IMPACT OF BENEFIT SHARING ARRANGEMENTS ON SUSTAINABLE MANAGEMENT OF PUBLIC FORESTS: A CASE STUDY OF KARURA FOREST IN KENYA

BY

ESTHER W. KEIGE

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DECLARATION

This research Thesis is my original work and to the best of my knowledge has not previously been presented for the award of a degree in this and/or any other university.

Signed……. Date……

Esther Wairimu Keige

Registration No: Z51/68708/2013

SUPERVISORS;

This Thesis has been submitted for examination with our approval as the supervisors appointed by the university

Name: Dr. Collins Odote

Signature……. Date…….

Name: Prof. Nicholas Oguge

Signature……. Date……..

DEDICATION

I wish to dedicate this Thesis to my family. My son Ian Kariuki, for your support and encouragement during the long journey to accomplish this work. I hope this serves as an inspiration for you to pursue your academic goals to the highest level possible. To my son Keith Keige, who although differently talented, has taught me important lessons on patience and compassion. To my sisters; Annah, Wanja and Liza for encouraging me and cheering me on when I felt like giving up. To my mother Teresia and brothers Njoroge, Thuo, Ngugi and Dave, I appreciate you and thank you for your support in this road well-traveled.

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LIST OF ABBREVIATIONS

ABS - Access and Benefit sharing

CBD - Convention on Biological Diversity

CIFOR - Center for International Forestry Research

CBNRM - Community Based Natural Resources Management

CBFM - Community Based Forest Management

CDM - Clean Development Mechanism

CNA - Competent National Authority

EMCA - Environmental Management and Coordination Act

FAO - Food and Agricultural Organization

FRA - Forest Resources Assessment

IPF - Intergovernmental Forum on Forests

KFS - Kenya Forest Service

MEF - Ministry of Environment and Forestry

NFP - National Focal Points

NP - Nagoya Protocol

PES - Payment for Ecosystem Services

SFM - Sustainable Forest Management

PFM - Participatory Forest Management

UNFF - United Nations Forum on Forests

UNEP - United Nations Environment Program

LAWS AND POLICIES

Constitution of Kenya, 2010

Environment Management and Coordination Act, 1999 (Revised 2015)

Forest Conservation and Management Act, 2016

The Land Act, 2012

The Forest Policy, 2005

National Land Policy, 2009

ABSTRACT

Forests support livelihoods of an estimated 1.6 billion people globally. Besides, forests provide a multiple of direct and indirect benefits to human beings. In Kenya, benefits from forests such as provision of building materials, fuel wood and employment account for approximately 3.6% of the gross domestic product. It is from this understanding that sustainable forest management becomes a critical concern for both research and policy making. Evidence of the challenges facing the application of sustainability concept is the fact that the global forest cover in square kilometers was reported to have declined from 31.6% to 30.6% between 1990 and 2015. The decline occurred despite the adoption of the Forest Principles at the UN- Conference of Environment and Development (UNCED) in 1992 in Rio de Janeiro. One of the mechanisms aiding the operationalization of existing forest policies, laws and institutions is the concept of Benefit Sharing. Literature shows that benefit sharing mechanism has also performed dismally due to lack of clear definition of benefits to be shared and the distribution of power in decision making over the forestry resources. The study thus aimed at investigating the benefit sharing mechanism at Karura public forest within the forest regulatory framework in Kenya. Study data was obtained from primary and secondary sources. Primary sources were from survey with the forest neighbouring community members, focus group discussions with the Friends of Karura Forest (FKF), Kenya Forest Service (KFS), Forest Users and key informants from key stakeholders of the Karura forests. Secondary data emanated from literature review, especially policies, guidelines, laws and institutions for public forests as formulated and legislated by the government of Kenya. Qualitative data analysis from the community respondents was conducted using the Statistical Package for the Social Sciences, while quantitative data from secondary sources was analysed using Microsoft Excel. Content analysis was used to analyze data from the focus group discussions and key informants. Results show that 42% of the community members acknowledge benefits that Karura forest provided in the area, especially employment and fuel wood that accounted for about 68% of the total benefits. However, a majority of the community members reported biased process of sharing benefits with the community members. About 70% of the community did not explicitly know the basis of membership to- and the role of FKF as a community forest association. An estimated 88% of the community members had never participated in drafting any of the existing forest management policies and laws, and about 80% reported a 'poor performance' of the current Karura forest management. The study revealed that the modalities for benefit sharing were not specific. The study showed low transparency of information sharing and change of the form of benefits shared between FKF and the community. It was observed that with the increasing number of visitors in the forest against an almost static size of labour force, the quality of service was expected to decline over time. Although the increase in visitors' number increased revenue, there were concerns about the visitor carrying capacity of the forest. A majority of key players supported the co-management of public forests, but they suggested an evaluation of the relationships and roles of partners after ten years of implementation. From the results, the study concluded that active community participation, clear definition of benefits, transparency in sharing defined benefits, balanced power relations and streamlining co-management activities in the existing regulatory framework were key to realizing sustainable management for Karura forest.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Forests are critical natural resources because of their multiple roles such as supporting biodiversity, carbon sequestration and livelihoods of human communities[1]. Forests are an important source of the world's ecosystem services, and make vital contribution in sustaining both humankind and the earth's biodiversity[2]. Benefits of forests to human livelihoods are both tangible and intangible[3]. Forests provide timber and fuel wood for commercial and subsistence use by many societies. Forests also play an important cultural heritage and spiritual role in many communities. The Food and Agricultural organization (FAO, 2018) outlines the critical role that forests play to include carbon sequestration, provision of clean air and water, ecotourism, conservation of biodiversity, agricultural support and control of land degradation. The Center for International Forestry Research (CIFOR) indicates that forests directly and indirectly support livelihoods of an estimated 1.6 billion people[4]. The State of the World's Forests (SWF) report indicated that as at 2018, forests provided sustenance, fuel wood and medicine for over one billion of the population[5].

At the international level, the recommended forest cover is 10% of the total land surface of all countries[6]. In Kenya, the Food and Agricultural organization reported that in the year 2015, forests covered an area equivalent to 4.41 million hectares, which comprise about 7.5% of the total land area[7]. The Taskforce on Forest Resources Management and Logging Activities reported that in 2018, the forest cover in Kenya was 7.4%[8]. The forest cover of 7.4% is contributed at the ratio of one fifth by the five "montane forests" namely the Mau complex, Mt. Elgon, Mount Kenya,

[1]Bernd Siebenhuner and Jessica Suplie,"Implementing the access and benefit sharing provisions of the CBD", Ecological Economics 53(2005) 507-522
[2] Retrieved from www.unfcc.int/publications
[3]NdonyeOusseynou and Julius Tieguhon "Forest resources and rural livelihoods: The conflict between timber and non-timber forest products in Congo Basin"(2004) 1-10
[4]Marcus Colchester "justice in the forest: Rural livelihoods and forest law enforcement, International Forestry Review (2006) 370
[5]Food and Agricultural Organization "State of the world's Forests"(2018)
[6] Retrieved from www.fao.org/publications
[7] Food and Agricultural Organization "Forest Resource Assessment, Country Report for Kenya" (2015)
[8]Ministry of Environment and Forestry, "Taskforce Report on Forest Resources Management and Logging Activities in Kenya" (2018)

Cherangani Hills and the Aberdare ranges. The five "montane forests" cover approximately 2% of the land area of Kenya, and contribute approximately 3.6% of the country's gross domestic product[9]. The ministry of Environment and Forestry reported that the forestry sector in Kenya contributes approximately Kenya shillings seven billion to the economy, and provides employment opportunities to more than fifty thousand people directly and a further three hundred thousand indirectly[10].

Despite their importance, forests are under threat in many parts of the world. Globally, forest cover has been declining to an estimated 40 million square kilometers by 2015[11]. The global forest resources assessment reported that forests around the world decreased from 31.6% of the global land area to 30.6% between 1990 and 2015[12], but acknowledges that the rate of loss of forest cover has slowed down in current years. Africa lost approximately 3.4 million hectares annually between 2000 and 2010[13].The SWF report 2018 noted that forest cover in Africa declined from 30.6% to 27.1%[14] In Kenya, the United Nations Environment Program (UNEP) reported that from 2000 to 2010, deforestation within the five Kenya's major water towers was estimated at fifty thousand hectares[15]. The Taskforce on Forest Resources Management and Logging Activities in Kenya commissioned in 2018 reported that forest cover diminishes by five thousand hectares per year[16]. The noted rate and magnitude of deforestation has numerous consequences, which include global climate change, local climate variability, loss of biological and genetic resources, soil degradation, declining water quality and adverse impacts on human livelihood[17].

In Kenya, prior to the enactment of the Forest Act 2005 that was subsequently repealed in 2016; public forests were under the full control and management of the state. The government prohibited

[9] Kenya Forest Service and United Nations Environment Program, "Role and contribution of montane forests and related ecosystem services to Kenyan economy(2012)
[10] Ibid
[11]The world Bank, "Forest areas Report" (2016)https://data.worldbank.org/indicator/AG.LND.FRST.K2 (accessed online, 18.05.2018)
[12] Food and Agricultural Organization, "Global Forest Resources Assessment" (2015)
[13] Supra, Note 5
[14] Ibid
[15] Ibid
[16] Supra, Note 7
[17] Supra, Note 8

all forms of access and withdrawal of the forest resources and benefits. Communities, and other key stakeholders were alienated and had no meaningful engagement in the management of forests[18]. The rights of communities to access and utilize forest resources as an incentive to make them engage meaningfully in the process did not receive the attention it deserved. This arguably led to wanton destruction of forests without concern for their continued existence. Karura forest has also faced similar challenges. Karura forest which was gazetted in 1932 as a forest reserve had lost more than half of the forest by 1996 due to human encroachment[19].

Three weaknesses are identified from the management and control of forests by the government; the use of "command and control" or "fines and fences" to protect public resources, non-participation of local people and non-consultative process of decision making. It has thus become apparent that unless communities, the rural and urban population as well as the private sector are substantively involved in the management of forests, all the previous efforts by the state to sustain forests will not be efficacious. This also explains the rise of "benefit sharing approaches" as a way of tackling governance problems that are related to socio-ecological systems in most countries[20]. Benefits sharing of forest resources and participation of stakeholders in their management have been identified as some of the strategies that can motivate communities to support sustainable forest management[21].

To address the various problems facing forests such as deforestation, climate change, loss of forest biodiversity and the failure of state-controlled forest management systems, the Forest Conservation and Management Act, was enacted in 2016 to replace the Forest Act, 2005. The Act contains innovative approaches to address the challenges which include joint management of forests set out in section forty-one, involvement of local communities provided for in part five and advancement of private sector investments in forestry as set out in Part Six of the Forest Conservation and Management Act, 2016. The Act allows community participation in forest

[18] Ministry of Environment, Water and Natural Resources,(2014)
[19]JeremiaNjeru,"'Donor –driven' neoliberal reform processes and urban environmental change in Kenya: The case of Karura Forest in Nairobi(2013), Progress in development studies,13(1),63-78
[20] David Humpreys, 'The Politics of avoided deforestation" in International Forestry Review (2008), Vol. 10(3)
[21]Mariki B.S, Conservation with a Human Face? Comparing Local Participation and Benefit Sharing From a National Park and a State Forest Plantation in Tanzania (2013)
https://journals.sagepub.com/doi/full/10.1177/2158244013512665

management[22], and provides for incentives and benefit sharing[23]. The Act prescribes the process through which the private sector, communities, institutions, associations or individuals may collaborate with Kenya Forest Service to manage forests resources and subsequently derive benefits therein[24].The mechanism for establishing the modalities for the sharing of benefits is the responsibility of Kenya forest service. The Act recognizes that community involvement in management of forest resources creates employment opportunities, infrastructure development and improves social well-being[25]. The underlying rationale for distributing forest resources and benefits is building local incentives for sustainable forest management.

The Forest Conservation and Management Act, No. 34 of 2016 was enacted in conformity with the Constitution of Kenya 2010, which recognizes the importance of the country's natural resources which include forests, biodiversity and genetic resources. According to the Constitution, public forests are controlled and managed by the government of Kenya based on the principles set out in Article 60 which include sustainable, productive management of resources and sound conservation. Article 69 describes the obligations of the state in relation to the environment, and calls for the involvement of all persons in the management of the natural resources. The State is responsible for ensuring sustainable management of Kenya's natural resources, and to safeguard the equitable sharing of benefits[26]. Other legislations such as the Environment Management and Coordination Act,1999 (Revised 2015), The Forest Policy, 2005, National Land Policy 2009, The Land Act 2012 and The Community Land Act, 2016 have specific sections providing for the management of the country's natural resources and benefit sharing.

1.2 Statement of the Research Problem

The Constitution of Kenya 2010 obligates the state to ensure the equitable sharing of benefits from sustainable management of natural resources.

[22]The Forest Conservation and Management Act, 2016, Part V
[23]The Forest Conservation and Management Act, 2016, Part VI
[24]Ibid
[25]The Forest Conservation and Management Act, 2016,S 53
[26]The Constitution of Kenya, 2010,Chapter five

The Forest Conservation and Management Act, 2016 provides that all public forests shall be conserved, protected and managed by Kenya Forest Service[27]. The right to access, withdraw, exclude, manage and alienate public forests is a preserve of the Kenya Forest Service. The Act calls for the active participation of communities in the management of forests and in sharing their benefits. The Act prescribes the process through which the private sector, communities, institutions, associations or individuals may collaborate with Kenya Forest Service to manage forests resources and subsequently derive benefits therein[28].The mechanism for establishing the modalities for the sharing of benefits is the responsibility of Kenya forest service. The Act recognizes that community involvement in management of forest resources creates employment opportunities, infrastructure development and improves social well-being[29]. The Act further grants rights to communities through which they may share benefits through agreements to manage public forests signed between them and KFS[30].

Although the Constitutional and legislative provisions guiding benefit-sharing accruing from public forests have been formulated, widespread public forest resource-based conflicts, illegal logging, charcoal production and human encroachment have continued to ruin the country's public forests [31]. Deforestation initiated by the rapidly increasing demand for food, fiber and fuel continues to degrade forest ecosystems[32]. The other challenges include identification of stakeholder/interest groups, definition of benefits to be shared and unclear tenure and access for formalizing public forest benefit sharing arrangements. The framework is vague and arguably insufficient in providing initiatives for communities to participate in sustainable forest management.

As a result, the implementation of the provisions of the Forest Conservation and Management Act on benefit sharing has thus far faced a myriad of setbacks. This has brought to the fore the normative question of whether indeed the existing benefit sharing framework provides sufficient incentives to communities in a manner that propels them to ensure the sustainability of forests and

[27]The Forest Conservation and Management Act, 2016,S8
[28]The Forest Conservation and Management Act, 2016, Part IV& V
[29]The Forest Conservation and Management Act, 2016, S 53
[30] The Forest Conseravtion and Management Act, 2016, S 50
[31]Kuik, O. (2013). REDD policies, global food, fibre and timber markets, and 'leakage'. In *Climate Change, Forests and REDD* (Vol. 207, No. 228, pp. 207-228). ROUTLEDGE in association with GSE Research.
[32]Jackson Bambo, 'Understanding issues affecting Kenya's forest cover ahead of International day of Forests' Standard Digital (www.standardmedia.co.ke)

their endurance. Many questions on the framework for benefit sharing between Kenya Forest Service and stakeholders remain unresolved. It seems that the current benefit sharing arrangements' does not address issues of equity and fairness to ensure effective, equitable and efficient distribution of benefits. Yet, the determination of the actors who should benefit, the appropriate benefits and the methods of transferring the benefits to the stakeholders are important for an effective benefit sharing mechanism. In a nutshell, the study investigated the problem of a non-functional benefit sharing mechanism, which was traced in the existing regulatory framework for a sustainable management of Karura forest in Nairobi City County.

