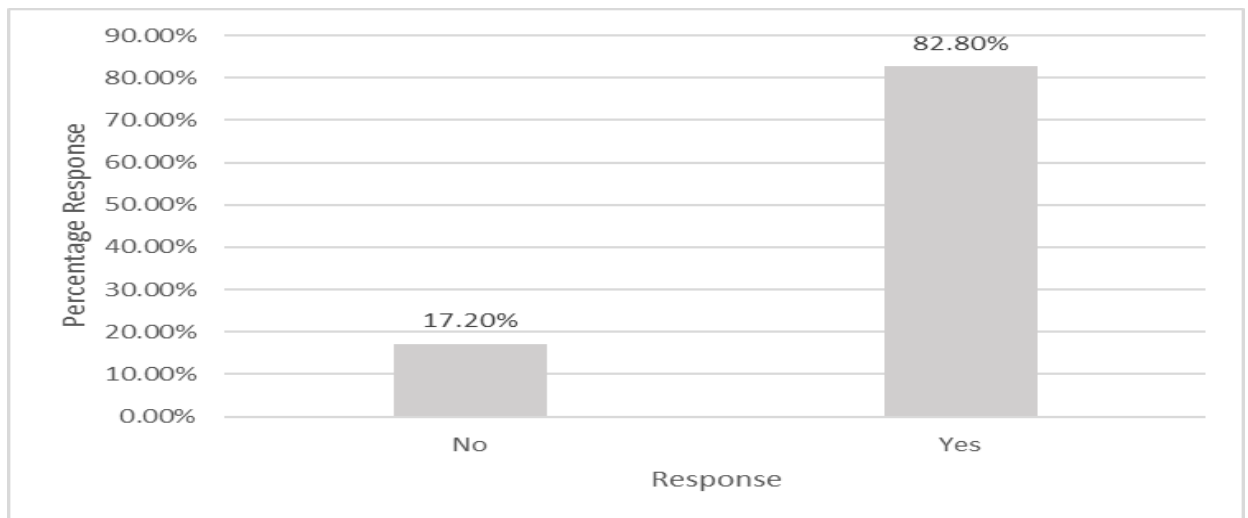

Figure 4.4 Responses on amendments of the Existing Forest Regulatory Framework, *Source: Research Data (2022)*

4.4.3 Enforcement of Forest Governance Practices and Forest Protection

The third objective of study was to examine how enforcement of forest governance practices influences forest protection in Ngong hills forest. In this study, enforcement in natural resource management, entails measures undertaken to ensure compliance with formal rules as well as administering punishment for non- compliance. The aim of enforcement is to ensure forest resources are sustainably managed for the present and future generations. It is premised on the understanding that many stakeholders have varying interests in the forestry sector and so, their activities should be kept at check to ensure adherence to the rule of law as well as promoting user rights. This study therefore sought for responses from respondents to statements on enforcement of forest governance practices which were rated on a likert scale and presented in Table 4.4.

Table 4.4: Responses on Enforcement of Forest Governance Practices

Statement To what extent:	1	2	3	4	5
How do you rate the level of effectiveness in enforcement by the Service?	7%	81%	5%	4%	3%
Is there collaboration in enforcement of forestry laws between the KFS and stakeholders	12%	68%	13%	4%	3%
Does KFS ensure there is continuous training programs for forest law enforcement staff	13%	57%	15%	11%	4%
Does KFS put in place measures for technological application in forest law enforcement	4%	72%	8%	9%	5%
Are the forest law enforcement officers equipped with relevant tools and equipment to deliver their mandate	16%	59%	17%	5%	3%
Does KFS allocate financial resources towards forest law enforcement activities	11%	46%	25%	10%	8%
Is there infrastructural development to support forest law enforcement	7%	66%	48%	23%	13%

Source: Research Data (2022)

The findings showed that the level of effectiveness in enforcement by the Service rated to at a low extent as supported by 81% of the respondents. Further, the results showed that collaboration between KFS and other stakeholders in enforcement of forestry laws is carried out to a low extent at 68% followed by a moderate extent rating of 13% while some 12% of them held the view that there was no collaboration in place. The respondent's views on the extent to which KFS provided continuous training programs for forest law enforcement staff and 57% of them held the view that it was to a low extent while 15% believed that it was at a moderate extent. 13% of the respondents however viewed that nothing was being by the Service as regards continuous training. This study also sought views on the extent to which technological application was adopted in the Service and 72% of the respondents supported a low extent rating at 72% while 4% were not aware of any technologies in place.

On the extent to which the forest law enforcement officers have been equipped with relevant tools and equipment to deliver their mandate, 59% of the respondents had a low extent rating at 59%. This was closely followed by a moderate extent rating at 17%, 16% disagreed with existence of efforts put in place, 5% at a higher extent and 3% at a very high extent. This was supported by an interviewee who had the following to say;

> ....coordination with other agencies is a challenge as there is no clear framework for collaboration between KFS and other conservation agencies. You can imagine we have KWS personnel in the forests but there are no standardized operating procedures to ensure unity of effort...*KII 8, 5th January, 2022.*

In addition, KFS has allocated financial resources towards forest law enforcement activities to a low extent at 46% followed closely by a moderate extent rate at 25% while 11% viewed that such provisions were never availed. On whether the Service had put in place infrastructural support towards forest protection efforts, 66% of the respondents believed that this activity was carried out to a low extent followed by a moderate extent rate at 16%. However, 8% of them held the view that there were no efforts in place. Generally, enforcement activities were faced with challenges from within and outside the Service. This was supported by an interviewee who had the following to say;

> ..... Effective and efficient forest law enforcement requires adequate financial support for training, equipping, adoption of appropriate technologies, adequate tools of work and adequate strength...*KII 9, 6th January, 2022.*

In this study, the dependent variable was forest protection which refers to the preservation of forests from degradation and deforestation for the wellbeing of the

environment and society. Forests are critical in playing a host to the world's terrestrial biodiversity, provide ecosystem goods and services, regulate water cycles and are a source of clean air and protect soil from erosion. However, some of the threats to forests include forest fires, illegal logging, encroachment, uncontrolled farming practices and dumping in forests. These illegalities and threats if left unchecked, forests will diminish and the access to forest goods and services will not be assured for the present and future generations. This study set to understand the extent to which Ngong hills forest was protected where responses to likert scale questions on forest protection were analyzed and presented in Table 4.5.

Table 4.5: Responses on forest illegalities

Statement To what extent:	1	2	3	4	5
Have illegal logging activities been experienced in Ngong hills forest for the last 3 years	8%	68%	16%	4%	4%
Have forest fires been experienced in Ngong hills forest for the last 3 years	13%	22%	56%	6%	3%
Have cases of unsustainable farming in Ngong hills forest forests been experienced in the last 3 years	4%	8%	6%	77%	5%
Have cases of forest encroachment been experienced for the last 3 years	14%	62%	16%	4%	4%
Have cases of dumping in Ngong hills forest been experienced for the last 3 years	5%	72%	12%	5%	6%

Source: Research Data (2022)

The findings of the study showed that illegal logging was experienced during the last three years at Ngong hills to a low extent at 68% while 16% of the respondents held the view that it was experienced to a moderate extent. On forest fire experiences, 56% of the respondents agreed that forest fires occurred to a moderate extent while 22% others rated their experiences to a low extent. Further, 77% of the respondents agreed

to a high extent that instances of unsustainable farming practices were experienced in Ngong hills forest for instance illegal grazing and illegal cultivation. 62% of the respondents held the view that incidences of encroachment were experienced to a low extent, 16% of them indicated that their experiences were to a moderate extent while 14% of them had no experiences of encroachment. Additionally, respondents were asked to comment on their experiences on illegal dumping incidences and 72% of them had experienced to a low extent while 12% to a moderate extent.