The purpose of this research is to examine the benefit sharing mechanisms for public forests in Kenya. The research will examine the legal and policy framework for benefit sharing in Kenya and the implementation, the capacity of different stakeholders to implement benefit sharing and the contribution of benefits sharing to sustainable forest management. The research will use a case study of Karura forest, a gazetted public forest situated in Nairobi City County, and draw inferences relevant to other forests. The case study of Karura forest will focus on benefit sharing with the stakeholders including the local communities with the purpose of deducing knowledge that applies to other public forests in Kenya.

1.3 Objectives of the Study

The main objective of the study was to examine benefit sharing mechanisms in public forests, the available options and their impacts on management of forest resources with specific reference to Karura forest. The specific objectives were to:

(i) Investigate the importance of policy and legal framework in guiding benefit sharing at Karura forest.
(ii) Examine the capacity of different actors in realization of benefit sharing at Karura forest.
(iii) Evaluate the role of benefit sharing mechanisms on sustainable management of Karura forest.

1.4 Research Questions

The main research question:

How sufficient is the benefit sharing mechanism in Kenya in providing incentives to stakeholders to participate in sustainable management of public forests?

The specific questions of the study are:

(i) What is the extent of the policy and legal framework in guiding benefit sharing in Karura forest?
(ii) What is the capacity of different actors to implement benefit sharing at Karura forest?
(iii) Which role does benefit sharing mechanism play in the management of Karura forests?

1.5 Justification and significance of the study

This study aimed at broadening the understanding of benefit sharing mechanisms for forest resources in Kenya under The Forest Conservation and Management Act, 2016. This supported the aspirations of the Constitution relating to natural resource management and development in Kenya. The access and sharing of the tangible and intangible forest resources and the revenues generated may improve communities' livelihoods and reduce conflicts in public forests management.

This research presents an opportunity to enhance the effectiveness of benefit sharing mechanisms to forest management in the country with a better understanding of its role in sustainable forest management. The research recommended policy, legal and institutional measures to enhance benefit sharing in public forests as outlined in chapter five of the Constitution of Kenya. This study made a useful contribution by identifying measures that can enhance benefit sharing and improve sustainable forest management.

1.6 Scope and Limitations of the Study

The study was on Karura forest and its neighbouring community. The area is within the Nairobi County. The study focused on the benefit sharing mechanisms set out in the regulatory frameworks with a focus on stakeholders within the study area boundaries. The process of formulating regulatory frameworks was outside the focus of the study, and instead the study only explored the effectiveness of the existing benefit sharing mechanisms on sustainable management of public forests in relation to Karura forest.

Since the Ministry of Environment and Forestry is mandated to develop the regulatory framework on forestry resources in Kenya, the primary and secondary data collection was extended to the Ministry departments, as well as to the KFS as the implementing agency of the forest-related regulatory frameworks from the Ministry. Literature states that forest benefits such as air filtration, carbon sequestration and conducive microclimate flow beyond the forest boundaries. However, due to time and funding constraints, the interviews for the local people were conducted only within the delineated study boundary. The main limitations and ethical issues were:

1. Inability to interview all beneficiaries of Karura forest: from the visitors records for Karura forest, it was clear that there were various categories such as Kenyans citizens, Kenyan residents, foreigners, etc. However, in the assessment of the satisfaction of the visitors from the services provided by the forest and the performance rating of the Karura forest management, the study could not access representation of visitors from foreign countries, as well as some Kenyan citizens whose residences at Muthaiga and Runda estates were on strict restrictions for admission and on 24-hour protection by government security agencies.
2. Inability to assess and accommodate benefits beyond the study boundaries*;* although it was clear that forest benefits such as provision of a micro-climate in the neighbourhood, air filtration, carbon storage and sequestration, and contribution to the hydrological cycle, the study was not able to account for such benefits in the analysis. This was because duration and costs for such measurements were beyond timelines and budget for the study. The fieldwork was privately funded by the researcher.
3. Non-responsiveness by interviewees to probing questions; some respondents did not answer specific questions touching on the performance of the Karura forest management team. They feared, despite the assurance for confidentiality, that the information may be used against them or their relatives who were employed in the forest.

1.7 Theoretical Framework of the study

This study was based on "the common property theory", as advanced by Elinor Ostrom[33]. The "common property theory" was developed to address the challenges of managing "common pool

[33]Elinor Ostrom, Governing the Commons, The evolution of Institutions for collective action, (1990) 29-55

resources" and focuses on the framework for governing and managing natural resources[34]. The theory emerged as a scholarly counterargument to Hardin's famous 1968 publication on "the tragedy of the commons[35]. Hardin argued that population increase, over-extraction of common pool resource and resource degradation follow a sequential order that ultimately lead to inevitable collapse of the resource base (the tragedy). Such a generalized assertion of an 'inevitable tragedy' was found to be outrageous because it ignored the human capacity to self-organize and to devise institutions that work against the envisaged tragedy[36]. This alternative view emerged as a strong force that has propelled "the common property theory" to date under the realms in science in natural resources management. Other proponents of the common property theory include Scott Gordon [37], Ciriacy-Wantrup and Bishop [38] and Fenton Martin[39].

Theoretically, the term "property" refers to "a bundle of rights in the use and transfer (through selling, leasing, inheritance, etc.) of natural resources"[40]. Based on the above definition, it can be implied that "common property" refers to a "tribution of property rights in resources in which a number of owners are co-equal in their rights to use the resource". The contemporary advancement in the theory is characteristic of a diverse conceptual terminology such as rights bundles (i.e. access, withdrawal, exclusion, management and alienation), tenure system, distribution of costs and benefits, and resource management regimes.

In relation to natural resources, Schlager and Ostrom (1992) categorize property rights into two groups; "*operational level property* rights" and "*collective choice property* rights". The property rights at operation stage comprise the rights of access and withdraw, whereas "collective choice" operational authority refer to exclusion, management and alienation[41]. It is observed that the

[34]Pokrant, B. (2011). Common property theory. In D. Mulvaney & P. Robbins (Eds.), *Green politics: An A-to-Z guide* (pp. 64-66). Thousand Oaks, CA: SAGE Publications, Inc. doi: 10.4135/9781412971867.n21
[35] Hardin, G. (1968). The tragedy of commons.*Science*, 162:1243-1248.
[36]Ostrom, E. (2008). Tragedy of the Commons.*The new palgrave dictionary of economics, 2*. New York. Palgrave Macmillan. http://dlc.dlib.indiana.edu/dlc/handle/10535/5887
[37] Gordon, H.S. (1954). The economic theory of a common-property resource: The fishery. *Journal of Political Economy* 62(April):124-142.
[38]Ciriacy-Wantrup, S.V., Bishop, R. C. (1975). Common property as a concept in natural resources policy.*Natural Resources Journal* 15(4):713-727.
[39] Martin, F. (1989). *Common Pool Resources and Collective Action: A Bibliography; Volume 1*. Bloomington, IN: Workshop in Political Theory and Policy Analysis.
[40] Ibid
[41]Ribot, J. C., Peluso, N. L. (2003). A theory of access. *Rural sociology*, *68*(2), 153-181.

operational level property rights are short-term interactions between a party and the resource, whereas *collective choice property* rights point to long-term interactions that may result to remarkable modification of the resources. The differences between the two types of property rights signify a hierarchy of power relations, beginning from the lowest (access) to the highest (alienation) power vested in an individual, group or an institution.

The common property theory has been applied in the management of forests, fisheries and wildlife, rangeland and water resource[42]. Elinor Ostrom, in her publication on "Self-Governance and Forest Resources" noted the difficulties of managing forests as common pool resources in a manner that guarantees equity, efficiency and sustainability. She identifies some conditions that impact on forest management to include; identification of beneficiaries to the resource, allocation of responsibilities, financial obligations, conflict resolution and review of rules and regulations on engagement of all participants. Ciriacy-Wantrup observes that the knowledge gained from studies of forests as "common resources" has stimulated the advancement of knowledge on common property. Therefore, the theory is crucial for this study because it promotes understanding of the linkages between participatory management, benefit sharing and sustainable forest management. For example, following the argument of common property theory, it is important to forest managers that the concept of benefit sharing must entail what is at stake, what form of benefit is to be shared, what proportion of benefit is up for sharing, who is entitled to sharing and what are the engagement for future sharing of benefits accruing to a resource such as a forest.

1.8 Conceptual Framework

The relationship between the variables in the conceptual framework has been set out in Figure 1.
In Kenya, the parliamentary arm of government formulates laws for the management and protection of public forests. The implementation of the law is facilitated by state agencies such the Kenya Forest Service, which are also mandated to establish sustainable forest management institutions and offer technical advice to the government on the best practice for the management

[42] Ibid

of public forests. The Ministry in charge of public forests is charged with the responsibility of formulating guiding policy on public forest management in Kenya. The interplay of the laws, institutions and policies is expected to ensure effective benefit sharing for the management of public forests.

The framework shows that in case effective benefit sharing was not realized within the established regulatory framework, it was important to intervene on the status of two components; that is, the set 'rules and mechanisms' for benefit sharing, and the existing 'equity/ rights discourse'. In the 'equity/ rights discourse', the specific 'legal rights' of stakeholders to share benefits, the stewardship of jointly managing the forest despite the diversity of stakeholders' interests, and 'facilitating' a harmonious and smooth process of benefit sharing. For the stakeholders to know the rights, responsibilities and the process of realizing an effective benefit sharing mechanism, they need to be empowered through information acquisition, active participation and key decision-making. The empowerments form the stakeholders' capacity to change behavior in order to attain sustainable management of public forests.

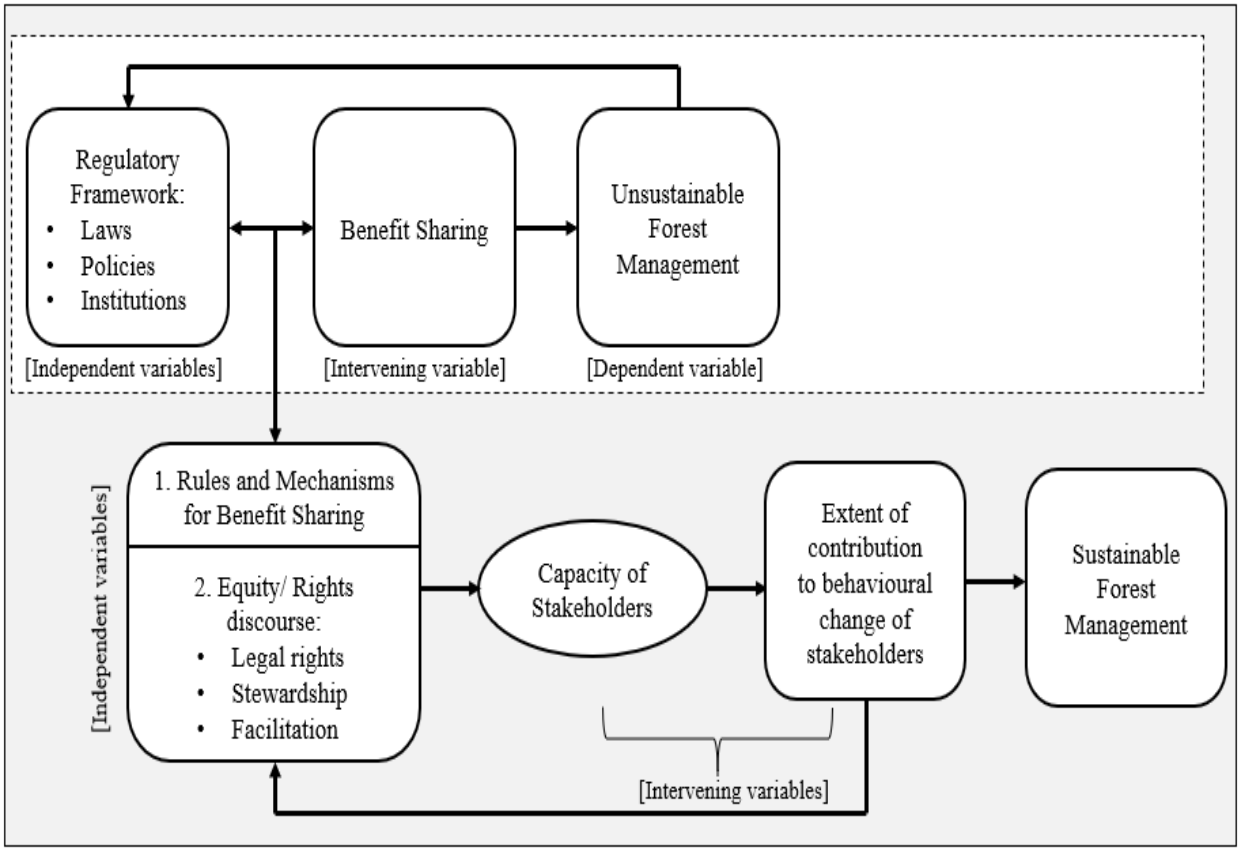

Figure 1 Conceptual Framework

Source: Own Representation

Figure **1**: Study conceptual framework showing interrelationships of independent, dependent and intervening variables. The regulatory framework comprising of laws, policies and institutions determine how benefit sharing was actualized among forest stakeholders (see the first 2 boxes in the white background). Since literature reveals unsustainability in public forest management (see third box from left in the white background), a different path was sought by the study using a flow diagram of boxes in the grey background. Using the rules and mechanisms for benefit sharing and equity discourse, the capacity of stakeholders is improved, which in turn influences the behavioral change (i.e. positive attitude to conserve the forest) of stakeholders for a sustainable forest management.

Figure 1 presents the variables of the conceptual framework. The figure portrays three boxes at the top representing 'regulatory framework' as an independent variable, benefit sharing as an intervening variable and unsustainable forest as a dependent variable. Since 'unsustainable forest management' is undesirable output, the variable is connected back to the 'regulatory framework'. The three boxes connect to a set of four variables below and are connected through an arrow that leads to a path of 'sustainable forest management'. The set of four variables are shown horizontally from left to right. The rules and mechanisms for benefit sharing are set in the first box, which influences the 'capacity of stakeholders' to 'change behaviour'. Eventually, the 'changed bevaviour' leads to sustainable forest management in the last box. In case 'change of behaviour' was negative, the 'rules and mechanisms for benefit sharing' are revisited to identify the gaps in guidance.

1.9 Thesis Structure

The thesis contains five chapters. The first Chapter covers the introduction and background to the study and presents the problem that was being investigated. The chapter presents the research questions and objectives, the justification and significance of the study and the scope and limitations of the study. It also includes the theoretical and conceptual framework applied in the research.

Chapter two reviews the literature relevant to the study and identifies the gaps that form the basis of this study. It also includes the policy, legal and institutional framework that guides benefit sharing in the forestry sector.

Chapter three focuses on the research methodology, and introduces the study area, the research design, the sampling method and sample size, data collection and analysis.

Chapter four presents the findings and results of the study. Chapter five focuses on the conclusions and recommendations drawn from the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter has two sections. The first section reviews literature on the approaches to forest management. The section examines sustainable management of forests and explores the mechanisms of promoting sustainable forest management. The section further examines benefit sharing as a concept in the forestry sector at the global, regional and Kenyan level. It presents an analysis of the evolution of the concept and practice for benefit sharing. The section further reviews literature on the role of benefit sharing in promoting management of public forest resources. The section reviews academic literature and establishes the gaps in literature that informs this study.

The second section reviews the regulatory framework for benefit sharing in Kenya. The section specifically examines the policy and legislative framework governing forest resource management in Kenya. The section focuses on the provisions relating to benefit sharing and community participation in the management of public forests. The section further reviews the institutional frameworks that implement the legal provisions for development of the forestry sector.

2.2 Approaches to Forests Management

In the past, forests were managed and controlled by the state through creation of protected areas that were not accessible to the public[1]. The right to access withdraw and manage forests were a preserve of the Government. This approach of forest management excluded other actors including communities from the forest resources and alienated them from participating in making decisions[2]. Forest management has progressively moved to encompass a more participatory approach that involves the private sector, communities and civil society organisations[3]. This has led to the gradual abandonment of the "protection approach" to forest management and more focus on actions at the grass root level of local communities.

[1] Adams, W.M and Hulme, D, "If community Conservation is the answer in Africa, what is the question?" (2001) Oryx, 35,193-200

[2] Food and Agricultural Organization, "Forty years of community based forestry: A review of extent and effectiveness(2016) Paper No. 176

[3]Arun Agrawal and Elinor Ostrom," Decentralization and community based forestry: learning from experience, (2008),SAGE 44-67

Globally, forest management policies have shifted from government control to a more participatory approach that focuses on active participation of communities and the private sector[4]. According to the FAO (2014), new policies on forest resource management have been adopted globally by countries with considerable forest cover. The first policy change is the adoption of the concept of "sustainable forest management" that has been incorporated in the forest agenda at national level. The second is the emphasis on participation of communities and stakeholders in the formulation of policies and management of forest resources[5]. FAO indicates that the current policy focus for forestry management generally translates as the dual goal of sustainable forest management and improved human well-being.

Thabit Jacob contends that in Africa, the transformation in the forestry sector has led to changes that have incorporated "participatory forest management"**,** "co-management" and "devolved governance"[6]. These reforms, in his view, have enabled communities to be substantively involved in forest management. It has also resulted in meaningful engagement between the local communities and government officers in charge of public forests. This has ultimately led to increased benefit sharing of forest resources[7].This view is supported by Carter and Gronow, who elaborated that approaches to forestry involving local people have increased to include 'social forestry', 'community forestry', 'joint forest management', 'shared forest management', 'co-management' and 'participatory forest management'[8]. Participatory forest management is an approach where the government involves stakeholders in the management of forests, and shares the benefits that ensue from the management process[9].The available literature indicates that "participatory forest management" should be centered on the community as the critical stakeholders, but equally with focus on other crucial stakeholders such as the government, public

[4] Ibid

[5] Food and Agricultural Organization, "State of the world's forests 2014: Enhancing the socioeconomic benefits from forests" (2014)

[6]Jacob, T., & Brockington, D. , Land Use Policy Learning from the other : Bene fi t sharing lessons for REDD + implementation based on CBFM experience in Northern Tanzania. *Land Use Policy*, (2017), 0–1. http://doi.org/10.1016/j.landusepol.2017.10.028

[7] Ibid

[8]Carter, J., Gronow, J. 2005. Recent experiences in collaborative forest management: a review paper . CIFOR Occasional Paper No.43. Bogor, Indonesia, CIFOR. v, 48p.

[9]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.

and private sector, especially the forest industry[10]. The participation of stakeholders in the management of public forests was expected to enhance sustainable management and equitable benefit sharing. The underlying rationale to the alternative models is the belief that sustainable management is more likely to succeed where local consumers are involved in the management and are able to draw benefits from the natural resource[11].

The Ministry of Environment, Water and Natural Resources reported that in Kenya, prior to 2005, management of public forests was based on "protection through state-driven command and control systems with minimal participation of other stakeholders"[12]. Karura forest was gazetted as a reserve in 1932 to stop encroachment by prohibiting grazing, arresting and imposing heavy fines on trespassers, and prohibiting all other forms of access and withdrawal of the forest resources and benefits. According to Kenya Forest Service, this approach alienated communities from the management of public forests and participation in decision-making. This led to the use of forest resources in a manner that was not sustainable, benefit sharing arrangements that were not equitable and massive reduction of public forests[13]. In response to the challenges in the government controlled management of forests, a new Forest Policy and Forest Act, 2005 were developed. The two instruments introduced "community participation" and "participatory forest management" as new approaches in the management of forests in Kenya.

The reforms in the management of forests that incorporate participation and involvement of stakeholders were expected to contribute to community incentives for sustainable management of forest resources. However, there has been limited assessment of the performance of these reforms in the sustainable management of forests.

[10] Ongugo, P.O. (2007). Participatory Forest Management in Kenya: Is There Anything for the Poor? Kenya Forest Research Institute. https://www.researchgate.net/publication/265320817.
[11]Nelson, F. and Agrawal, A. (2008), Patronage or Participation? Community- based Natural Resource Management Reform in Sub- Saharan Africa. Development and Change, 39: 557-585. doi:10.1111/j.1467-7660.2008.00496.x
[12]Ministry of Environment water and Natural Resources, National Forest Policy(2014)
[13] Kenya Forest Service, PFM Guidelines, 2015, retrieved from www.kenyaforestservice.org.

2.3 Sustainable Forest Management

Sustainable forest management (SFM) is the contribution of forestry to sustainable development[14]. According to Judd et al[15], SFM is "the process of managing forests to achieve one or more clearly specified objectives of management with regard to the production of a continuous flow of desired forest products and services, without undue reduction of inherent values and future productivity and without undue undesirable effect on the physical and social environment". In a similar view, Kenneth MacDicken et al. found that sustainable forest management faces the challenge of ensuring regenerative capacity of providing humans with forest-based services and benefits without compromising services and benefits to future generations[16]. It is argued by different scholars that for forests to support the increasing human demand for wood, withstand the pressures of deforestation and regenerate for posterity, concerted management styles have to be applied. The need for workable management approaches has become urgent because forests not only support humans and the wood industry, but also the ecosystem function and processes that protect a "variety of values such as aesthetics, wildlife and fisheries, habitats, watersheds, and cultural values"[17].

The Food and Agricultural Organization (FAO, 2018) identifies forest management plans as a critical component of SFM. This means that SFM is anchored on a plan of action. The Forest Resource Assessment (FRA) defines a forest management plan as "the area managed for various purposes, such as productive or protective uses, in line with approved national plans covering 5-year periods or more"[18]. Designing sustainable management plans for forest requires informed stakeholders that synergistically explore opportunities and threats for enhancing forest status.

Judd et al. (2005) found sustainable forest management as the best practice for safeguarding forests because of the forest science that combines both the modern and traditional knowledge. The

[14] Judd, N., Higman, S., Bass, S., Mayers, J., Nussbaum, R. (2005). The Sustainable Forestry Handbook. London: Routledge, https://doi.org/10.4324/9781849773317

[15] Ibid

[16]MacDicken, K. G., Sola, P., Hall, J. E., Sabogal, C., Tadoum, M., & de Wasseige, C. (2015). Global progress toward sustainable forest management. *Forest Ecology and Management*, *352*, 47-56.

[17]Hall, J. P. (2001). Criteria and indicators of sustainable forest management. *Environmental Monitoring and Assessment*, *67*(1-2), 109-119.

[18]Siry, J. P., Cubbage, F. W., & Ahmed, M. R. (2005). Sustainable forest management: global trends and opportunities. *Forest policy and Economics*, *7*(4), 551-561.

ideology of "conservation and sustainable development" of forests was popularized by the Forest Principles launched during the 1992 Earth's Summit. The principles provided "guidelines and means for protecting world's forests"[19]. The principles advocate for the involvement of stakeholders in "planning, developing and implementing forest policies"[20], and acknowledge the important role of indigenous communities in forest management. The interplay between modern and traditional knowledge accommodates diversity of opinion, views and strategies that are important in SFM. In order for communities and different actors to play adequate and effective role in management of forests, they must have access to up-to-date information on forest status and the expected breadth and depth of their engagement in the management activities.

In public forests, SFM should ensure existence of workable legal and policy framework, protection of forest and its biodiversity, and improvement of human wellbeing[21]. Adamowicz and Burton have identified components of SFM that include 'conserving biological diversity', 'maintaining and enhancing forest ecosystems', and 'proving benefits to society'[22]. John Hall found that "public acceptance and support" of sustainable forest management enable government to formulate responsive policies, reliable monitoring indicators and adaptive management practices that put into consideration the dynamism of stochastic and deterministic parameters[23]. It means that any forest management in place should ensure a system that is socially fair, economically viable and ecologically sound. It is imperative that forest managers needed to preserve the rule of law, transparency, equity, efficiency and accountability at all times for sustainable forest management to take shape and root[24].

2.4 Promoting sustainable forest management

David Kaimowitz, in his publication on "forest law enforcement and rural livelihoods" postulates that in theory, proper forest law enforcement can improve livelihoods and human well-being by growing income, betterment of government services, improving physical security, betterment of

[19]Ibid.
[20] Non-Legally binding Authoritative statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of all types of Forests, (1992), Principle 2(d)
[21] Judd, N., Higman, S., Bass, S., Mayers, J., Nussbaum, R. The Sustainable Forestry Handbook (2005).
[22]Adamowicz Wiktor and Philip Burton, Sustainability and sustainable forest management (2003).
[23] Hall, J. E. (1997). Canada's Model Forest Program: A participatory approach to sustainable forest management in Canada. *The CFR*, 261-263.
[24] Judd, N., Higman, S., Bass, S., Mayers, J., Nussbaum, R. The Sustainable Forestry Handbook (2005).

health, providing adequate food supply, reducing vulnerability to changing market environment, increased ability to sustainably manage natural resources, ensuring participation in decision-making and safeguarding the cultural heritage. However, in practice, there are reported conflicts among parties with regard to benefit-sharing of forest resources because "the interests of forest stakeholder's are frequently at cross purposes"[25] This has been attributed to the inadequate (or lack thereof) scientific guidelines on the definition of benefits, rights and obligations of stakeholders toward certain ecosystem types or natural resources[26].

Muigua, Kariuki and Wamukoya postulate that the rationales for forest conservation are economic; social and ecological benefits to the surrounding communities[27]. He argues that public forests can be conserved through several ways such as efficient and effective management and conservation mechanisms that prevent clearing of forests through various ways such felling of immature trees and illegal logging. Muigua et al. propound two approaches to forest conservation, which includes Community-Based Natural Resource Management (CBNRM) and Community-Based Forest Management (CBFM)[28]. From their research, CBNRM approach accords local communities an active participation in sustainable management of forest resources and is premised on Principle 10 of the Rio Declaration, which calls for involvement of local communities in the management of environment and natural resources[29]. On the other hand, CBFM is informed by the ideals of CBNRM and provides democratic strategies incorporating communities in the forest management planning thus enabling the communities to factor in their needs and aspirations in the forest management planning.

Kemeri Mbote, in her analysis of the rights to forest resources as "common lands", argues that sustainable forest management is challenging, and calls for stability between personal, communal and public interest in the resource. She advocates for advancements in the modalities for utilization

25Siebenhüner, B., Suplie, J. (2005). Implementing the access and benefit-sharing provisions of the CBD : A case for institutional learning. *Ecological Economics*,*53*, 507–522. http://doi.org/10.1016/j.ecolecon.2004.10.012

[26]Simm, Kadri (2007) Benefit Sharing Frameworks - Justifications for and against benefit sharing in human genetic research. A Report for GenBenefit, available at: www.uclan.ac.uk/genbenefit.

[27]Muigua K., Wamukoya D., and Kariuki F., Natural Resources and Environment Justice in Kenya, Glenwood Publishers Ltd, (2015), 218-236

[28] Ibid.

[29]The Rio Declaration,Principle 10, 31 ILM 874, 1992.

of forest resources, review of the model of governance and empowering community members[30], Kameri Mbote argues that to address the threats to forest resources, the legal framework ought to incorporate the participation of local communities and the respect for their customary rights. Francis Situma concurs that for forest management to be successful, important principles like participation ought to be set out in the enabling legislation[31].

The Forest Act, 2005 introduced 'participatory forest management' as a new approach in the management of public forests in Kenya. Studies regarding participatory forest management in Kenya suggest that while stakeholders who include community forest associations and the private sector participate in activities that enhance SFM, actual access to decision making process, allocation of benefits and control over natural resources are entrusted to Kenya Forest Service or other actors[32]. The study by Mogoi et al concluded that "to balance stakeholder incentives with the burdens and responsibilities they bear, income from SFM ought to benefit the stakeholders for them to sustain their commitment to the participatory forest management". SFM can only be successful if stakeholders benefit from their involvement in SFM. When forest stakeholders become aware of their guaranteed share of benefit from the forest, they participatively and sustainably manage forests.

2.5 Benefit sharing in Forestry

Cori Hayden defines benefit sharing as "a reference to a commitment to direct some kind of rewards, either financial or non-financial, back to a range of designated participants, usually being the source communities or affected communities who have participated in advancing knowledge in particular fields[33]. Etymologically, the phrase "benefit sharing" is split into two words and defined separately. The Oxford English Dictionary defines "benefit" to mean an advantage or profit gained from something. It may also be used to denote a payment made by the state to

[30] Patricia Kameri Mbote, Kenya Land Governance Assessment Report, 2016

[31]Situma FDP, Forestry Law and the Environment in Kenya, in Environmental Governance in Kenya, Implementing the Framework Law, 2008

[32]Mogoi, J., Obonyo, E., Ongugo, P., Oeba, V., Mwangi, E. (2012). Communities, property rights and forest decentralisation in Kenya: Early lessons from participatory forestry management. *Conservation and Society*, *10*(2), 182-194.

[33]Cori Hayden, Benefit Sharing: Experiments in Governance, (paper presented at the social science research council workshop "Intellectual Property Markets and cultural flows. New York, October 2003.

someone entitled to it[34]. On the other hand, "sharing" is defined as "using or having something at the same time as somebody else"[35].

Benefit-sharing, as a concept, evolved largely through multi-national treaties. The notion of benefit sharing relating to natural resources was formally recognized in 1992 by the Convention on Biological Diversity (CBD). Prior to the CBD, biodiversity resources were generally a common good and hence they were freely accessible to all[36]. The free access by all leads to missing price and scarcity of the resource, which causes misappropriation, overutilization and degradation of the resource. The World Commission on Environment and Development noted that the poverty-injustice-environmental degradation-conflicts nexus causes deterioration of natural resource base, which provide material and non-material benefits to the society.

The "free access for all" scenario changed after the adoption of the Convention on Biological Diversity (CBD) in 1992. The adoption of the CBD heralded a new age in access and benefit sharing of biological resources. The CBD incorporates benefit sharing commitments for State parties. The CBD recognized that the distribution of genetic materials was affected by time and space, and the manner of stakeholder engagements in the utilization of the genetic materials[37]. It was the view of some authors that the term "biological diversity" was narrowly understood, hence derailing the debate on access and benefit sharing for genetic materials. Therefore, the CBD broadened the definition of the term "biodiversity" to refer to the variability of genes, species and ecosystems. As Marchese stipulates, biodiversity supports all life on the biosphere[38]. This notwithstanding, the Millennium Ecosystem Assessment of 2005 reported that 60% of the global ecosystems had been degraded[39].

[34] Oxford English Dictionary, 5th Edition
[35] Ibid
[36]Simm, Kadri (2007) Benefit Sharing Frameworks - Justifications for and against benefit sharing in human genetic research. A Report for GenBenefit, available at: www.uclan.ac.uk/genbenefit
[37]Morgera, E., Tsioumani, E. (2010). The Evolution of Benefit Sharing : Linking Biodiversity and Community Livelihoods.*Review of European Community & International Environmental Law*, *19*(2), 150-173.