This implies that in as much as the cases of threats to forest protection are being managed or put to control in Ngong hills forest, forest protection is still moderately felt. Secondary data on the number of illegal activities in forests which jeopardize forests were also obtained from the annual reports between the year 2018 and 2020 and presented in as per Figure 4.5.
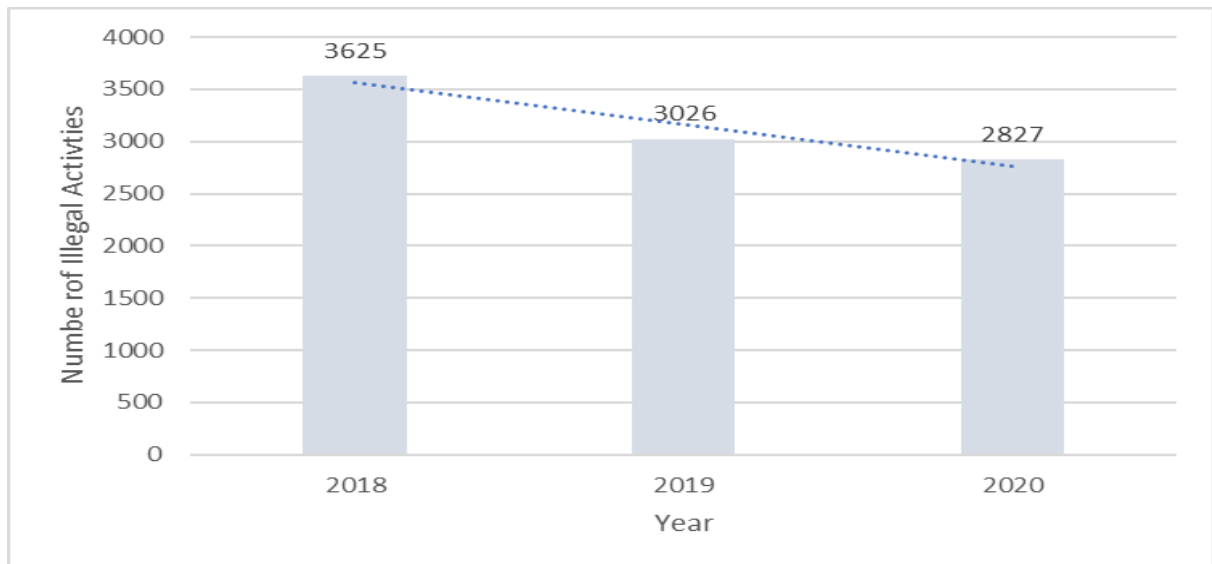
Figure 4.5: Trends in Illegal Activities in Kenyan Gazetted Forests (2018-2020),

Source: Research Data (2022)

Figure 4.5 indicates that illegal activities in gazetted forests have been reducing steadily from 3,625 in the year 2018 to 3,026 in the year 2019 and 2,827 in the year 2020. Thus, despite considerable decrease in the number of illegalities in forests, the number is still high to imply that forests are still not well protected.

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter discusses the research findings presented in the previous chapter based on study objectives, the summary of key findings and conclusion. Additionally, the chapter suggests recommendations for improved forest protection of Ngong hills forest, Kenya. Lastly, the chapter also suggests areas for further research.

5.2 Discussion

This section covers the discussion of results on the influence of forest governance practices on forest protection in Ngong hills forest, Kenya. First, the discussion covered the biographic information then followed by discussion based on the study objectives which were; to establish how participatory planning in forest governance influences forest protection in Ngong Hills forest, to assess how forest regulatory framework influences forest protection in Ngong Hills forest; and to examine how enforcement of forest governance practices influences forest protection in Ngong Hills forest. The respondents' biographic information showed that male respondents were 66 percent while female respondents were 34 percent. This implied that the study adhered to the gender rule which stipulates that at least a third of a sampled population should comprise females. This ensures that decision making processes have gender considerations thus entrenching a culture of equality. Besides, the male dominance in conversations justifies the higher numbers of male respondents than females as corroborated by Finlay (2015) through his contribution on the role of gender in conversational dominance.

The respondents were also found to be literate with the majority of them having a Diploma as their highest education level followed by a degree then a Post-graduate and lastly a certificate. As such, the respondents were in a better position to articulate the governance issues in the forestry sector in Kenya. The findings also established that in regard to governance issues, the majority of the respondents were drawn from the Supervisory staff followed by Supervisees and the least was the Top-level management. Thus, the representation of respondents was spread across all the categories of employees. Those in top management and supervisory staff levels were also found to have a higher work experience spanning above over 10 years of service. The supervisee employees had experience of between 8 and 10 years. Therefore, they had the institutional knowhow required to give their views on forest governance and protection issues sought for by the study.

5.2.1 Influence of Participatory Planning Practices on Forest Protection

The finding of the first objective was that it was implemented to a moderate extent in regard to forest protection, as supported by 65% of the respondents. This called for improvement of existing governance practices through establishment of structures and systems that can facilitate stakeholder involvement. According to the respondents, the Service under the existing policy on participatory forest management, involved communities at initial stages of concept and project formulation but were left out during actual implementation. This led to a roll-out gap of participatory planning practice especially in aligning to the intentions of PFM policy and the actual practice on the ground.

This finding was consistent with Okumu (2017), who suggested that despite the empowerment efforts directed at community to achieve sustainable forest management through availing a variety of incentives and PFM, its success as regards to effectiveness, accountability as well as resulting environmental goods and services have not been tangible. Further, Omala et al. (2020) posited that the attempt to decentralize the management of forests in Kenya to involve forest adjacent communities was a mere illusion and suggested that an appropriate behavioral change among the stakeholders was required to realize an effective decentralized forest governance system.

The study also found out that there was low extent of capacity building for the stakeholders to participate in decision making, involvement of employees in development of management plans in governance of forests, involvement of special interest groups in decision making processes on forest governance, involvement of various stakeholders and agencies in joint identification of possible forest protection conflicts, joint action on dispute resolution in forest protection as well as joint cooperation on implementation of planned activities. These findings were corroborated by Boiyo (2019) through his study on Rural-Urban diversity in implementation of PFM in Kenya by suggesting that as long as there is weak capacity of institutions mandated for forest management coupled with minimal involvement of stakeholders at lower levels, KFS would continue spending hugely in forest protection and monitoring activities.

The moderate extent rating in participatory planning was linked to resource constraints for delivery of services, provision of livelihood support programs for forest adjacent

communities and facilitating of CFA user group activities. Scholars like Davis and Brikke (1995) supported the need for resources by arguing that stronger institutions were needed to support community efforts as well as agencies managing forests to deliver on their supportive role. They suggested that financial support, should not be a stop-gap nor short term but indefinite for sustainability to be realized.

It was also found out that some stakeholders in forestry sector had competing interests (as alluded to by a key informant) thus impacting negatively on the participatory approach. This was echoed by Bonsu et al. (2015) who agreed that stakeholders in forestry sector had differing and competing interests which exacerbated conflicts. The scholars also noted the increasing number of policies that placed demands on forests-with objectives which gave rise to conflicts upon implementation. They suggested the need for a participatory planning approach to be put in place to lessen incoherencies and reduce conflicts.