[38] Christian Marchese, Biodiversity hotspots: A shortcut for a more complicated concept, Global Ecology and Conservation,Volume 3,2015,Pages 297-309,
[39]MEA (Millennium Ecosystem Assessment). (2005). Ecosystems and Human Well-being: Synthesis. Island Press/World Resources Institute, Washington DC.

In attempts to address the mismatch, the Millennium Ecosystem Assessment of 2005 developed a conceptual framework that reflects the connectivity between ecosystem structure and function on the one hand, and ecosystem benefits and values on the other hand, hence opening the debate on the interactions between social and ecological systems[40]. The terms "benefit" and "human well-being" have since then dominated the field of management of natural resources[41]. *Benefit* is defined as "anything that the community recognizes as important and valuable for their life"[42]. The term "human well-being" lacks a common definition. However, according to the Millennium Ecosystem Assessment, human well-being is indicated by health, basic materials for life, social relations, security, and freedom of choices and actions. Therefore, the literature on management of natural resources and benefits has stirred actions to improve policy and decision-making in natural resources management[43].

Access and benefit sharing (ABS) emerged as strong legal and binding concepts within the CBD, whose aim was to ensure that natural resource benefits contributed to improved livelihoods of indigenous and local communities[44]Article 1 outlines the objectives of the CBD to include "sustainable use of biological diversity and the fair and equitable sharing of benefits arising out of the utilization of genetic resources". Further, Article 11 requires state parties to "adopt economically and socially sound measures that act as incentives for sustainable use of biodiversity". However, Since the ratification of the CBD in 1993, benefit sharing has raised "complex and often contradictory concerns"[45]. The controversy limits comprehensive definition and application of the concept. Although the term benefit-sharing lacks a common definition[46],

[40]Michael Nassl, JörgLöffler,Ecosystem services in coupled social–ecological systems: Closing the cycle of service provision and societal feedback**,**Ambio, 2015, Volume 44, Number 8, Page 737

[41] Ibid

[42]MEA (Millennium Ecosystem Assessment). (2005). Ecosystems and Human Well-being: Synthesis. Island Press/World Resources Institute, Washington DC.

[43] Supra note 5

[44]Jonge, B. De. (2011). What is Fair and Equitable Benefit-sharing?, 127–146.http://doi.org/10.1007/s10806-010-9249-3

[45]Siebenhüner, B., Suplie, J. (2005). Implementing the access and benefit-sharing provisions of the CBD : A case for institutional learning. *Ecological Economics*,*53*, 507–522. http://doi.org/10.1016/j.ecolecon.2004.10.012

[46]Jonge, B. De. (2011). What is Fair and Equitable Benefit-sharing?, 127–146. http://doi.org/10.1007/s10806-010-9249-3

given the reads and descriptions under the CBD report, benefit-sharing could refer to a coalesced process aimed at lifelong partnerships with all relevant actors. Besides, benefit-sharing is indeed emerging as a strong framework that spells out legal connotations that are needed to be anchored in conservation and sustainable use of biodiversity and natural resources[47]. This is because benefit-sharing is intertwined by the concepts of justice, equity and fairness[48]. Surprisingly, the terms 'equity' and 'fairness' in relation to benefit-sharing are neither defined in the CBD nor have a common definition in the recent literature[49]. Luckily, 'justice' has had strong support by the Universal Declaration of Human Rights by the United Nations on the bases of inalienable human needs[50]. The narrow focus of the 20th Century that the concept of 'justice' was solely about inherent and inalienable human rights has since changed, and the branch of 'environmental justice' has broadened its perspective to encompass identity of stakeholders, fairness in resource distribution, power relations and decision making[51].

In order to address the vagueness in the concepts and definitions of ABS, the CBD's Nagoya Protocol on 'access and benefit sharing' was adopted in Japan, in the year 2010, and came to force in October 2014[52]. The core obligations of the protocol are access and benefit sharing from utilization of genetic resources[53]. The access obligations require states to take domestic measures to "create legal certainty, clarity and transparency"[54], and provide "fair, non-arbitrary rules and procedures"[55]. The benefit sharing obligations include "monetary and non-monetary measures that subject to mutually agreed terms, provide for sharing of benefits from utilization of genetic resources"[56]. The protocol outlines tools and mechanisms that guide implementation of the CBD resolutions. The protocol proposes formation of national focal points (NFPs) and competent

[47]Morgera, E., Tsioumani, E. (2010). The Evolution of Benefit Sharing : Linking Biodiversity and Community Livelihoods.*Review of European Community & International Environmental Law*, *19*(2), 150-173.
[48]Jonge, B. De. (2011). What is Fair and Equitable Benefit-sharing?, 127–146. http://doi.org/10.1007/s10806-010-9249-3
49 Ibid
50 United Nations Charter, 1948
[51]Lecuyer, L., White, R. M., Schmook, B., Lemay, V., Calm, S. (2018). The construction of feelings of justice in environmental management : An empirical study of multiple biodiversity con fl icts in Calakmul , *213*, 363–373. http://doi.org/10.1016/j.jenvman.2018.02.050
52Retrieved from https://www.cbd.int/abs/about/default.shtml/
[53] Nagoya Protocol, Article 1
[54] Nagoya Protocol, Article 6(3)(a)
[55] Nagoya Protocol, Article 6(3)(b)
[56] Nagoya Protocol, Article 5(2)

national authorities (CNAs), capacity building, development of domestic access and benefit-sharing legislation, creating awareness *inter alia*, in order to realize the protocol's objectives in the national legal frameworks of the respective parties[57]. Benefit sharing is also outlined in the CBD as an element of the ecosystem approach to natural resources management[58]. Payments for ecosystem services (PES) theory present related thoughts to the concept of benefit sharing. For example, users of water services at the lower catchments compensate communities at the upper water catchment area for protecting the forests. PES schemes have been discussed and applied in forest management in relation to social equity, rights, effectiveness and efficacy[59].

The emergence of benefit-sharing as an effective management tool thus bridges the practical gap by spelling out legal connotations that are needed to be anchored in conservation and sustainable use of biodiversity and natural resources[60].Morgera argues that under the international law, benefit-sharing as an incentive ensures community empowerment in order to fully exercise authority on managing natural resources and protecting the environment. Nevertheless, there is scanty evidence showing the actual institutional transformations and power-shifts necessary for ensuring communities' control of natural resources and benefits realization thereof[61]. Morgera postulates that the CBD and Nagoya protocol have explicitly set out the categories of financial and non-financial benefits that are to be distributed at the intra-state level to promote sustainable forest management[62]. The incentives have been referred to as "stewardship rewards" by the Nagoya Protocol and "compensation" by the CBD. Individual states are required to develop plans, strategies and programs at national level to ensure sustainable management of natural resources.

Morgera and Tsioumani[63] argue in favour of providing incentives to promote sustainable natural resources management. In their view, benefit sharing operates as an incentive for efficacious

57 https://www.cbd.int/abs/about/default.shtml/#coverage

[58]Morgera, E. (2016). The need for an international legal concept of fair and equitable benefit sharing. *European Journal of International Law*, *27*(2), 353-383.

59 Irina Prokolieva**,** Payments for Ecosystem Services—the Case of Forests, Current Forestry Reports, 2016, Volume 2, Number 2, Page 130

[60]Morgera, E., Tsioumani, E. (2010). The Evolution of Benefit Sharing : Linking Biodiversity and Community Livelihoods.*Review of European Community & International Environmental Law*, *19*(2), 150-173

[61]Morgera, E. (2016). The need for an international legal concept of fair and equitable benefit sharing. *European Journal of International Law*, *27*(2), 353-383.

[62]Ibid.

[63] Morgera & Tsioumani (2010). The Evolution of Benefit Sharing: Linking

participation of communities in planning and developing strategies for management of ecosystem. According to the two authors, the "state-to-community benefits sharing" concept is a critical instrument that supports legal provisions ensuring community pro-activeness in making decisions and participating in managing ecosystems. In their view, states are expected to fully engage the community in making decisions on resource management, conserving ecosystems, and utilizing resources sustainably, to encourage and reward them when they make any contributions. This could be done by legally recognizing and promoting community management systems, capacity-building services, providing employment and income generating opportunities, and in allocating economic revenue obtained from the conservation and rational utilization of biodiversity[64].

Nkhata et al. argued that although financial gain is important for motivating communities to manage natural resources, by itself, it is inadequate to augment lasting sustainability of the environment[65]. They identify two classifications of benefit sharing that are applicable to forestry; the "hierarchical" and "market oriented". The hierarchical approach to benefit sharing is premised on the Convention on Biological Diversity (1992) and involves benefit sharing between developed countries and emerging economies and their communities for the extraction and utilization of the biodiversity resources. The benefits shared with governments and communities comprise of royalties, building capacity and transfer of knowledge and technology. On the other hand, the market-oriented approach to benefit sharing mainly involves discretionary arrangements like the payment for ecosystem services (PES), REDD initiatives and the clean development mechanisms (CDM)[66].They support the rationale that sustainable forest management ought to improve the social economic status of communities surrounding the resources[67].

Biodiversity and Community Livelihoods. *RECIEL 19 (2), 150-173.*

[64] Ibid

[65]Nkhata, B. A., Mosimane, A., Downsborough, L., Breen, C., Roux, D. J. (2012). A typology of benefit sharing arrangements for the governance of social-ecological systems in developing countries.*Ecology and Society*, *17*(1).

[66]Nelson, E. , Mendoza, G. , Regetz, J. , Polasky, S. , Tallis, H. , Cameron, D. , Chan, K. M., Daily, G. C., Goldstein, J. , Kareiva, P. M., Lonsdorf, E. , Naidoo, R. , Ricketts, T. H. and Shaw, M. (2009), Modeling multiple ecosystem services, biodiversity conservation, commodity production, and tradeoffs at landscape scales. Frontiers in Ecology and the Environment, 7: 4-11. doi:10.1890/080023

[67] Ibid

Chomba and Nkhata argue that successful benefit sharing mechanisms that encourage sustainable management have two dimensions; firstly, the appropriation of benefits among stakeholders, and secondly, decision-making processes for the resource system[68]. Chomba and Nkhata outline the concept of benefit sharing as engaging the creation and managing relationships among actors, and taking cognizance of factors such as the persons accountable, the actors who participate and are responsible for making decisions and benefit allocation methods. They align themselves with the theory advanced by Lemos and Agrawal, who argue that a practical arrangement for sustainable forest management and benefit sharing should acknowledge and enforce the two dimensions through participatory and mutual governance process, accountability and transparency[69].

The Centre for International Forestry research, in a study commissioned to analyze benefit sharing for REDD+ for Africa and Latin America, found that benefit sharing mechanisms have common challenges of ensuring transparency and accountability[70]. The study characterizes benefit sharing as possessing two critical proportions too; "vertical benefit sharing" and "horizontal benefit sharing". The vertical options have been identified to include concessions, mechanisms for access and benefit sharing and establishment of monetary funds for community development, while the horizontal options are based on "community based natural resource management" and "joint forest management". The study noted that the vertical options for benefit sharing faces challenges relating to the methods for sharing benefits, equity, transparency and accountability due to weak governance, complexity of land tenure systems, and weak institutions particularly at the local levels. On the other hand, the horizontal options have challenges relating to state dominance where local communities have limited power of decision making, elite-capture that impede efforts to achieve potent and equitable benefit sharing, and state biased land tenure systems[71].

[68]Chomba, M., Nkhata, B. (2016). Property rights and benefit sharing: a case study of the Barotse floodplain of Zambia. *International Journal of the Commons*, *10*(1).

[69]Lemos, M. C., Agrawal, A. (2006). Environmental governance.*Annu. Rev. Environ. Resour.*,*31*, 297-325.

[70]Pham, T.T., Brockhaus, M., Wong, G., Dung, L.N., Tjajadi, J.S., Loft, L., Luttrell C. and AssembeMvondo, S. 2013 Approaches to benefit sharing: A preliminary comparative analysis of 13 REDD+ countries. Working Paper 108.CIFOR, Bogor, Indonesia.

[71]Ibid.

A study conducted by Ghislaine Gill on community benefit sharing mechanisms in Liberia concluded that incentives and compensation are at the center of anti-deforestation and forest restoration, and aim to empower communities and generate sustainable economic development[72]. The author gives an example of incentives and benefits as cash payments, livelihood developments and community facilities. Monetary benefit sharing includes sale of timber and forest entry fees while non-monetary benefit sharing modalities include provision of services such as integration of project benefits into local development strategies and enhancement of community development projects such as healthy centers, cattle dips and pathways. From the study, the financial incentives or benefits in the forestry sector in Liberia are distributed through a community-based benefit sharing mechanism and entail transforming of funds from forest resources into fair and equitably allocated benefits with additional and permanent outcomes for community facilities. The benefit sharing obligations are linked to a range of incentives, which can be either economic or non-economic[73].

What seems to emerge from these varying approaches is a common thread between sustainable forest management and benefit sharing. Scholars have implied that benefit sharing arrangements can enhance sustainable management of forest resources. However, the mechanisms for benefit sharing require to be entrenched as part of the management model, and measures taken by governments to counter the weaknesses that hinder implementation of benefit sharing arrangements.

2.6 Gaps in Literature

From literature, many scholars conclude that sustainable natural resource management can only be achieved through incorporating the concept of benefit sharing. It is argued and widely acknowledged that local participation must play a key role in the design and implementation of benefit sharing mechanisms[74]. In East Africa, there is scanty information about the extent to which

[72]Gill, G. Z. (2017, *unpublished*). A Framework for Community Benefit Sharing Mechanisms. (report). https://www.idhsustainabletrade.com/uploaded/2017/08/Report-IDH-Framework-for-Benefit-Sharing-Liberia-Gill-Feb17.pdf [accessed, 28.09.2018].

[73]Morgera, E. (2016). The need for an international legal concept of fair and equitable benefit sharing. *European Journal of International Law*, *27*(2), 353-383.

[74]Griffins, 2008

benefit sharing arrangements have contributed to improving livelihoods and sustainable management of the forest resources[75]. Some of the previous studies have focused on natural resources management and equitable benefit sharing in Kenya[76], benefit sharing on extractive natural resources,[77], placing Kenyan law on benefit sharing within its proper context[78], contributes affecting participation of communities in forestry conservation projects[79], the impact of CFAs on forest resource management in Kenya[80], Assessment of participatory forest management by Ngong road Community Forest Association[81]. None of these studies has focused on the impact of benefit sharing on sustainable management of public forests.

Therefore, this study aims to address the gaps in previous research by assessing the impact of benefit sharing in sustainable management of public forests in Kenya. It seeks to understand the concept of benefit sharing and how it can provide incentives to stakeholders to support sustainable management of forest resources, while ensuring equitable ABS by the stakeholders. We argue that both government and other stakeholders ought to be involved in formulating the benefit sharing mechanisms. Conservation of public forests can only be assured if the benefits from forest resources are shared with the communities who participate in the sustainable management of the forests.