The findings therefore imply that increasing participatory planning in forest governance practices would improve forest protection significantly. Some of the practices for improvement include building the capacity of stakeholders to participate in decision making and involving the employees to participate in development of management plans in governance of forests.

Further, involving special interest groups, that is women, children and people living with disabilities in decision making processes on forest governance, involvement of various stakeholders and agencies in joint identification of possible forest protection conflicts, joint action on dispute resolution in forest protection as well as joint cooperation on implementation of planned activities requires improvement.

The findings were consistent with the work of Udeagha et al., (2016) who indicated that in Nigeria, participatory planning was inadequate and called upon the government to invest more resources in research and development in the forest sector, capacity building, infrastructure development as well as stakeholder involvement. The finding was also in line with a study by Sultana et al. (2008) on the effectiveness of participatory planning for community management of fisheries in Bangladesh where participatory action plan development process was lauded as a more effective community-based initiative. The study looked into success stories of adopting community involvement in project planning activities as well as establishment of management of institutions at local level. As a result, the uptake of laid down interventions by communities was commendable with fewer conflicts encountered in the project areas. The study concluded that participatory planning significantly supported various stakeholders identify problems and remedies for management of common pool resources.

5.2.2 Influence of Forest Regulatory Framework on Forest Protection

The findings of the study showed that the existing forest regulatory framework was adequate to a moderate extent as held by 72% of the respondents. This rating was linked to implementation hurdles arising from unclear demarcation of mandates by various conservation agencies arising from overlapping jurisdictions, lack of clarity of legislation, inadequate coordination between National and County governments and Ministries among others. The finding implied that improving the existing forest regulatory framework could improve forest protection significantly. Some of the practices which should be adopted were creation of awareness to the stakeholders on forest regulatory framework, promotion of forest user rights for registered community

forest associations, championing for adherence to employee's professional ethics, review of the existing framework to be clear, understandable and to be consistent with other related legislations. These findings were echoed by a study carried out in Indonesia where there was a serious conflict between regional autonomy of laws, and the sectorial laws governing natural resource exploitation (Tan et al. 2004). The study suggested the need to foster collaborative efforts at National, Regional and local level government institutions for sustainable forest protection.

Additionally, the finding was in line with a study carried out in Bangladesh on the regulation of blue economy and environmental protection found out that the marine sector suffered from fragmented legal framework, ambiguities in business allocation, jurisdictional overlapping and unclear mandates. Consequently, these bottle necks led to conflict of interest, poor coordination, lack of cohesion and rivalry among stakeholders. Some of the recommended actions to resolve them included; introduction of legal reforms in the marine sector, policy interventions through strengthening regulatory provisions and introduction of participatory governance (Rahman et al. 2021).

This study especially noted that, despite the prominence accorded by the Constitution of Kenya 2010 to the County governments through assignment of some forest sector functions, most counties are yet to operationalize the Transitional Implementation plans to facilitate the transfer of targeted forestry functions. The delay is linked to the inadequate efforts to build capacity and secure adequate resources for undertaking the devolved functions. As such, forest conservation, protection and management lack the back-up from most of the county governments in effectively implementing its

mandate- despite the representation of Council of Governors in the KFS Board of Management. This was in line with findings of a study carried out in Uganda on devolution of management of forests where local governments and community based organizations were expected to develop adequate capacities for effective delivery of conservation mandates for meaningful devolution.

These results revealed that the organizations involved in management of forests in the devolved systems did not have either the legal mandate or adequate resources to manage forests due to challenges related to inadequate devolution of decision-making powers and limited fiscal support from the central government. Some of the suggested solutions included the need for devolved units to recruit sufficient technical personnel, strengthening of revenue streams and establishing synergies among conservation agencies at local, regional and national levels for enhanced governance of forest resources (Turyahabwe et al., 2006).

Locally, the FCMA (2016) provides for maximum threshold penalties for offenders and does not set a minimum fine- thus not adequately supporting forest protection through achievement of deterrence especially as compared to the repealed Forest Act 2005 which was clearer. This provision may be subject to abuse by Courts through award of meager fines and may encourage habitual forest offenders. This requires amendments to the Act to strengthen it so as to adequately guide conservation, management and protection of forests. Some of the other gaps in the existing forest regulatory framework include the absence of a published or gazetted Chain of Custody System to aid in the verification of forest products harvested from public, community and private forests as required by provisions of section 58 (1) of FCMA 2016.

Consequently, forest protection efforts are negatively impacted because the current situation lacks standardization and uniformity across the Counties and this may exacerbate forest degradation. There are no gazetted Regulations for grading and valuation of timber and other forest products as well as Rules to guide exports and import of forest products. They are yet to be developed for compliance by the line Ministry to ensure prudent management of forest resources and enhanced revenue generation.

Additionally, the Forest Policy 2020 is still in a draft form and requires that it be fast-tracked to address emerging issues such as climate change, payment for ecosystem services, green growth, distribution of functions between the National and County governments, rights of forest dependent indigenous communities and the need to encourage partnerships with communities and the private sector for sustainable conservation, management and protection of forests.

The findings are consistent with a study by Chebii (2015) who indicated that the Kenyan government has enacted a number of legislations and ratified international conventions to manage and conserve forests but the integration of sustainable forest management and conservation efforts by different actors in the sector remains a challenge. Additionally, the finding resonated with a study by Materu et al. (2018) who reviewed policies and legislation for protecting wetlands in the United Republic of Tanzania and found out that the legal provisions were uncoordinated and inadequate in coverage and scope. The study concluded that the absence of a sound regulatory framework would result to unsustainable management of wetlands through continuous degradation.

The findings were also consistent Van Dam et al. (2019), who analyzed the existing forest protection laws in Argentina, Brazil and Paraguay where they established that forest laws offered minimal protection to forests, much less than for many other ecosystems. It was further noted that forest resources were not always adequately controlled thus were exposed to deforestation and degradation. This was linked to weakness of legal framework and operating systems resulting in massive loss of natural resources and biodiversity whose levels remained unclear.

5.2.3 Influence of Enforcement in Forest Protection

From the study, the level of effectiveness in enforcement was rated at a low extent as supported by 81% of the respondents. The issues accounting for the enforcement challenges from this study include: the low extent of equipping forest law enforcement officers with relevant tools and equipment to deliver on their mandate; low levels of resourcing towards forest law enforcement activities and inadequate infrastructures and technology to support forest law enforcement. Law enforcement knowledge and skill was found to be inadequate yet it is critical in enabling personnel to make informed decisions, take the right actions, resolve resource conflicts and enforce the law while respecting people's rights. Training too, enhances information gathering and sharing thus building synergy with relevant stakeholders.

This finding was in line with a study by Gritten et al. (2019) who assessed the forest governance challenges in the countries of the greater Mekong Sub-region in South Africa and concluded that there existed numerous challenges in terms of enforcement, and compliance to forest governance practices due to limited financial resources.

Some of the practices to be improved are collaboration in enforcement of forestry laws between the KFS and stakeholders, putting in place continuous training programs for forest law enforcement, putting in place measures for technological application in forest law enforcement, equipping forest law enforcement officers with relevant tools and equipment to deliver their mandate, allocating sufficient financial resources towards forest law enforcement activities as well as developing infrastructures such as roads to support forest law enforcement in Ngong hills forest.

Enforcement could also be improved through building synergies and entering into more memorandums of understanding with key stakeholders for collaboration on key functional areas. The influence of enforcement of forest governance practices on forest protection was positive but weak to mean that even though the existing enforcement practices have improved forest protection, it's only to a low extent. It was also established that improving enforcement of forest governance practices in forest governance would improve forest protection significantly.

Similarly, Brown et al. (2004) echoed the findings of this study by pointing out the need for multi-agency involvement in enforcement activities for increased discipline within the state forest law enforcement agency and timber industry.

Further, this study's dependent variable was forest protection which is achieved when the forest governance practices are effectively implemented by the concerned Service through collaboration with relevant stakeholders, adherence to the rule of law and based on best practices. Notably, forest protection is critical in the preservation of forests and biodiversity but the findings of this study as regards the extent to which it is implemented, is to a moderate extent- meaning Ngong hills forest is moderately

protected. This implies that in as much as the cases of poor forest protection activities are being managed, its presence is still moderately felt. The incidences of illegal dumping were experienced in Ngong hills forest for the last 3 years to a very low extent while both illegal logging activities and forest encroachment were experienced in Ngong hills forest for the last 3 years to a low extent. The incidences of forest fires were experienced in Ngong hills forest for the last 3 years to a moderate extent while unsustainable farming was experienced in Ngong hills forest for the last 3 years to a high extent.

The findings were echoed by Green et al. (2015) who mapped out the capacity of upstream water source points to serve downstream populations with water using the freshwater provisioning index and registered a moderate extent rating of fresh water provision due to anthropological activities- exposing 82% of global population to great levels of environmental risk. The study recommended for better management practices of upstream water source- points as an opportunity to protect and sustainably manage them through enhanced conservation, minimizing of threats and investing in green infrastructure.

Overall, the outcome of this study was corroborated by the annual evaluation report for 2020/2021 financial year on the extent to which the values and principles referred to in Article 1 and 232 of the Constitution are complied with within the public service- which rated KFS at an overall compliance index of 37.3% (GoK, 2021). The values and principles referred to, relates to how governance practices are implemented. This underscores the need for the Service to adopt a holistic approach of implementing forest governance practices through enhancing participatory planning, strengthening

and publicizing forest regulatory framework and encouraging collaborative enforcement for improved forest protection.

5.3 Summary of Key Findings

This section highlights the key findings of the study based on the three objectives namely; to establish how participatory planning in forest governance influences forest protection in Ngong hills forest, Kenya; to assess how forest regulatory framework influences forest protection in Ngong hills forest, Kenya; and to examine how enforcement of forest governance practices influences forest protection in Ngong hills forest, Kenya. The study was conducted at a time when forest degradation continues to be a challenge- threatening the livelihoods of communities dependent on forests despite having administrative, operational and legislative measures in place. This study was an effort to better comprehend the influence of forest governance issues with a view of recommending for their review and realignment to improve forest protection of Ngong hills forest. The analysis assessed the extent to which each of the objectives influenced forest protection.

On the first objective, the study findings showed that participatory planning which entails involvement of stakeholders and its staff on governance issues is implemented to a moderate extent as supported by 65% of the respondents. Some of the reasons for this rating were; low extent of capacity building efforts, collaboration, inadequate facilitation to support livelihood support programs for forest adjacent communities and inefficient delivery of services. However, it was noted that some stakeholders have competing interests which may jeopardize forest protection efforts.

On the second objective, the study sought to assess how the forest regulatory framework influenced forest protection in Ngong hills forest and the 72% of respondents supported that it was adequate only to a moderate extent. The rating was linked to the unclear demarcation of mandates of conservation agencies, inadequate coordination between National and County governments, inadequate provisions in law to guide forest protection operations, meager penalties which do not effectively deter forest illegalities and a missing nexus between policy intentions of participatory approach and expected implementation on the ground.

On the final objective, the study examined how enforcement of forest governance practices influenced forest protection in Ngong hills forest and the findings showed that enforcement suffered both administrative and operational challenges emanating from within the organization and outside. This study sought comments from respondents on the extent to which enforcement of governance practices was effective and 81% of them indicated that enforcement was carried out to a low extent. The low extent rating is linked to the inadequate mechanism for collaboration on forest protection efforts with Ministries, Departments, Agencies (MDAs) and other stakeholders, inadequate tools and equipment for example for forest fire fighting and modern communication as well as mobility equipment. There were inadequacies of continuous training for law enforcement personnel and inadequate technological application. Forest protection requires a real time surveillance and monitoring system for purposes of achieving deterrence and for prompt response whenever there are invasions into forests by forest offenders.

5.4 Conclusions

This study concludes that various forest governance practices affect forest protection in different ways. Participatory planning which is a practice derived from participatory Forest Management approach in forest governance, is applied to a low extent- despite being provided for in Articles 42 and 69 (1) of Kenya's Constitution 2010, Forest Conservation and Management Act (FCMA) 2016, Second Pillar of Vision 2030 and Sustainable Development Goal (SDGs) numbers 1 and 9. It is also provided for in Draft Forest Policy (Sessional Paper No. 1 of 2007) among other National and international laws linked to forest governance. However, this study concludes that there is still a roll-out gap of participatory planning practice especially in aligning to the intentions of the PFM policy and actual practice on the ground.

On forest regulatory framework, this study concludes that it is moderately adequate and requires amendments to address: overlapping mandates across conservation entities, strengthening the law on protection of indigenous as well as endangered tree species and enacting stricter penalties on forest offenders. Additionally, the involvement of stakeholders- both state and non-state actors on enforcement efforts would be critical in minimizing forest illegalities.

The study also established that the enforcement of governance practices is weak despite evidence of improved forest protection output. This study concludes that continuous capacity building, adequate facilitation and adoption of appropriate technology for forest law enforcement, would improve forest protection significantly. It is also prudent to note that given adequate investment towards ensuring that forests are effectively protected and employing effective governance tools in resource management, the desired end state of achieving a minimum of 10% forest cover,

attainment of a clean healthy environment and increased support to the National Economic growth strategy will be achieved. Such investment and prudent governance of forest resources would also enhance direct support to other sectors of the economy including agriculture fishing, energy, water, tourism, public administration and defense as well as enhance employment creation.

Finally, as regards forest protection efforts in the country between the years 2018 and 2020, this study concludes that forests are not adequately protected despite considerable decrease in the number of reported illegalities- based on the reviewed secondary data. This supports the descriptive findings that forest protection practices have been implemented to a moderate extent.

5.5 Recommendations

In view of the findings of this study, and the guidance from the reviewed literature, it is very clear that strengthening forest governance practices improves forest protection. From the results, it remains necessary for the Management of Kenya Forest Service to analyze and review its forest governance practices and adopt a holistic approach for purposes of improving forest protection. In this regard, the study makes the following recommendations;

Participatory planning is crucial in enhancing forest protection hence there is need for KFS to ensure there is effective participatory planning in place. Besides, it is utmost necessary for both employees and other stakeholders to be involved in decision making and during the development and implementation of management plans, joint identification of possible forest protection conflicts and clearly laid down dispute resolution procedures.

Since forest regulatory framework enhances forest protection, it is recommended for the Service to create awareness to both the employees and other stakeholders on forest regulatory frameworks and other related legislation. In the same breath, the line Ministry should fast track the signing and operationalization of Transitional Implementation Plans, capacity building, resourcing and adoption of clear coordination policy framework for collaboration between National and County governments on forestry functions including protection of forests within their jurisdiction. Further, the Service should ensure that the forest regulatory framework is clear, understandable and consistent with other related legislations to avoid inconsistencies and duplication.