2.7 Policy and Legal framework for benefit sharing related to forest resources

2.7.1 International Regulatory Framework

The international forest regulatory framework contains mainly non-legally binding instruments and treaties[82]. The adoption of the CBD in 1992 at the Rio conference heralded a new age in the

[75]Nabanyumya et al, 2017
[76]Muigua, K., Reflections on managing natural resources and equitable benefit sharing in Kenya,2017
[77]Nyamwaya, Christabel. "Benefits Sharing on Extractive Natural Resources with Society in Kenya." Friedrich Ebert Stiftung, November 2013.
[78]Odhiambofelix, placing the Kenyan law on benefit sharing within its proper Social, Economic and Political contecx, The case study of Turkana Oil Resources , 2015
[79]Macharia, B.M., Factors influencing community participation in Forestry Conservation Projects; A case study of KithokaTwanji CFA in Meru County, 2015
[80]Wamae, T.M .,Imapact of CFA on Forest Resources Management, 2013
[81]Koskey BA., An Assessment of the implementation of PFM by Ngong Road CFA in Nairobi County, 2015
[82]Chaytor, B. (2001). The development of global forest policy: overview of legal and institutional frameworks. International Institute for Environment and Development (IIED) and the World Business Council for Sustainable Development (WCBSD), London, UK.

realm of access and benefit sharing for biological diversity. Pauchad writes that the CBD was intended to act as an "umbrella convention", that is a treaty to consolidate existing regional and global conventions handling various interests on biological diversity[83]. Instead, the CBD took the form of a "framework convention", thereby solidifying the principles of cooperation among state parties[84]. The implementation of the CBD was on two categories of instruments: (i) to conserve biodiversity, states were invited to develop and implement plans, strategies and programs[85], and (ii) regarding equitable sharing of benefits, private law contracts were the main instruments[86]. To adopt clearly defined rules for the CBD, the Nagoya Protocol was adopted in 2010. The objective of the protocol is to provide an explicit regulatory framework for the successful application of one objective of the CBD, the "fair and equitable sharing of benefits arising from utilization of genetic resources"[87]

The United Nations Forum on Forests (UNFF) has adopted universal objectives on forests aimed at combating forest destruction by adopting sustainable forest management, increasing benefits from management of forests and enhancing the livelihoods of communities that depend on forests[88]. However, the international forest-based treaties and guidelines are expected to inform member states in formulating responsive laws, policies and institutions for sustainable forest management. In order to facilitate prompt domestication of the international forest guidelines, the intergovernmental panel on forests (IPF) was formed around 1995[89] . As part of its mandate, the IPF was to provide the member states with a roadmap indicating how to conduct "scientific research, forest assessment, and development of criteria and indicators for sustainable forest management" and initiate processes for making legal and policy frameworks. Even with the IPF's efforts, Laird et al. recommended a new regulatory dispensation that goes beyond consumptive forest benefits. This means that countries needed to conduct a holistic forest benefit accounting as well as the identification of stakeholders with direct or indirect interests. At the international scene,

[83] Nicolas Puachad, Acess and Benefit sharing under the Convention on Biological Diversity and its protocols, what can the numbers tell us about the effectiveness of the Regulatory regime? 2017
[84] Ibid
[85] Convention on Biological Diversity, Article 6(a)
[86] Convention on Biological Diversity, Article 15(4)
[87] Nagoya Protocol, Article 1
[88] United Nations Forum on Forests, 2006
[89]Ibid

any formulated legal, policy and institutional framework for sustainable forest management at national level should thus reflect on the forest tenure system, user rights and incentives[90].

2.7.2 The Constitution of Kenya, 2010

The Constitution recognizes the importance of sustainable management of the country's natural resources. The preamble in the constitution indicates that Kenyans respect the environment because it is their heritage, hence they are fully determined to sustain it for posterity. Article ten of the constitution contains particulars on 'national values and principles of governance' and includes sustainable development, inclusiveness, good governance and participation of all people[91]. The access and benefit sharing obligations have been incorporated in the Constitution in line with the CBD and the Nagoya protocol. The entry point of access and benefit sharing in the Constitution is in the national values and principles of governance among them being principles of equity, inclusivity, social justice and sustainable development[92].

The Constitution at Article 69 stipulates that the state has the obligation to ensure conservation of the natural resources in Kenya. This obligation requires the state to conserve, utilize, exploit and manage the natural resources for the benefit of current and future generations[93]. The government is expected to strive to attain forest cover of a minimum 10% of the ground surface of the country[94]. The State is required to safeguard the traditional knowledge relating to biological diversity that is held by communities and passed from one generation to the other[95]. The Constitution obligates the state to support the public to participate in conserving, protecting and managing the environment[96], and to protect plants, animals and all other living organisms'[97].The Constitution further obligates the state to stop or minimize any undertakings that may damage the environment and to use the natural resources to improve the welfare of the country[98]. The government is expected to promote

[90]Higman, S. et al. *The sustainable forestry handbook: a practical guide for tropical forest managers on implementing new standards* (2005).

[91] Article 10
[92] Kariuki, M, Reflections on Managing Natural Resources and Equitable Benefit Sharing in Kenya, 2017
[93]Article 69(1)(a)
[94]Article 69(1)(b)
[95] Article 69 (1)(c)
[96] Article 69 (1)(d)
[97] Article 69(1)(e)
[98] Article 69 (1)(g)

the sustainable use of the natural resources in Kenya, and to fulfill commitments associated with the natural resources and the environment under article 69. The provisions are in conformity with the aspirations of the CBD, and guarantee the sustainable use of natural resources.

The Constitution acknowledges forests as an important part of the natural resources of Kenya. Natural resources as defined in the Constitution include "forests, biodiversity and genetic resources"[99].The Constitution establishes public forests under the realm of Public land, and classifies them as government forests[100]. This classification distinguishes government forests from forests on community land, which are classified as "community forests" and vested in specific communities[101]. Similar to other land based natural resources, public forests are vested in the national government, and held in trust for all citizens of Kenya, The Constitution sets out the principles that govern land ownership and management to include; security of tenure, equitable distribution, proper utilization of land based resources, non-discrimination in regard to property rights, the right to land by all citizens and settlement of conflicts relating to land through alternative dispute resolution[102].

The Constitution recognizes the important role of the County government in the management of forest resources. Article 63 specifies that "unregistered community land", which includes community forests, shall be held in trust by the County government. The Forest Conservation and Management Act specifically identified them as "forests lawfully held as trust land by the county governments". The fourth schedule of the constitution sets out the functions of the national government to include management of natural resources, while the county government implements policies by the national government on natural resources including forestry[103]. To date, there is no guideline on the policies to be implemented by the county government on forestry.

The Constitution obligates the state to support people's involvement in sustainable management of natural resources, and the sharing of benefits arising therefrom[104]. This provision recognizes the importance of benefit sharing of the country's natural resources based on the principle of equity.

[99] Article 260
[100] Article 62
[101] Article 63
[102] Article 60
[103] The Constitution of Kenya, fourth schedule
[104] Article 69(1)(h)

Despite the recognition of benefit sharing as a critical component of sustainable management of natural resources, the Constitution does not outline the mechanism for benefit sharing. This means that implementation of benefit sharing is difficult for lack of certainty as to the actual extent of the legal obligations through which benefits can be demanded and flow to stakeholders.

2.7.3 The Forest Conservation and Management Act, 2016

Although the Act lists the primary objective as management of forest resources in conformity with the Constitution of Kenya, 2010, it does not contain either a definition of "benefit sharing", nor does any delineate with precision the content of this concept that is liable to application. In line with the constitution, the Act classifies forests in Kenya into public, community and private[105] The Forest Conservation and Management Act contains eleven parts that outline in detail the legal requirements for management of forest resources in Kenya. It outlines the principles that guide forest management to include "good governance", "public participation" as well as "community involvement"[106] . The Act calls for collaboration and partnership among governments at county and national level to enhance forest management[107]. The Act assigns the cabinet secretary the responsibility to develop a strategy for sustainable management of public forests[108].

(i) Joint Management of Forests

The management, conservation and protection of public forests in Kenya are entrusted to KFS[109]. The Act requires KFS to develop and execute plans for management of public forests, and to help communities to formulate plans for management of community forests[110]. KFS is required to incorporate provisions for benefit sharing in guidelines and regulations developed for the management of public forests[111].The Act has provided a framework for forest management through partnerships. This provision allows KFS to enter into a contract with any individual to jointly manage a public forest, and to utilize the forest sustainably[112]. These provisions are in line with

[105] Section 30(1)
[106] Section 4 (a) and (b)
[107] Section 4(c)
[108] Section 6(1)
[109] Section 8(1)
[110] Section 8(b)
[111] Section 8(d)
[112] Section 41

international principles of natural resource management that advocate for conservation and sustainable use of forest resources.

(ii) Community Participation

Part five of the Forest Conservation and Management Act specifies the role of communities in the management and utilization of public forests. The Act allows community members living adjacent to a forest to register a "community forest association" as required under the societies Act[113]. Upon registration, the association is allowed to make an application to KFS for authority to engage in management of the public forest[114]. The Act sets out the "forest user rights" that KFS may bestow on a community forest association to include; (a) gathering of herbs; (b) extraction of honey; (c) logging of timber and fuel wood ; (d) ecotourism development; (e)education and science research; (f) establishment of plantations through non-resident cultivation. The Act further protects the customs of communities to utilize forest products[115]. The Forest Conservation and Management Act require the Cabinet Secretary and the Board of Kenya Forest Service to develop guidelines on incentives and benefit sharing[116]. This framework provides initiatives for communities to participate in forest management.

(iii) Provision of Incentives

The Forest Conservation and Management Act stipulate that any person who invests in the forest sector must share the "benefits" derived from the investment with communities[117]. The methods for benefit sharing set out in the Act include; (a) development of infrastructure; (b) creating employment opportunities; (c) educational facilities; (d) social amenities. The Act calls for the involvement of the "private sector" in the conservation and management of public forests[118]. The Act vests the responsibility of mechanizing this idea upon the Kenya Forest Service. KFS is mandated to authorize the utilization of forest resources through permitting, contracting, licensing, agreements for joint forest management and concessions[119]. The Act mandates the Cabinet

[113] Section 48(1)
[114] Section 48(2)
[115] Section 52
[116] Section 71
[117] Section 53
[118] Section 56(1)
[119] Section 56(2)

Secretary, National Treasury, to recommend financial incentives and tax rebates to grow investment in forestry, encourage sustainable forest management and to avert or reduce forest destruction[120] The Act recognizes that the public plays a central role in supporting sustainable forest management in Kenya.

2.7.4 The Environment Management and Coordination Act, 1999 (Revised 2015)

Pursuant to the CBD guidelines, ABS are contained in Kenya's legal framework, the Environmental Management and Coordination Act, 1999 (Revised 2015). Section 53 of the Act provides for "sharing of benefits arising from utilization of genetic resources of Kenya". The Environmental Management and Coordination Regulations, 2006. The regulations define benefit-sharing as "the sharing of benefits that accrue from the utilization of genetic resources"[121].The regulations define *access* as the means of "obtaining, possessing and using genetic resources conserved, whether derived products and, where applicable, intangible components, for purposes of research, bio-prospecting, conservation, industrial application or commercial use. The rules outline the procedure for benefit sharing relating to genetic resources and provide for monetary and non-monetary benefits[122]. However, uncertainties on determining benefits at stake, the benefactors and modalities of distribution and sharing of the benefits have hindered the implementation of the CBD's framework in Kenya.

2.7.5 The Land Act 2012

The Land Act provides that the National Land Commission shall formulate rules and regulations for the sustainable conservation of land-based natural resources[123]. The rules and regulations may entail actions to protect vital ecosystems and habitats; motivations for communities, groups or persons to invest in income generating natural resources management programmes; efforts to facilitate access, use and co-management of forests, water and other resources by communities who have customary rights to these resources; procedures to register natural resources; procedures

[120] Section 54
[121]Rule 2
[122]Rule 20 (2) & (3)
[123] Section 19

to involve actors in management and utilization of land-based natural resources; and actions to ensure benefit sharing to affected communities[124].

2.7.6 The Forest Policy, 2005

To address the challenges of deforestation and mismanagement of forest resources, sessional paper No.9 of 2005 on Forest Policy for Kenya was developed and adopted by the Government. The policy was developed to respond to changes in the governance of natural resources at national and global level. The policy changes advocate for public involvement in forest management and sharing of accruing benefits. The specific aim of the policy is to improve the welfare of communities while ensuring the sustainability of the environment. The main intent of the policy includes; community participation in management of forest resources, improving the wood and non-wood forest products, enhancing benefit sharing mechanisms, participating of stakeholders in decision making, alleviating poverty and providing employment opportunities. The policy sets out the contribution of forests to the economic development of the country, improving the welfare of the citizenry and providing ecosystem goods and services.

The policy provides that there is potential to improve forest resource management and sound conservation practices through the involvement of communities in planning and implementation. To realize this objective, the policy requires the government to show commitment to co-operate with communities to promote sustainable management of forests. The policy promotes the principles of participatory forest management and acknowledges that communities play an important role in environmental conservation[125]. The policy does not specifically address benefit sharing, but requires that beneficiaries of forest goods and services provide resources to be utilized for the management of the forests[126].

The policy advocates for the government to provide incentives to attract the private sector to invest in plantations estate on public land[127]. This will enhance efficiency in the management of plantations and provide materials for local industries including timber and fuel wood. The

[124] Section 19(2)
[125] Policy Statement 1.2.4
[126] Policy Statement 1.2.5
[127] Policy Statement 1.4.2

government is tasked to support the private sector to undertake forest-related investments to foster growth of the ecotourism industry. Additionally, the policy undertakes to contribute to improvement of social welfare by providing facilities for recreation[128]. The policy outlines three key issues to boost the livelihood of all communities who depend on forests; sustainable use of forest resources by communities, protection of traditional interests of local communities customarily living in or near forests and respect for traditional practices that do not conflict with forest management[129].

2.7.7 National Land policy, 2009

The policy recognizes that Kenya is rich in land-based natural resources that directly or indirectly lead to the socio-economic wellbeing of its people[130]. The policy recognizes that sustainable use and benefit sharing from land-based resources as a concept that has gained popularity in Kenya and globally. Similarly, awareness is increasing among communities and individuals on the rights to access and use natural resources in their neighbourhood, as well as their crucial role in conserving and managing such resources. The policy recognizes benefit sharing as a way of integrating the economic, social and environmental considerations of land activities. The policy provides that strategies for sharing benefits should be initiated in consideration of the nature of the resource involved and the contribution that different stakeholders bring in the management of the resources[131]. In the spirit of ensuring benefit sharing, the National Land policy proposes means for the Government to create a legal framework for implementing participatory mechanisms for compensations. The policy provides for mechanism for sharing benefits accruing from land-based resources, more so, by making it mandatory to share benefits resulting from land-based resources managed by the national authorities, and ensure consistency in the involvement of all actors[132].

[128] Policy Statement 2.5.2
[129]Policy Statement 4.3.1-4
[130] Section 3.3.4.1
[131] Section 97,98 &99.
[132] Section 100

2.7.8 Institutional Framework for Forest Management

Implementation of the policy and legal provisions for forest management requires an effective institutional framework. The main institutions that play a key role are; The Ministry of Environment and Forestry; Kenya Forest Service; National Land Commission; The County Governments; National Environment Management Authority; Community Forest Association and the Private Sector.

The Ministry of the Environment and Forestry is responsible for developing policies for forest management in Kenya. The Forest Conservation and Management Act require the development of a policy to guide forestry development in Kenya and ensure sustainability in utilization of forest resources. This responsibility is bestowed on the Cabinet Secretary in collaboration with county governments and appropriate stakeholders[133]. The Act assigns the Cabinet Secretary the responsibility to develop guidelines on incentives and benefit sharing.[134]. The Cabinet Secretary is mandated under the Act to promulgate procedures that enable communities to participate in sustainable management of public forests[135].