Finally, on the enforcement of forest governance policies, the study recommends that the management of Kenya Forest Service should create an enabling environment for collaboration in enforcement of forest laws between its employees and relevant stakeholders. It was also noted that, a continuous training program for forest law enforcement personnel should be put in place. This would bring them to speed on the evolving nature of forest crimes occurring locally and across borders and put in place strategies for tackling them. The Service should also mobilize resources and invest in acquisition of relevant tools and equipment to support forest law enforcement so as to improve forest protection function.

5.6 Areas for Further Research

The study focused on a case of KFS narrowing down to Ngong hills Forest. While Ngong Hills forest has both a rural and urban characteristic, there is a need to isolate

the cases by focusing on other forest jurisdictions with unique geographical traits such as purely rural in order to compare the findings.

The study assumed a purely direct relationship with no moderating or mediating factors. As such, other future research works may consider the moderating or mediating effect of other factors such as cultural aspects on the relationship between the forest governance practices and forest protection. This is because in some regions, such practices may be hindered by cultural beliefs of the surrounding communities in regard to forest protection.

REFERENCES

Agrawal, A., & Chhatre, A. (2006). Explaining success on the commons: Community Forest governance in the Indian Himalaya. *World Development*, *34*(1), 149-166.

Ahammad, R., Stacey, N. & Sunderland, T. (2021). Analysis of forest-related policies for supporting ecosystem services-based forest management in Bangladesh. *Ecosystem Services*, *48*, 101235.

Akella, A. S. & Cannon. J. B. (2017). *Strengthening the weakest links: Strategies for improving the enforcement of environmental laws globally* (pp. 459-492).

Andersson, K. P. (2004). Who talks with whom? The role of repeated interactions in decentralized forest governance. *World Development*, *32*(2), 233-249.

Andreopoulou, Z. S. (2009). Adoption of information and communication technologies in public forest service in Greece. *Journal of Environmental protection and Ecology*, *10*(4), 1194-1204.

Arts, B., & Babili, I. (2012). Global forest governance: Multiple practices of policy performance. In *Forest and nature governance* (pp. 111-132). Springer, Dordrecht.

Arts, B., & Buizer, M. (2009). Forests, discourses, institutions: A discursive-institutional analysis of global forest governance. *Forest policy and economics*, *11*(5-6), 340-347.

Bagaria, G., Rodà, F., Clotet, M., Míguez, S. &Pino, J. (2018). Contrasting habitat and landscape effects on the fitness of a long-lived grassland plant under forest encroachment: Do they provide evidence for extinction debt? *Journal of Ecology*, *106* (1), 278-288.

Boiyo, V. K. (2019). *Rural-urban Diversity In The Implementation Of Participatory Forest Management: The Case Of Ngong'Road And Kiptuget Forests, Kenya* (Doctoral dissertation, UoN).

Bonsu, N. O., Dhubháin, Á. N., & O'connor, D. (2019). Understanding forest resource conflicts in Ireland: A case study approach. *Land use policy*, *80*, 287-297.

Borner, J., Baylis, K., Corbera, E., Ezzine De Blas, D., Ferraro, P. J., Honey Roses, J. &Wunder, S. (2016). Emerging evidence on the effectiveness of tropical forest conservation. *PloS one*, *11*(11), e0159152.

Boucher, D., Roquemore, S., & Fitzhugh, E. (2013). Brazil's success in reducing deforestation. *Tropical Conservation Science*, *6*(3), 426-445.

Brace, I. (2004). *Questionnaire design*. London: Kogan Page.

Brandt, J. S., Nolte, C. & Agrawal, A. (2016). Deforestation and timber production in Congo after implementation of sustainable forest management policy. *Land Use Policy*, *52*, 15-22.

Bruenig, E. F. (2016). *Conservation and management of tropical rainforests: an integrated approach to sustainability*. (2nd Edition). Oxford University Press on Demand.

Buckles, D. (Ed.). (1999). *Cultivating peace: conflict and collaboration in natural resource management*. Idrc.

Chebii, J. K. (2015). *Forest management and conservation in Kenya: a study of the role of law in the conservation of forest resources* (Doctoral Dissertation, University of South Africa, South Africa).

Christensen, D., Hartman, A. C., & Samii, C. (2021). Citizen monitoring promotes informed and inclusive forest governance in Liberia. *Proceedings of the National Academy of Sciences*, *118*(29).

Clements, T., & Milner-Gulland, E. J. (2015). Impact of payments for environmental services and protected areas on local livelihoods and forest conservation in northern Cambodia. *Conservation Biology*, *29*(1), 78-87.

Cline C. R. &Madge, C. (2017). *Contesting Forestry in West Africa*. Routledge Publishers, London, United Kingdom.

Cooper, D. J., Ezzamel, M., &Willmott, H. (2008). Examining "institutionalization": A critical theoretic perspective. *The Sage handbook of organizational institutionalism*, 673-701.

Cooper, D. R. & Schindler, P. S. (2003). *Business Research Methods*.4th Ed. New Delhi, India: McGraw-Hill   Publishing, Co. Ltd.

Cooper, D. R., & Schindler, P. S. (2006).*Business Research Methods*.9th Ed. New Delhi, India: McGraw-Hill Publishing, Co. Ltd.

Cote, M., & Nightingale, A. J. (2012). Resilience thinking meets social theory: situating social change in socio-ecological systems (SES) research. *Progress in Human Geography*, *36*(4), 475-489.

Crook, H. M. (2020). *Achieving Sustainable Forest Management in Tanzania: Evaluating the Effectiveness of Current Forest Protection Policies and Initiatives Designed to Stop Deforestation* (Doctoral dissertation, Queen's University (Canada)).

Dang, T. K. P., Visseren-Hamakers, I. J., & Arts, B. (2016). A framework for assessing governance capacity: An illustration from Vietnam's forestry reforms. *Environment and Planning C: Government and Policy*, *34*(6), 1154-1174.

Ellefson, P. V., Kilgore, M. A. &Granskog, J. E. (2007). Government regulation of forestry practices on private forest land in the United States: An assessment of state government responsibilities and program performance. *Forest policy and economics*, *9*(6), 620-632.

FAO. (2016). State of world's forests; *Forests and Agriculture*: Land use challenges and opportunities. FAO, Rome.

Field, A. P. (2005). Is the meta-analysis of correlation coefficients accurate when population correlations vary? *Psychological Methods*, *10*(4), 444.

Food and Agriculture Organization (2015).Global Forest Resources Assessment 2015. *Forest Ecology and Management*, *352*, 9-20.

Galant, M. (2017). The stakeholders' theory as a starting point for the critique of corporate social responsibility. *Prace Naukowe Uniwersytetu Ekonomicznego We Wrocławiu*, (464), 31-42.

Gall, M. D., Gall, J. P. & Borg, W. R. (2007). *Educational research: An introduction*. Boston, MA: Pearson Education.

Gari, S. R., Newton, A. & Icely, J. D. (2015). A review of the application and evolution of the DPSIR framework with an emphasis on coastal social-ecological systems. *Ocean and Coastal Management*, *103*, 63-77.

Golladay, S. W. (2016). Achievable future conditions as a framework for guiding forest conservation and management. *Forest Ecology and Management*, *360*, 80-96.

Government of Kenya. (2005). Forest Act, 2005. Government Printers, Nairobi.

Government of Kenya. (2010). Constitution of the Republic of Kenya, 2010. Government Printers, Nairobi.

Government of Kenya. (2016). Forest Conservation and Management Act, 2016. Government Printers, Nairobi.

Green, P. A., Vorosmarty, C. J., Harrison, I., Farrell, T., Sáenz, L., & Fekete, B. M. (2015). Freshwater ecosystem services supporting humans: Pivoting from water crisis to water solutions. *Global Environmental Change*, *34*, 108-118.

Gritten, D., Lewis, S. R., Breukink, G., Mo, K., Thuy, D. T. T., & Delattre, E. (2019). Assessing forest governance in the countries of the greater Mekong Subregion. *Forests*, *10*(1), 47-89.

Grundy, I. M., & Michell, N. (2004). Participatory forest management in South Africa. *Indigenous forests and woodlands in South Africa: policy, people and practice*, 679-712.

Guariguata, M., & Brancalion, P. (2014). Current challenges and perspectives for governing forest restoration. *Forests*, 5(12), 3022-3030.

Gulbrandsen, L. H. (2005). The effectiveness of non-state governance schemes: a comparative study of forest certification in Norway and Sweden. *International Environmental Agreements: Politics, Law and Economics*, *5*(2), 125-149.

Guthiga, P. & Mburu, J. (2006). Local communities' incentives for forest Conservation: case of Kakamega Forest in Kenya. In *11ᵗʰ Biannual Conference of International Association for the Study of Common Property (IASCP), Indonesia*.

Hamza, K. F. S., &Kimwer, E. O. (2007). Tanzania's forest policy and its practical achievements with respect to community-based forest management in Mitmiombo. *Forest Research*, 24-33.

Horning, N. R. (2004). *The limits of rules: when rules promote forest conservation and when they do not: insights from Bara country, Madagascar*. PhD Diss.: Cornell University.

Ingram, V., Ros-Tonen, M. A., & Dietz, T. (2015). A fine mess: Bricolaged forest governance in Cameroon. *International Journal of the Commons*, *9*(1), 41-64.

Israel, G.D. (1992). Determining Sample Size. University of Florida Cooperative Extension Service, Institute of Food and Agriculture Sciences, EDIS, Florida.

IUCN. (1996). Forest cover and Forest Reserves in Kenya. *Policy and practice*. IUCN- the World Conservation Union, East Africa Regional Office, Nairobi, Kenya.

Kairu, et al., (2018). From Shiny Shoes to Muddy Reality: Understanding How Meso-State Actors Negotiate the Implementation Gap in Participatory Forest Management. *The Journal of Society & Natural Resources*, 31:1, 74-88.

Keane, A., Jones, J. P., Edwards Jones, G. & Milner Gulland, E. J. (2008). The sleeping policeman: understanding issues of enforcement and compliance in conservation. *Animal conservation*, *11*(2), 75-82.

Kent, J., Ammour, T., &Gálvez, J. (2014). Challenges and opportunities of sustainable forest management through community forestry concessions in the Maya Biosphere Reserve, Petén, Guatemala. *IUFRO World Series*, *32*, 113-129.

Kiruki, H. M., Van Der Zanden, E. H., Malek, Z. & Verburg, P. H. (2017). Land cover change and woodland degradation in a charcoal producing semi-arid area in Kenya. *Land Degradation & Development*, *28*(2), 472-481.

Kothari, C. R. (2004). *Research methodology: Methods and techniques*. *New Age International Publishers, New Delhi*, India

Kothari, C. R. (2011). Research methodology: An introduction. *New Age International Publishers, New Delhi*, India

Kumar, S. (2015). *Research methodology (3ʳᵈ Ed).* Springer, New York, US.

Lelli, C., Bruun, H. H., Chiarucci, A., Donati, D., Frascaroli, F., Fritz, O., &Heilmann-Clausen, J. (2019). Biodiversity response to forest structure and management: Comparing species richness, conservation relevant species and functional

diversity as metrics in forest conservation. *Forest Ecology and Management*, *432*, 707-717.

Lounsbury, M. (2021). Ronald L. Jepperson and John W. Meyer: Institutional Theory: The Cultural Construction of Organizations, States, and Identities.

Malovrh, S. P., & Avdibegovic, M. (2021). Comparative analysis of regulatory framework related to private forest management in Slovenia and Federation of Bosnia and Herzegovina. *Central European Forestry Journal*, *67*(4), 197-211.

Mansell, S. F. (2009). *A critique of stakeholder theory* (Doctoral dissertation, The University of Essex).

Masese, F. O., Salcedo-Borda, J. S., Gettel, G. M., Irvine, K & McClain, M. E. (2017). Influence of catchment land use and seasonality on dissolved organic matter composition and ecosystem metabolism in headwater streams of a Kenyan river. *Biogeochemistry*, *132*(1-2), 1-22.

Materu, S. F., Urban, B., &Heise, S. (2018). A critical review of policies and legislation protecting Tanzanian wetlands. *Ecosystem Health and Sustainability*, *4*(12), 310-320.

Mathiyazhagan, T., &Nandan, D. (2010). Survey research method. *Media Mimansa*, *4*(1), 34-45.

Matsvange, D., Sagonda, R. &Kaundikiza, M. (2016). The role of communities in sustainable land and forest management: The case of Nyanga, Zvimba and Guruve districts of Zimbabwe. *Jamba: Journal of Disaster Risk Studies*, *8*(3), 1-11.

Mbeche, R., Ateka, J., Herrmann, R., & Grote, U. (2021). Understanding forest users' participation in participatory forest management (PFM): Insights from Mt. Elgon Forest ecosystem, Kenya. *Forest Policy and Economics*, *129*, 102507.

MENR. (2007). Participatory Forest Management Guidelines. *Ministry of Environment and Natural Resources*, Nairobi.

MENR. (2014). Forest Policy. *Ministry of Environment and Natural Resources*, Nairobi.

Millions, U. D. C. K. E. (2012). of Dollars Each Year and Increasing Water Shortage Risk UNEP'. *UNEP NEWS CENTRE*.

Mugenda, O. & Mugenda, A. (2013). Research methodology: Qualitative and Quantitative Techniques (6thEds). Rev Edition, Nairobi

Mutune, J. M., & Lund, J. F. (2016). Unpacking the impacts of 'participatory forestry' policies: evidence from Kenya. *Forest Policy and Economics*, *69*, 45-52.

Natarajan, L., Lock, S. J., Rydin, Y., & Lee, M. (2019). Participatory planning and major infrastructure: experiences in REI NSIP regulation. *Town Planning Review*, *90*(2), 117-138.

Obati, G. O. &Breckling, B. (2015). Socio-ecological characterization of forest ecosystem health in the south-western Mau Forest Reserve, Kenya. *Eastern Africa Social Science Research Review*, *31*(1), 89-118.

Ogweno D.O., Opanga and Obara A. O. (eds 2009). Forest landscape and Kenya's vision 2030. *Proceedings of the 3rd Annual Forest Society of Kenya Conference and Annual General Meeting held at the Sunset Hotel Kisumu*, 30th September-3rd October, 2008.

Oksanen, T. Gachanja, M. and Anni Blasten (2011, 2016). Strategy Note for Forest Governance Reform in Kenya. *MMMB Programme, Kenya*.

Okumu, B. (2017). Economic analysis of participatory forest management in Kenya.

Omala, M. A., & Aglanu, L. M. (2020). Power dynamics in forest governance decentralization: the case of Kenya. *International Forestry Review*, *22*(2), 225-240.

Ongugo, P. O., Mogoi, J. N., Obonyo, E. &Oeba, V. O. (2008). Examining the roles of community forest associations (CFAS) in the decentralization process of Kenyan forests, Presented in IASC Conference, England (11th to 19th July 2008)

Onjala, J. (2011). Firm compliance to regulatory enforcement of industrial wastewater standards, *Nairobi, Kenya*.