Kenya Forest Service is the government agency bestowed with the responsibility of conservation of public forests in Kenya[136]. The mandate of KFS as set out in the Forest Conservation and Management Act includes management, protection and utilization of forests and forest resources. KFS is assigned the responsibility of implementation of mechanisms for sharing of benefits from public forests. The management of KFS is entrusted to a Board of Directors[137]. The Board is authorized to delineate forest conservancies to effectively manage forest resources in Kenya, and appoint members of the forest conservation committee. The committee is responsible for identification of land that is suitable for reservation as a public forest. The Act recognizes the role of county governments in the management of public forests. It assigns them the responsibility of implementing policies on forestry developed by the national Government. KFS is required to establish and execute benefit sharing arrangements to comply with the provisions of the Act[138].

[133]Sec 5
[134]Sec 71(1)(a)
[135]Sec 71(1)(d)
[136]Sec 31 (1)
[137] Section 9
[138] Sec 8

The Friends of Karura Community Forest Association' (FKF) is a CFA founded in October 2009. It was established under the repealed Forest Act of 2005[139] to support KFS to protect, manage and enhance Karura Forest. FKF also provide a platform that facilitates the collaboration of key stakeholders. Currently, FKF includes representation from the local communities that live around the forest, Greenbelt Movement, Community Development Foundation and the United Nations Environment Programme[140].

[139] Sec 46 & 47 of the Forest Act 2005, and Rule 41 & 42 of the Forest Rules. The Forest Act, No. 3 of 2005 is now repealed.
[140]Karura Forest Strategic Management Plan 2016-2020

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The chapter provides a background of the study area and highlights the physical and biological characteristics. It outlines the study design does was developed to facilitate data collection. The chapter then describes the data that was collected and the methods used for data analysis.

3.2 The Study Site

3.2.1 Physical Description

Karura forest is situated in the northern part of Nairobi County and forms part of the Nairobi River Basin. The forest reserve covers 1,041.3 Ha and comprises of three sections separated by Limuru Road and Kiambu Road. The Forest is divided into two blocks, the Mazingira Block covering 797.3Ha and the Sigiria Block covering 244Ha. It is administered as one Forest Station. The Forest is composed of 462.3Ha of indigenous forest and 579Ha of plantation forest. The forest is protected according to the Forest Conservation and Management Act 2016[1]. Karura forest is one of the forests in Kenya that pioneered the model of community forest management that incorporates benefit sharing between Kenya forest service and Friend of Karura Forest. The adjacent communities obtain both consumptive and non-consumptive forest benefits in form of fuel wood, water, bee keeping, ecotourism and recreation. It was reported that in 2017, the forest received an annual estimate of 200,000 visitors'[2]. Further, the forest provides a microclimate to the 2-3 million inhabitants of the Nairobi city[3].

During the pre-colonial period, various Gikuyu families were believed to occupy the forest before it was gazetted as a public forest[4]. Karura Forest reserve was subsequently gazetted in 1932 through Proclamation Number 44, covering an area of 1062.7Ha. The Forest became a Central

[1]www.environment.go.ke [accessed on 11.09.2019]

[2]Wangai, P. W.et al. Contributing to the cultural ecosystem services and human wellbeing debate: a case study application on indicators and linkages (2017).

[3]Thieme, T. A. Turning hustlers into entrepreneurs, and social needs into market demands: Corporate–community encounters in Nairobi, Kenya (2015).

[4]Njeru, J. (2013). 'Donor-driven'neoliberal reform processes and urban environmental change in Kenya: The case of Karura Forest in Nairobi. *Progress in Development Studies*, *13*(1), 63-78.

Government Forest Reserve in 1964, through Legal Notice number 174 covering an area of 1044.1Ha.

Since the establishment of the Forest in 1932, there have been various excisions, additions and exchanges through proclamations and legal notices that led to the loss of 21.4Ha of the forest. During the time and until after the enactment of the Forest Act, 2005, Karura forest was managed by the then Forest Department. The law allowed the Minister responsible for forests to alter forest boundaries through a notice in the Kenya Gazette. The legal framework was weak and was used to plunder forests.

Between 1994 and 1998, 564.14Ha of the forest were illegally transferred to sixty four companies that had interests in real estate development projects. It is in the same period that the then Kenyan government allocated public land (e.g. part of Karura forest) to private developers[5]. It followed that Prof. Wangari Maathai, through the Green Belt Movements, engaged in a confrontation with the government of Kenya for grabbing public land and destroying public forests as the life-line of local communities[6]. In 2010, an electric fence was subsequently constructed around Karura forest. This curbed the pressure of encroachment on the forest and enhanced security for visitors and residents.

[5]Ibid
[6]Maathai, W. (2003).*The Green Belt Movement: Sharing the approach and the experience*. Lantern Books.

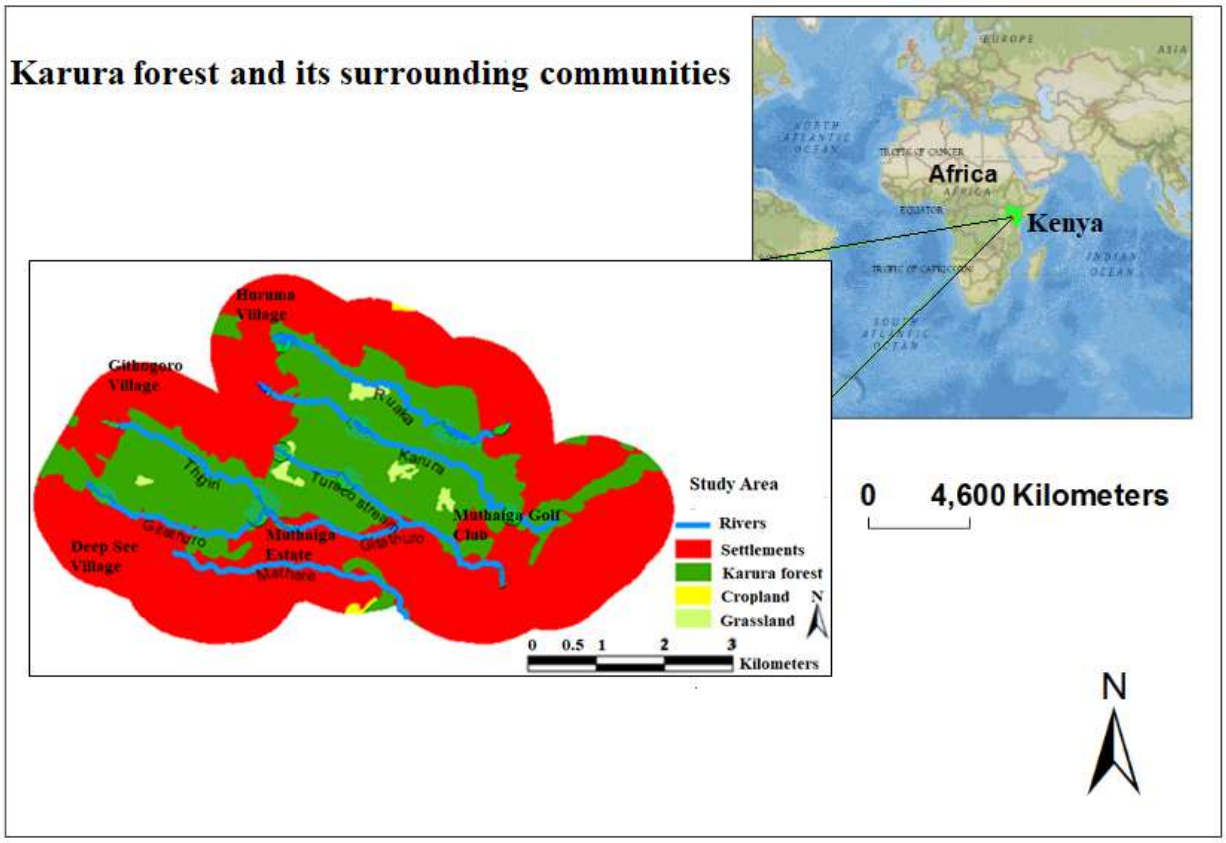

Figure 2 Map of the Study area

Study area of Karura forest and its surrounding community located within the Nairobi City County, Kenya. Karura forest is surrounded by low income human settlements such as the Huruma village, Githogoro village and Deep Sea, and high-income residential estate of Muthaiga. Some community members are part of the community forest association called 'Friends of Karura Forest'. The map is delineated from the Landsat image of 2010.

3.2.2 Biological Description

Karura forest hosts a wide variety of fauna and flora. The forest reserve has been zoned using the multiple – use classification comprising of nature reserves, indigenous forest area, wetlands and riparian areas, exotic plantations and developed areas. The indigenous trees include Croton megalocarpus, Warburgia ugandensis (muthiga), Brachylaena huillensis (muhuga), Juniperus procera (cedar). The plantation species are Eucalypus, Grevilea robusta and Cupressus lusitanica. Moreover, other shrubs with known medicinal value by the local people include Strychnos henningsii (muteta),Vangueria madagascariensis (mubiro) and Rhamnus prinoides (mukarakinga).

The riparian belts along river Getathuro and Ruaka contain the natural bamboo species. There are also three wetlands which occupy 10.5 Ha and serve as an important habitat for birds.

The forest also lost different varieties of mammals and reptiles like the harveys duikers, suni, bash buck, sykes monkeys, hares, mongoose and jackals, cobras, pythons, and green snakes. The colobus monkey has been translocated to the forest.

The forest hosts several bird species like African crowned eagle, crows, anoles, weaver. The forest has a waterfall and caves that are considered sacred and have historic value.

A big portion of the area under plantation forest was harvested prematurely in 2004 when a portion of the forest was targeted for excision. The area is invaded by Lantana camara an invasive species and is the main focus of the rehabilitation effort in the forest.

3.3 Study Design

The study applied survey research design. The research design was used to obtain responses, opinions, perception and attitudes from the study population i.e. individuals and groups of people living in the neighbourhood of Karura protected forest. Since both qualitative (i.e. nominal and narrative responses) and quantitative (i.e. numerical and ratio) data was required for the study, a mixed method of data collection and analysis was used. A survey plan was drawn such that all the residential areas adjacent to the forest were included in the survey. In order to ensure equal chances of inclusion, a buffer of one kilometer from the edge of the forest boundary was established using ArcGIS tools as shown by Figure 2. Using purposive sampling, Huruma village, Githogoro village and Deep-Sea village were selected due to their close relationship with Karura forest. After identification of the survey areas, a preliminary engagement with offices in-charge of the areas was conducted to ensure permission was granted and that the community awareness was created before rolling out the survey exercise. The Chiefs in charge of Highridge, Muthaiga and Githogoro administrative units were contacted and informed of the planned study. After the study notification, a one-day pretesting of interview tools was conducted using eight community members. Using the pretesting lessons, the survey tools were improved ready for the actual field interviews. From each of the three residential areas, a number of respondents was determined using the relative ratio share of the interviews needed to attain the required sample size for the study. Both genders were included in the community survey, and only individuals who were eighteen years and above were

interviewed. With the help of community elders, respondents were obtained from households. Households from which interviewees were picked were identified using systematic sampling and only one person was interviewed per household. The interviews in the community were conducted from Monday to Saturday beginning from 9.00am to 4.00pm. In case no interviewee was found in a selected household, the interviewer marked it and returned at a later date when household members were present. Revisiting households was possible because the geographical area was of considerably small size and of high population density. To identify key informants, meetings with Kenya Forest Service and the Friends of Karura Forest was held to draw a sample frame of the most active stakeholders in the conservation of Karura forest. The same meeting was used to identify populations that were included in the focus group discussions.

3.4 Data collection

Data for the study was both qualitative and quantitative and originated from primary and secondary sources.

Primary data originated from interviews, focused group discussions (FGDs), and field observations. The interviews were done through questionnaires that were administered to the residents of the identified villages of "Huruma", "Githogoro" and "Deep Sea". They comprised both and members and non-members of Friends of Karura Community Forest Association. The interviews were conducted orally. Key informants/ decision-makers for the interviews were drawn from MEF, KFS, FKF and the NEMA.

Secondary data included data already obtained through the review of relevant literature obtained from libraries, books, internet, journals, reports and periodicals. Reports, publications, seminar proceedings, community projects and research work associated with Karura forest were analysed to deduce their relevance and implication on sustainable forest management and benefit sharing among stakeholders.

For objective 1, primary data from FGDs and key informants showed how the regulatory framework on public forest management has been implemented by the Karura forest management.

A part from the primary data necessary for addressing objective 1, secondary data from literature analysis, forest management policies and laws was crucial for further analysis. In order to address objective 2, public knowledge on the existing regulatory framework for forest management and the actual flow of benefits from the forest to the community was obtained from interviews with the community members. Similarly, focus group discussions with FKF and KFS provided data on the capacity of the two institutions in implementing the existing laws and policies on benefit sharing for promoting sustainable management of public forests. Data for objective 3 originated mainly from secondary sources such as the Forest Conservation and Management Act of 2016. Details of incentives such as the development of infrastructure, creating employment opportunities, cash payments and improved social amenities were some of the primary data the study inquired from the community through the interviews.

3.5 Sampling

Karura forest is situated within Karura ward in the northern part of Nairobi County. The ward has an estimated population of 29,432 people[7]. The local people surrounding the forest were evenly distributed. Some residential areas are occupied by the low-, middle- or high-income residents[8]. Cluster sampling was adopted based on the categories of income levels so that respondents with varying monthly and annual incomes were included. Random sampling was further applied to obtain a sample of respondents from each residential estate/ village. Apart from interviews on the local people, ten focused group discussions (FGDs) were conducted, that is, two with Friends of Karura Forest staff members, two with Kenya Forest Service staff members, four with forest visitors, and two with organized community groups that were seasonally hired to work in Karura forest on short contracts. Each FGD comprised of 5-8 persons. At the management level, questionnaires were administered to the Ministry, KFS, FKF and NEMA officers. Purposive sampling was employed to select key informants/ decision-makers from the Kenya Forest Service, Ministry of Environment and forestry, and Friends of Karura forest. To calculate the sample size, a simplified formula for proportions was applied based on Yamane (1967):

[7] www.iebc.or.ke (accessed on 11.09.2018)
[8] Augustine & Odhiambo,2009

$$n = \frac{N}{1 + N(e)^2}$$

n represents the size of the sample; N is the size of Population; *e* represents desired accuracy level (0.05). The formula was preferred because the population size in the study area was known. Based on to the components of the formula, and based on the sampling frame of 29432 (N=29432), this study targeted a calculated sample size of 395 interviewees.

3.6 Data analysis

The qualitative (e.g. nominal data such as public perception) was analysed by use of the Statistical Package for the Social Sciences (SPSS) and quantitative (e.g. numerical data such as gender and family size) data was analysed in Microsoft Excel. To analyse data for objective 1, multiple response sets about forest benefits were analysed in custom tables. Microsoft Excel was used to analyze data by identifying synergies and conflicts in existing policy, legal and institutional frameworks and present results in summary tables. In order to examine the effectiveness of incentives toward various stakeholders according to objective 2, responses were categorized by stakeholder type, and themes of similar responses were created. For data related to objective 3, data was collated and sub-topics of a narrative created describing the state-of-art for the existing regulatory framework and benefit sharing mechanism.

CHAPTER FOUR
RESULTS AND DISCUSSIONS

4.1 Introduction

The Chapter presents and discusses the results of the study. The data collected was used to assess the benefit sharing regime under the various policy, legal and institutional framework, the capacity of different parties to implement benefit sharing in Karura forest and the contribution of the benefit sharing arrangements to the sustainable management of Karura forest.