Orodho, A. J. & Kombo, D. K. (2003). Research Methodology. Pitman Publishing Company, *Nairobi, Kenya*.

Ostrom E., (2012). *A General Framework for Analyzing Sustainability of Social-Ecological Systems.* American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005.

Overdevest, C., & Zeitlin, J. (2018). Experimentalism in transnational forest governance: Implementing European Union Forest Law Enforcement, Governance and Trade (FLEGT) Voluntary Partnership Agreements in Indonesia and Ghana. *Regulation & Governance*, *12*(1), 64-87.

Pandey, P., & Pandey, M. M. (2021). Research Methodology Tools and Techniques.

Pattberg, P. (2006). Private governance and the South: Lessons from global forest politics. *Third World Quarterly*, *27*(4), 579-593.

Peerapun, W. (2018). Participatory Planning approach to urban conservation and regeneration in Amphawa community, Thailand. *Asian Journal of Environment-Behaviour Studies*, *3*(6), 147-155.

Phillips, R., Freeman, R. E., & Wicks, A. C. (2003). What stakeholder theory is not. *Business ethics quarterly*, *13*(4), 479-502.

Pulhin, J. M., Fajardo, A. R., Predo, C. D., Sajise, A. J., De Luna, C. C., & Diona, D. L. Z. (2021). Unbundling Property Rights among Stakeholders of Bataan Natural Park: Implications to Protected Area Governance in the Philippines. *Journal of Sustainable Forestry*, 1-23.

Purvis, R. L., Zagenczyk, T. J., & McCray, G. E. (2015). What's in it for me? Using expectancy theory and climate to explain stakeholder participation, its direction and intensity. *International Journal of Project Management*, *33*(1), 3-14.

Rabongo, F.O (2015). *Influence of community participation in forest protection, Gathiuru Forest, Nyeri County*. Unpublished Masters Project, University of Nairobi

Rahman, M. M. (2021). The rhetorical blue economy in Bangladesh: Analyzing the inborn regulatory bottlenecks. *Acta Aquatica: Aquatic Sciences Journal*, *8*(2), 66-73.

Republic of Kenya (2013).Presidential Taskforce on Parastatals Reforms.*Government Printers*.

Ribot, J. C. & Peluso, N. L. (2003). A theory of access. Rural Sociology-Baton Rouge-, 68(2), 153-181.

Schoukens, H. (2018). Granting Legal Personhood to Nature in the European Union: Contemplating a Legal (R) evolution to Avoid an Ecological Collapse?(Part 1). *Journal for European Environmental & Planning Law*, *15*(3-4), 309-332.

Sears, R. R., & Pinedo-Vasquez, M. (2011). Forest policy reform and the organization of logging in Peruvian Amazonia. *Development and Change*, *42*(2), 609-631.

Singhal, R. (2002). *Changing models of forest governance in India: Evolution or revolution. Bhopal*: Indian Institute of Forest Management.

Smith, J., Colan, V., Sabogal, C., & Snook, L. (2006). Why policy reforms fail to improve logging practices: The role of governance and norms in Peru. *Forest policy and economics*, *8*(4), 458-469.

Sultana, P., & Abeyasekera, S. (2008). Effectiveness of participatory planning for community management of fisheries in Bangladesh. *Journal of environmental management*, *86*(1), 201-213.

Sutrisna, M. (2009). Research methodology in doctoral research: understanding the meaning of conducting qualitative research. In *Proceedings of the Association of Researchers in Construction Management (ARCOM) Doctoral Workshop held in Liverpool John Moores University. Conducted by ARCOM Liverpool, UK: ARCOM*.

Tacconi, L., Rodrigues, R. J., Maryudi, A., &Muttaqin, M. Z. (2019). Law enforcement and deforestation: Lessons for Indonesia from Brazil. *Forest Policy and Economics*, 101943.

Tan, A. K. J. (2004). Environmental laws and institutions in Southeast Asia: A review of recent developments. *Sybil*, *8*, 177.

Tavakol, M. &Dennick, R. (2011).Making sense of Cronbach's alpha. *International journal of medical education*, *2*, 53.

Thenya, T. Wandago, B. and Nahama (2007). Participatory forest management experience in Kenya (1996-2006), *In proceedings of the 1st National Participatory forest management conference,* KEFRI Headquarters, Nairobi, Kenya.

Tscherning, K., Helming, K., Krippner, B., Sieber, S. & Paloma, S. G. (2012). Does research applying the DPSIR framework support decision making?. *Land use policy*, *29*(1), 102-110.

Turyahabwe, N., Geldenhuys, C. J., Watts, S., & Banana, A. Y. (2006). Technical and institutional capacity in local organisations to manage decentralised forest resources in Uganda. *Southern African Forestry Journal*, *208*(1), 63-78.

Udeagha, A. U., Uluocha, O. B., & Shomkegh, S. A. (2016). Forest policy and administration in Nigeria: lessons from Tanzania. *Int'l Journal of Agric. and Rural Dev*, *19*(1), 2399-2406.

Uisso, A. J., Chirwa, P. W., Ackerman, P. A. & Mbwambo, L. (2019).Forest management and conservation before and after the introduction of village participatory land use plans in the Kilosa district REDD+ initiative, Tanzania. *Journal of Sustainable Forestry*, *38*(2), 97-115.

Van Dam, J. I., Van Den Hombergh, H. E., &Hilders, M. (2019). An analysis of existing laws on forest protection in the main soy producing countries in Latin America.National Committee of the Netherlands.

Wandago B., (2002). *Tropical Secondary Forest Management in Africa: Reality and Perspectives.* Kenya Country Paper, in collaboration with ICRAF and CIFOR Nairobi, Kenya

Watson, E. (2014). *91% of Kenya's Protected Areas Shrunk in 100 Years.* Mongabay, Menlo Park, California, United States. Accessed from *www.Mongabay.com*

Willems, M., Lambooy, T., & Begum, S. (2021, March). New Governance Ways Aimed at Protecting Nature for Future Generations: The Cases of Bangladesh, India and New Zealand: Granting Legal Personhood to Rivers. In *IOP Conference Series: Earth and Environmental Science* (Vol. 690, No. 1, p. 012059). IOP publishing.

Wirtz, Z., Hagerman, S., Hauer, R. J., & Konijnendijk, C. C. (2021). What makes urban forest governance successful? −A study among Canadian experts. *Urban Forestry & Urban Greening*, *58*, 126901.

Zhou, N., Hu, X., Byskov, I., Næss, J. S., Wu, Q., Zhao, W., & Cherubini, F. (2021). Overview of recent land cover changes, forest harvest areas, and soil erosion trends in Nordic countries. *Geography and Sustainability*, *2*(3), 163-174.

APPENDICES

Appendix I: Introduction Letter

Serial no: ……

Dear respondent,

My name is Michael Kokwee, a student of Africa Nazarene University pursuing a Master's Degree in Governance, Peace and Security. I am carrying out academic research on the influence of Forest Governance Practices on Forest Protection in Kenya, a case of Ngong hills forest.

I am requesting you to help in the research by filling out this questionnaire to provide me with the research information. You are assured that the information obtained will be treated with utmost confidentiality and will only be utilized for learning purposes. Thanks in advance for your willingness to assist me by contributing to this research.

Please tick the box provided

I agree to participate in the filling of this questionnaire   [ ]

Respondent's Signature: .... Date: ……………………..

Appendix II: Questionnaire

Section I: General Information

1. Respondent's Gender

    Male   [ ]

    Female   [ ]

2. Highest level of Education

    Postgraduate   [ ]

    Undergraduate   [ ]

    Diploma   [ ]

    Certificate   [ ]

    Others (Explain)   ....