4.2 Social and demographic information

The total number of the respondents interviewed in the study area were 385. The number of females was 223 (58%) and that of men was 155 (40%) (see Figure 3). Although the calculated sample size was 395 (see Section 3.5), responses from ten questionnaires did not meet the threshold for consistency and accuracy and hence they were not included in the analysis. The study noted that in most households, women had non-contractual employment and hence remained in the house. Another category of women operated small-scale businesses in their houses such as selling consumer goods in kiosks, tailoring and hair salons. Therefore, the difference in sex representation was by chance. These results implied financial uncertainties among people with no contractual employment, and especially those who stay at home on working days. The economic hardship for the unemployed section of the population is an indication that there is high expectation of the local residents to benefit from Karura forest, which is the only public resource in the neighborhood and probably the solution to their economic challenges. Although FAO (2004)[1] presented a report on 'forests for poverty reduction', it is not a reality in the study area. Apart from lack of employment, some people reported cases of inability to feed their families, meet education needs for the children and inability to meet health costs; all of which are not stipulated in the FCM Act 2016.

[1]Sim, H. C., Appanah, S., Youn, Y.C. (2004). Forest for poverty reduction: opportunities with clean development mechanism, environmental services and biodiversity. FAO Regional office in Asia, Bangkok.https://www.google.de/url?sa=t&source=web&rct=j&url=https://www.fao.org/3/a-

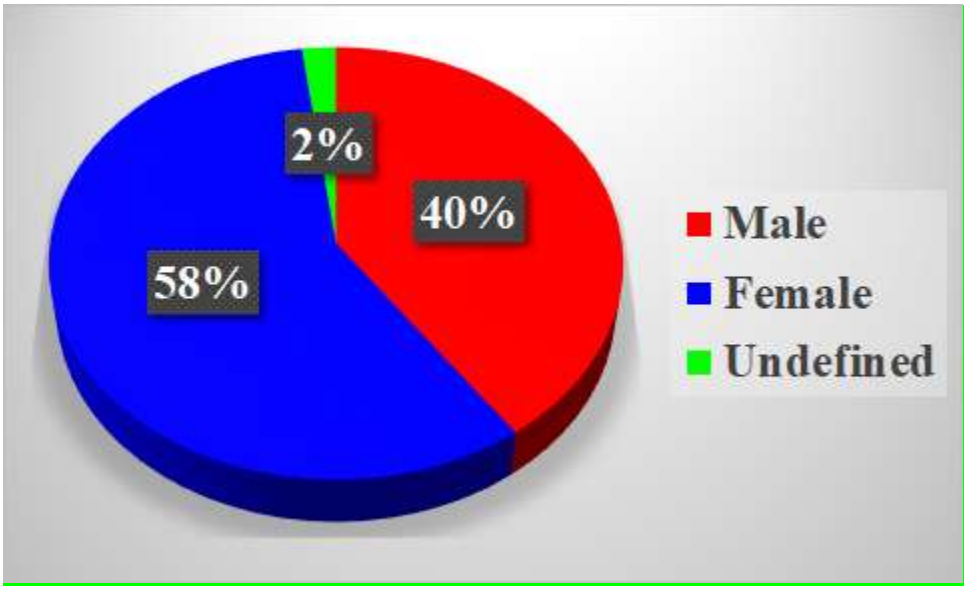

Figure 3 Male and female representation of the study respondents

The respondents were grouped in the following age categories; 20 years and below, 21-25 years, 26-30 years,31-35 years, 36-40 years, 41-45 years, 46-50 years, 51-55 years, 56-60 years and above 60 years. Most respondents were in the aged between 31 and 35 years comprising 16.6% of the total respondents. This was followed by those aged between 26 and 30 years comprising 15.5%. The least represented category of respondents was that aged less than 20 years that recorded 6.2% of the total respondents. These categories revealed that the community has a youthful population with high potential for building the socio-economic status of the community. Results showed that 54.1% of the families had between three (3) and six (6) family members. The average family size could be termed large in an urban setting where majority of household have between three and four members.

4.3 Community occupations and livelihoods

Respondents reported 'casual work', 'small-scale business', and 'small-scale farming' as the main types of occupation. These occupations were classified as informal employment comprising 82.4% while 10.6% of the respondents were not engaged in any gainful employment. However, 7.0% of the respondents did not reveal their sources of livelihoods. It is noteworthy that even if some

residents had lived in the area for more than twenty years, a majority of them did not have title deeds for ownership of the settlement land parcels.

4.4 Benefits of Karura forest

An estimated 42% of the community members indicated that Karura forest was of great benefit for them. The respondents listed five specific benefits that they obtained from Karura forest (see Figure 4). Employment was the most populous benefits scoring 38%. It was followed closely by provision of fuelwood at a score of 30%. Recreation benefits followed in the third position at 23%. School bursary was rated at 5%, and this was actualized via revenues collected from the forest.

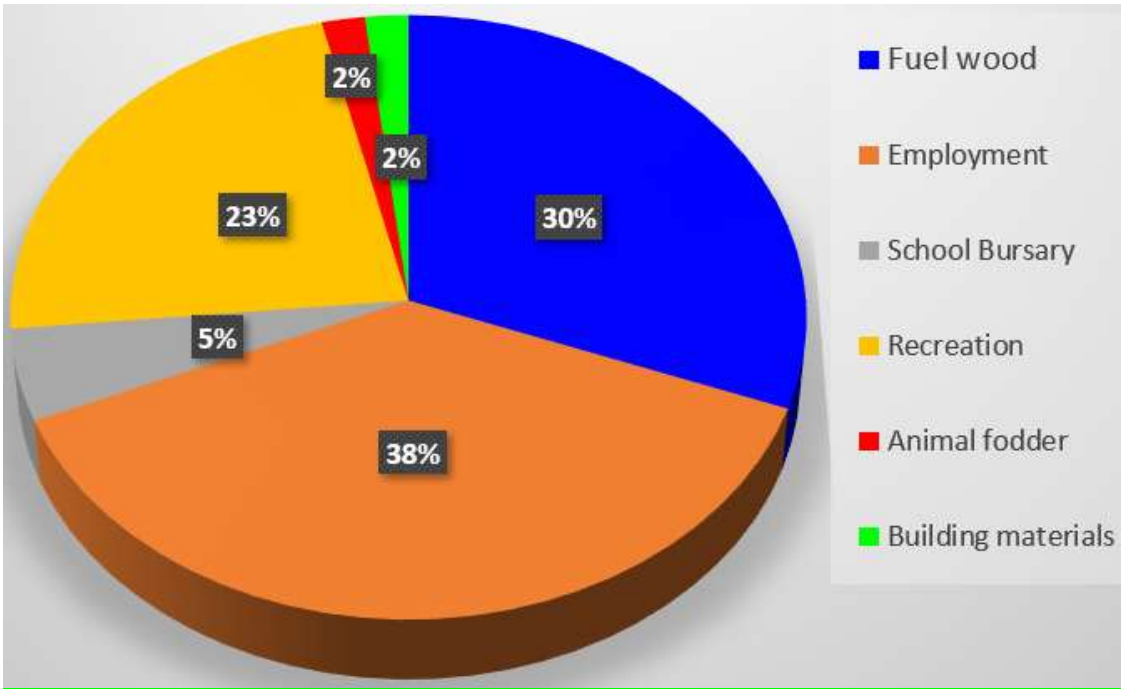

Figure 4 Specific benefits of Karura forest to the community

Benefits related to building materials and animal fodder scored the lowest at 2% each. It was noted that a majority of those who reported the above benefits resided in Huruma community. In addition to the main categories of benefits, respondents reported that they enjoyed physical security as a result of the forest protection. It has been documented that urban forests further provide intangible benefits such creating a cool microclimate and improving the aesthetics in the neighbourhood[2]. It

[2]Nowak, D. J., & Dwyer, J. F. (2007). Understanding the benefits and costs of urban forest ecosystems. In *Urban and community forestry in the northeast* (pp. 25-46). Springer, Dordrecht.

was observed that the question had the highest number of respondents that abstained from registering their responses, which stood at 43% of the total 219 respondents who were contacted on the question. After probing the reason for abstaining from answering questions targeting individual benefits of the forest, the respondents expressed fear that the information can be used to sabotage their relatives who work in the forest. However, the study noted that the jobs offered to the community members in the forest included forest scouts, tour guides and casuals for clearing bushes and watering tree nurseries.

The results indicated that the forest plays a key role in supporting both local and international communities. For example, local communities near Karura forest obtained monetary and non-monetary benefits such as employment and access to fuelwood respectively. Beyond the neighbouring communities, Karura forest supported the process of climate regulation, carbon sequestration, water regulation through the Eco hydrological processes Karura forest benefits visitors as a place for recreation, picnics, conservational area, a place for conducting retreats, prayers and watching birds, and for experiencing nature's serenity. Results from the interviews with users of the forest indicates that additional benefits that Karura offers include; availability of essential public and recreational facilities, affordable charges, guaranteed physical security and conducive environment. The focus group discussions with users of the forest identified several recommendations to improve benefits for the visitors. These included; improvement of the road network, proper demarcation of visitors' territories and walk routes into the forest, provision of social amenities, fair pricing for services offered, accessibility of the forest to all categories of visitors regardless of their social and economic status, improvement of the recreation facilities.

The specific benefits of Karura forest to the adjacent communities and visitors were registered as follows:

Social and cultural wellbeing: Karura forest has been used by public as a social and cultural center. For example, people enter the forest as individuals or groups for diverse activities such as relaxation and meditation, praying, and conducting events such as wedding and birthdays. Every day, there were people visiting the forest for walk, run, picnics, education and sports. It was noted that from the year 2011 the number of visitors getting into the forest had increased and this was a clear indicator that the forest was helping the public to realize the sense of belonging. As a serene

environment, the forest ultimately offers green spaces for relaxation, enjoyment, peace and tranquility.

Economic wellbeing: Karura forest has provided employment for a wide range of people. The employment opportunities were indicated by jobs based on casual or permanent contracts. The community around the forest had been involved in income-generating activities such as bee keeping, aquaculture, and bicycle hire services for riding in the forest. However, aquaculture project failed due to frequent flooding and hence breaking the dykes of the fish ponds. Similarly, the performance of bee-keeping had declined due to clearance of flowering undergrowth vegetation at the expense of reforestation project.

Environmental wellbeing: The forest is an important carbon sink in Nairobi city and provides a cool micro-climate and fresh air to the area residents. It provides a habitat for plants and animals. It also provides a platform for education on environmental conservation. Efforts to sustain environmental wellbeing was indicated by the tree planting exercises, restoration of *Columbus* monkeys, and conservation of other wild animals such as wild pigs.

It was evident from the results that there are tangible and intangible benefits available from Karura forest. However, as majority of the stakeholders reported that they do not derive any benefits from the forest, there is need for review of the benefits to ensure inclusiveness. The issuance of education bursaries and scholarships emerged as some of the benefits expected by the community members. Improvement of the recreational activities to enhance the experience of visitors also emerged as one area that can improve the benefits from the forest. The employment opportunities offered to the neighbouring community members motivates them to be actively involved in managing and sustaining the forest.

4.5 Capacity of actors in realizing benefit sharing at Karura Forest

Friends of Karura forest was formed as community forest association in 2009 in accordance with the provisions of the Forest Act 2005. From the FGDs, the study indicated that the Friends of Karura forest played a key role in managing Karura forest in conjunction with the Kenya Forest Service, which is a state agency. The rationale for providing for community participation in public forest management was to ensure access to forest benefits to the neighbouring communities and

eventually cultivate a sense of value, ownership and protection of forestry resources. In order to ensure a robust Community Forest Association, Friends of Karura Forest provided a criterion for membership to the association as follows: Founder Members invited by the board of Karura forest and include institutions and businesses, Family and Corporates, Resident Associations, Interested Groups and Students.

The study found that out of the three main settlements surrounding the forest identified as 'Huruma', 'Githogoro' and 'Deep Sea', the Huruma community was better organized with a total of eight community groups. From the interviews, it was revealed that only persons who belonged to a community group could become a member of FKF. The main advantage of being in a community group was that the FKF only engaged casual workers drawn from the community groups. The study revealed that there are hindrances to becoming FKF members. The main obstacles identified are the slow approval process, the limitation of new community groups to join FKF and the biased admission of community groups and individuals to join FKF.

The study noted that about 70% of the respondents did not know the objectives of Friends of Karura forest. 27% of the respondents were well informed about the role of FKF and listed FKF's role as co-managing the forest, tree planting, providing employment, managing and coordinating the workers and visitors, collecting forest fee from visitors and being responsible for bursaries to support education. From the number of respondents interviewed, only 5% of the respondents were members of FKF. The respondents who were members of FKF indicated that FKF members met once in a year to deliberate on FKF matters and to appoint the officials. The interviewees who were CFA members indicated that in the past, the CFA officials would pay them an amount of Kenya Shillings one thousand for attending the annual meeting, but the amount was subsequently withdrawn.

The study revealed the perception that FKF was mainly for the affluent members from Muthaiga, Runda and other high-income residential estates near the forest, as well as foreigners who visit the forest. Other studies have found similar challenges in formation of community forest associations. In a study conducted by Ongugo et al (2008), community forest associations from Meru,

Kakamega, and Arabuko-Sokoke forests were evaluated[3]. The authors realized that in the three cases, the formation of a community forest association drew members from existing environmental groups by people living adjacent to respective forests. Similarly, households that were informed about the dictates of the Forest Act 2005 had high tendency of joining the CFA for the Kakamega forest[4]. In most studies, community members with knowledge of the law are more likely to join a CFA as compared to people ignorant of the provisions of the FCM Act, 2016.

From the study, it was found that there were limitations imposed on new membership to FKF. The study found that FKF has set a limit of thirty (30) members per community group and only eight groups are currently constituted. The eight groups are the only ones that were being engaged for casual employment by the FKF. Community members forming new groups were no longer accepted to join FKF because FKF had stopped admissions of new groups. Since the admission of new groups was suspended, no solution had been given to the new groups in need of joining the FKF. The limitation on membership to FKF is a challenge as the Forest Conservation and Management Act does not set a limit on membership to a CFA. The findings from the discussions show that this has locked out community members from participating in the joint management of Karura forest. The community members cannot derive any benefits from the forest as they are not members of the CFA. The lack of a solution to the issue is a challenge to the community members who have been locked out of the CFA.

Apart from the challenges faced by persons interested to join the FKF, other studies have reported poor leadership, conflict of interests and lack of funding to sustain CFAs[5]. Friends of Karura Forest were nevertheless not affected by the funding challenges because they collect revenue in the form of forest entry fees and ecotourism activities that attract approximately 200,000 visitors per year.

The study found that members of the eight community groups receive direct financial benefits for undertaking activities in the forest. The members revealed that they receive Kenya Shillings Six

[3]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.
[4]Ogada, M. J. (2012). Forest management decentralization in Kenya: effects on household farm forestry decisions in Kakamega.
[5]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.

Hundred and fifty (Ksh 650) per person per week during the rainy season or once a month during the dry season. The study noted that the groups received their payment through individual bank account. The members revealed that the transfer of funds takes twenty-one days and the beneficiaries incurred bank transaction costs. This was reported to be a departure from the earlier method of cash payments at the end of every work day. The focus group discussions revealed that the change in the mode for payment was perceived to benefit the FKF but disadvantaged the individual members of the groups.