3. Current position: Top Management   [ ]

                  Middle Level Management   [ ]

                  Low Level Management   [ ]

4. What is your work experience?

    Below 3 years   [ ]

    4-5 years   [ ]

    6-7 years   [ ]

    8-10 years   [ ]

    Above 10 years   [ ]

Section II: Participatory Planning in Forest Governance

5. This section seeks to find out whether there is participatory planning in forest governance. Please indicate the extent to which you agree with the statements. Tick (√) where appropriate using a scale of 1 = Never, 2 = Low Extent, 3 = Moderate Extent, 4 = High Extent and 5 = Very High Extent.

Statement	1	2	3	4	5
To what extent:					
Has KFS built the capacity of stakeholders to participate in decision making					

Do you participate in development of management plans in governance of forests (Note : Management plan can either be KFS management plans (for KFS employees) or Community Forest Management Plans (for CFA members))					
Are the special interest groups involved in decision making processes on forest governance (Note : special interest groups are women, youth , marginalized and people living with disability)					
Does KFS involve various stakeholders and agencies in joint identification of possible forest protection conflicts					
Does KFS involve various stakeholders and agencies in joint action on dispute resolution in forest protection					
Does KFS involve various stakeholders and agencies in joint cooperation on implementation of planned activities					

6. How participatory is the current forest management planning process in forest governance?

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7. How participatory is the current decision making process in forest governance?

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8. In your opinion, how do you think participatory planning influences forest protection? Explain

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Section III: Forest Regulatory Framework

9. This section contains statements on Forest Regulatory Framework. Please indicate the extent to which you agree with the statements. Tick ($\sqrt{}$) where appropriate using a scale of 1 = Never, 2 = Low Extent, 3 = Moderate Extent, 4 = High Extent and 5 = Very High Extent**.**

Statement	1	2	3	4	5
To what extent:					
Does KFS create awareness to the stakeholders on forest regulatory framework					
Is the existing forest regulatory framework clear and understandable					
Is the existing forest regulatory framework consistent with other related legislations					
Does the existing forest regulatory framework promote professional ethics among KFS employees					
Does the forest regulatory framework have overlapping jurisdictions					
Does the existing forest regulatory framework promote forest user rights					

10. Do you think the existing forest regulatory framework needs amendments?

                Yes   [ ]

                No   [ ]

If yes, what would they be?

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11. In your opinion, how do you think forest regulatory framework influences forest protection? Explain

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Section IV: Enforcement of Governance Practices

12. This section contains statements on enforcement of governance practices. Please indicate the extent to which you agree with the statements. Tick (√) where appropriate using a scale of 1 = Never, 2 = Low Extent, 3 = Moderate Extent, 4 = High Extent and 5 = Very High Extent.

Statement	1	2	3	4	5
To what extent:					
Is there collaboration in enforcement of forestry laws between the KFS and stakeholders					
Does KFS ensure there is continuous training programmes for forest law enforcement staff					
Does KFS put in place measures for technological application in forest law enforcement					
Are the forest law enforcement officers equipped with relevant tools and equipment to deliver their mandate					
Does KFS allocate financial resources towards forest law enforcement activities					
Is there infrastructural development to support forest law enforcement					

13. Do you think the existing enforcement of forest governance practices is satisfactory?

Yes   [ ]

No   [ ]

Please explain your answer?

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14. In your opinion, how do think enforcement of forest governance practices influence forest protection? Explain

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Section V: Forest Protection

15. This section contains statements on forest protection. Please indicate the extent to which you agree with the statements. Tick (√) where appropriate using a scale of 1 = Never, 2 = Low Extent, 3 = Moderate Extent, 4 = High Extent and 5 = Very High Extent**.**

Statement	1	2	3	4	5
To what extent:					
Have illegal logging activities been experienced in gazetted forests for the last 3 years					
Have forest fires been experienced in gazetted forests for the last 3 years					
Have cases of unsustainable farming in gazetted forests been experienced in the last 3 years					
Have cases of forest encroachment been experienced for the last 3 years					
Have cases of dumping in gazetted forests been experienced for the last 3 years					

16. Secondary data collection template

Illegal Activity / Year	2018	2019	2020
Total number of Illegal Activities			

The End, thanks

Appendix III: Interview Guide

A. KFS Top Management

i. How participatory are the current forest management planning processes in forest governance?

ii. How participatory are the current decisions making processes in forest governance?

iii. Is the current forest management planning processes in forest governance satisfactory? Explain

iv. Are the current decisions making processes in forest governance satisfactory? Explain

v. Is the current forest regulatory framework satisfactory? Explain

vi. How can the current forest regulatory framework be improved to ensure forests are well protected?

vii. Are the current enforcement of forest governance practices satisfactory? Explain

viii. How do you suggest the existing enforcement of forest governance practices be improved to ensure the forests are well protected?

B. Ngong Metro CFA Executive Management Committee Members

i. Explain the current state of forest protection in Ngong Hills.

ii. What are the roles of CFA in ensuring Ngong Hill forest is well protected?

iii. Are you involved in planning by KFS in regard to forest governance? Explain. How satisfactory is the current participatory framework?

iv. Are you involved in decision making by KFS in regard to forest governance? Explain. How satisfactory is the current participatory framework?

v. Are there any weaknesses in the current forest regulatory framework in Ngong forest? Explain and suggest areas for improvement. Are you normally involved in formulation of these regulatory frameworks?

vi. Do you face any challenges in enforcing forest governance practices in Ngong forest? Explain. How satisfactory are the current enforcement measures?

vii. What are your recommendations for overall improvement of Ngong forest protection?

Appendix IV: University's letter of authority to conduct research

AFRICA NAZARENE
UNIVERSITY

12th August 2021

RE: TO WHOM IT MAY CONCERN

Kokwee Michael (18J03EMGP016) is a bonafide student at Africa Nazarene University. He has finished his course work and has defended his thesis proposal entitled: -

"Influence of Forest Governance Practices on Forest Protection in Kenya: A Case of Ngong Hills Forest".

Any assistance accorded to him to facilitate data collection and finish his thesis is highly welcomed.

Prof. Rodney Reed
DVC, Academic & Student Affairs.

Appendix V: Research Permit

Appendix VI: Authority to Collect Data in Nairobi Conservancy

KENYA
Forest Service

Kenya Forest Service Hqs
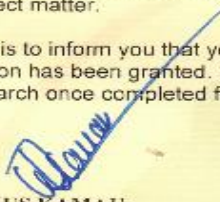Karura, Off Kiambu Rd
P.O. Box 30513 - 00100
Nairobi, Kenya

KFS 00344/51
Ref: No..

20th SEPT,2021
Date:.............................

Michael Kokwe
C/o Commandant
P.O. Box 30513-00100
NAIROBI

AUTHORITY TO COLLECT DATA FOR RESEARCH IN NAIROBI CONSERVANCY

This is in response to your memo dated 14th September, 2021 regarding the above subject matter.

This is to inform you that your request to carry out research at Ngong Hills Forest Station has been granted. However, you are required to submit the report of your research once completed for our records and necessary action.

JULIUS KAMAU
CHIEF CONSERVATOR OF FORESTS.
Pn/Mo

Trees for better lives

Tel: (254)020-3754904/5/6, (254)020-2014663, (254)020-2020285, Fax: (254)020-2385374
Email: info@kenyaforestservice.org. Web: www.kenyaforestservice.org

Appendix VII: Map of study area