4.5.1 The role and performance of FKF in the co-management of the forest

The focus group discussions identified the roles of FKF as; controlling cash inflows and outflows collected as forest entry fees**,** helping in the management and protection of the forest, enhancing physical security within and around the forest, provision of jobs to neighbouring communities, controlling collection of fuelwood, and issuance of education bursaries to youth in schools. This indicated that the information about the role to offer employment and support to social and economic development vary from one individual to the other across the community.

Regarding the role of FKF in supporting community members to manage the forest, 80% of the interviewees reported that FKF does not give incentives to the community. This scenario points to a disparity between the stated roles that FKF needed to play and what they have practically been able to achieve. Although the role of FKF was acknowledged in the community, the overall performance for the Karura forest management was generally poor (Figure 5). This raises concern on how the "participatory forest management" recommended by Thabit Jacob as key pillar in transforming forestry management could be achieved in the study area[6].

[6]Jacob, Thabit & Brockington, Dan. (2017). Learning from the other: Benefit sharing lessons for REDD+ implementation based on CBFM experience in Northern Tanzania. Land Use Policy. 10.1016/j.landusepol.2017.10.028.

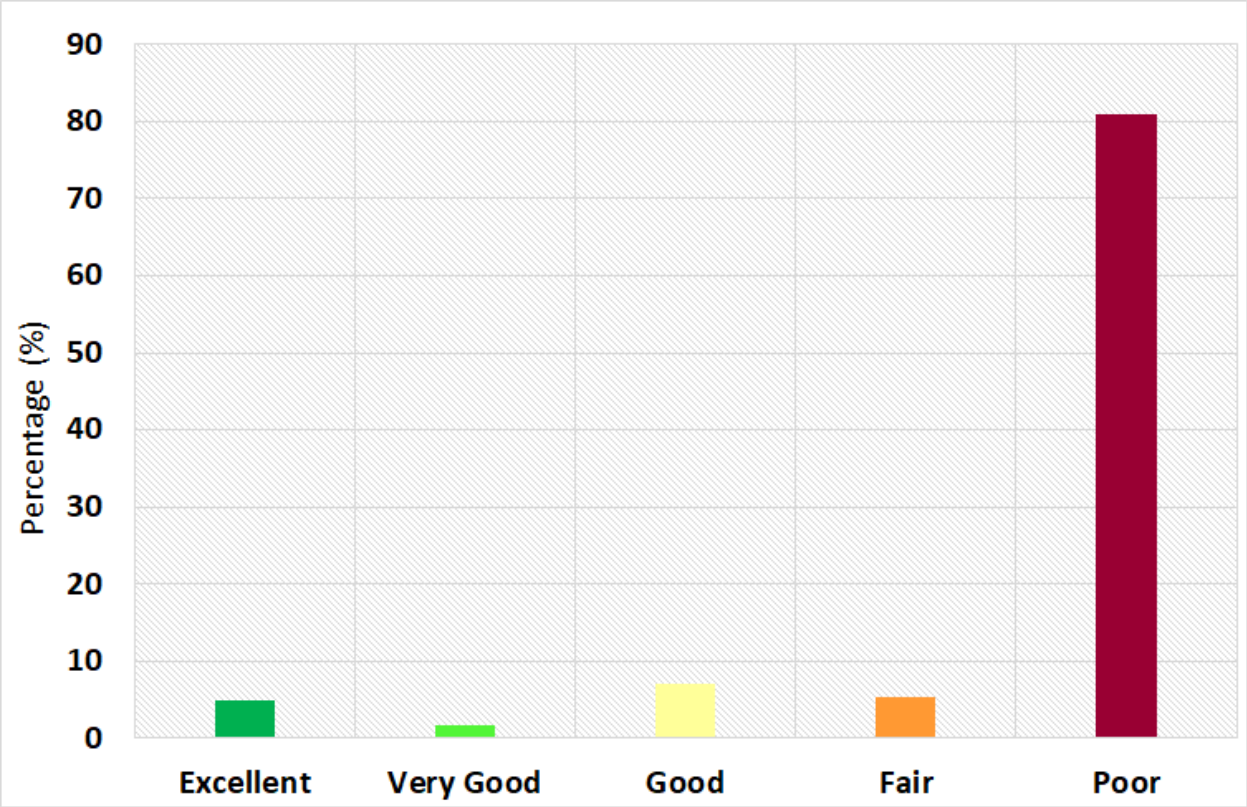

Figure 5 Performance of the Karura forest management

The suggestions made by the respondents to improve the management of Karura Forest by FKF focused mainly on; Capacity building for the FKF staff, creating awareness about FKF to the community, Community training on self-reliance and running of income generating projects and adherence to decisions based only on discussions by the joint meetings/management. Focus group discussions revealed that it is necessary to enhance the stability of Karura forest in order to increase benefits to be shared. The study found that the stability of Karura forest depends on the cohesive interplay of all institutions working jointly to safeguard the forests. Previous studies on forest reforms in Kenya have also found that institutional stability depends on adherence to the Constitutional provisions in regard to forest governance, leadership and integrity, decentralization and devolution, and land and environment[7]. The interviews and focus group discussions identified some measures that can enhance stability in forest management;

[7]Oksanen, T., Gachanja, M., & Blåsten, A. (2011). Strategy Note for Forest Governance Reform in Kenya. *Miti Mingi Maisha Bora–Support to Forest Sector Reform in Kenya*.

- Enhancing physical security and services for visitors in order to support the conservation of the forest
- Increase reliability in providing services to the forest adjacent communities
- Sustaining employment and guarantee job security
- Adherence to the forest laws, policies and guidelines

The study noted a number of challenges that members of the community indicated had been derailing the effort to a harmonious co-management process and slowing the pace of realizing the core mandate of FKF to the community. The main challenges included:

- Perception by the community that FKF ought to give direct financial benefits to the community members
- Scanty research on sustainability of the forest and lack of channels for sharing research findings to close existing gaps
- Lack of trainings and awareness creation for community members on forest management

From the discussions and in response to the stated challenges, the participants proposed a number of solutions as detailed in box 1.

- Community sensitization on the processes of sustainable forest management to remove the emphasis on monetary benefits only.
- Creating research themes in line with the research needs for Karura forest as guided by the forest management plan.
- Provision of training opportunities for community members.

Box 1: Possible solutions to address the challenges facing the Friends of Karura Forest

4.5.2 Role of KFS in the joint management of Karura Forest

KFS is a State Corporation established under Section seven of the Forest Conservation and Management Act, 2016. KFS signed a joint forest management agreement with FKF in 2009 to co-manage Karura forest. The FGDs and key informant interviews identified various responsibilities bestowed on KFS to sustainably manage Karura forest. The study noted that KFS

provides the human capital for managing Karura forest. An annual budget is provided by the government for running programmes in the forest. KFS has the responsibility to secure the forest against any threats and to prosecute anyone who poses a danger to the forest ecosystem.

The key informants indicated that KFS co-manages Karura forest with FKF through a joint management agreement. The agreement sets out the obligations of both KFS and FKF in the management of Karura Forest. The discussions revealed that that the joint management of Karura forest is touted as a good initiative and a success story. However, the discussions alluded to the fact that the joint management agreement is skewed in favour of FKF. This is a big challenge to KFS in the enforcing the obligations of FKF in the agreement. The discussions pointed to the fact that KFS faces limitations in controlling the activities of FKF. It was also revealed that KFS does not have any input or responsibility in the management of the finances held by FKF.

The focus group discussions identified some successes from the joint management of Karura forest to include; Biodiversity conservation, increased revenue, regeneration of tree species, introduction of new animal species (Columbus monkeys), Community participation and involvement. The discussions identified some aspects of the in the joint management that require review including;

- Gaps in the co- management agreement that leads to involvement of many other parties outside the framework of the management agreement.
- The management agreement does not provide for a clear reporting mechanisms
- The Monitoring and evaluation of the obligations of KFS and FKF.
- Too many stakeholder interests that if not managed, would compromise the integrity of Karura Forest.

From the discussions, the groups identified areas that can be reviewed to improve the management of Karura forest;

- Review of the management agreement to incorporate clear guidelines on the responsibilities of KFS and FKF
- Enforcement of the rules of co-management
- Incorporation of the principles of democracy, equity and public interests in forest governance.
- Public Awareness campaigns on the importance of sustainable management of Karura forest

It is clear from the discussions that synergy between KFS and FKF is crucial for the sustainable management of Karura forest.

4.6 Role of Benefit Sharing in Sustainable Management of Karura Forest

The results showed that a majority of the community members from the study area were unaware that the law provides entitlement to benefits emanating from public forest resources. 84% of the respondents indicated that they were not familiar with the regulatory framework for benefit sharing. 11% cited specific policy and legal documents that provide for forest benefit sharing with neighbouring communities. 6% of the respondents with knowledge on the legal provisions cited the Constitution of Kenya 2010 and the Forest Conservation and Management Act 2016 as the main laws that provide for benefit sharing. In reference to Kenya's constitution 2010, the results from the FGDs found that the participants are aware that it provided for community involvement in management of forests.

The focus group discussions further showed that the participants were aware that communities adjacent to public forests should participate in protection and conservation measures, benefit from the forest resource, and be allowed to venture into profitable projects such as beekeeping, ecotourism, herbal medicine and patents of scientific findings and innovations. The low level of public awareness on forest management and benefit sharing points either to the lack of public information sharing mechanisms or low motivation of the communities to acquaint themselves with developments in the management of public forests.

The key informant interviews revealed that the law explicitly supports the co-management of public forest in Kenya. The interests of communities adjacent to public forests are exercised through community forest associations. The key informants reported that FKF has the capacity to ensure that the community adjacent to Karura forest participated as an equal partner in managing the forest and deriving benefits from the resource. The key informants were aware that FKF had initiated projects such as bee-keeping in the forest, provision of bursaries to those in secondary schools and tertiary education, provision of jobs for some members of the surrounding communities on casual and permanently terms. The key informants reported that FKF operated an environmental education project where schools were invited to learn about sustainable forest management. The discussions with the key informants revealed that the revenues from Karura

forest were fairly generated and shared. The study noted that part of the revenues was used to support the community with education bursaries, and funding the community's income generating projects such as bee-keeping. The mode of allocation for the financial benefits is deliberated at the Board of FKF, and implemented by the staff employed by FKF in liaison with the community representatives.

The study drew special attention to the fact that the benefits were not defined based on different forest user groups, and that the concept of benefits varies and had different perspectives and interpretations. The FGDs and the key informant interviews alluded to the fact that in the case of Karura forest, the concept of benefits for the low-income residents of Huruma, Deep Sea and Githogoro communities was different from the concept of benefits by the high-income residents of Muthaiga and Runda. Since the two residential set-ups portray a socio-economic divide, it was imperative to find common denominator, at least for the meaning of the term "benefits" if the two groups were to engage as equal partners within the CFA.

A study by Richards, Mahajan and Kanel conducted in Nepal reported that transparency in the distribution of forest benefit to the community ensured equity and active participation in the management of forests[8]. However, Lyster was concerned that although transparency was crucial in forest management, legal provisions do not specifically address it[9]. This study sought to understand the modalities in place for benefit sharing at Karura forest. This was an opportunity to bring clarity on how to achieve transparency in regard to forest benefit sharing. The focus group discussions revealed that the revenue generation and benefit sharing with the community was not done in an open and transparent manner. It was found that FKF did not, routinely or otherwise, make full disclosure of their revenue and how it was utilized. The discussants reported that FKF has the challenge of elite capture. This reflects on the point raised by key informants about unequal power relations between the low and the high-income members of the FKF. The unequal power

[8]Richards, M., Maharjan, M., &Kanel, K. (2003). Economics, poverty and transparency: measuring equity in forest user groups. *Journal of Forest and Livelihood*, *3*(1), 91-106.
[9]Lyster, R. (2011). REDD+, transparency, participation and resource rights: the role of law. *Environmental science & policy*, *14*(2), 118-126.

relations could lead to disharmony and eventually malfunction of the forest management committee.

From the study, the groups identified additional benefits that can be incorporated to build incentives among the communities and foster greater co-operation in management of Karura forest as recommended below. Due to the gaps in benefit provision by the Karura forest management to the community, the suggestions for additional or modified benefits were presented as shown in Box 1.

- New formula in sharing/ distributing school bursaries in a transparent manner
- Increase recruitments and job opportunities to the community
- Allow for more days for fuel wood collection from the forest
- Transparency in the identification of benefits and the mode of distribution
- Compensation for the groups that participated in protecting Karura forest
- Education sponsorship that support technical and vocation training of youth
- Provision of building materials
- Improving sanitation in the community
- Removal of the limitation on the timelines that individuals can access the forest to allow business growth.
- Provide a communal piece of land to cultivate vegetables (*Shamba system*)
- Provide sports ground for the community youth; the youth had no playground for social and sports activities
- Increased payments for casuals; reference was given to the current Ksh 650 per person per day.
- Social and financial support
- Compensation from injuries incurred by community workers in the forest

Box 1: Additional or modified incentives that the management of Karura forest should provide to the neighboring community

The proposed incentives revealed that the communities surrounding the forest perceive the current benefits as inadequate. The focus group discussion similarly pointed to a general decline over time in the quantity and quality of the incentives provide from Karura forest management. The discussions identified the allocation of bursaries as one area that had resulted in discontent. It was

revealed that although the priority for awarding bursaries was given to families of groups or individuals working in the forest, the community felt that those not benefiting from employment in the forest should be given priority. There was a claim that tribalism and nepotism was exercised in awarding school bursaries, but the study was not able to verify this claim.

The focus group discussions revealed that the community members were dissatisfied with the limitations imposed on collection of firewood from Karura forest. The study noted that the community members were only allowed to collect firewood on Thursday of every week. The discussions further revealed that the community members felt disfranchised by not being allowed to practice the shamba system. They pointed out that the shamba system is practiced by communities living adjacent to other forests in Kenya.The study noted that the law does not explicitly state whether the Shamba system was to be exercised in all forest regardless of their sizes and vulnerability. This is a challenge as Karura forest is an urban forest that covers only 1041.3 Ha compared to other natural forests such as Mt. Kenya, Aberdares and Kakamega. Karura forest is also vulnerable because about 56% of the total size comprises of plantation forest.

To promote sustainable forest management and benefit sharing, the study noted that the instruments of engagement between KFS and FKF ought to be strengthened. The focus group discussions with CFA members pointed to the need for community involvement in decision making in the management and benefit aspects. To enhance the stability of Karura forest and increase benefit sharing, the discussants proposed a number of issues. First, the instruments used to co-manage Karura forest (licenses, management agreements) needed to have protocols of engagement, such that all parties are clear of the terms, responsibilities and obligations associated with the engagement. Second, negotiations on pertinent issues needed to be conducted with transparency in accordance with the existing law and policy. Third, such pronunciation at the beginning of negotiations can set a common ground and rules for all stakeholders to be confident and trust the process. This meant that those who have a stake shall be able to influence decisions and management of Karura forest. Fourth, the discussants postulated that the governance model involving all partners in forest management should be adopted. Fifth, when the measures were undertaken, it was found important to conduct surveys at specified periods to evaluate the impact of co-management on the community and forest management.

The study noted that there is no defined mechanism for sharing benefits with the neighbouring communities. This has created a perception that the benefits are intended to benefit only a few community members, while excluding a majority of them. From the interviews, the respondents proposed that the community members ought to be consulted to determine the areas of priority in channeling the financial benefits from management of Karura forest. The benefit sharing arrangements need to be enhanced to ensure sustainable management of the forest.

4.7 Adequacy of the Legal and Policy Framework

The community members indicated that they did not participate in the development of the policy and legal framework for sustainable forest management. Out of the 385 surveyed, 88% of the respondents had never participated in drafting a policy related to forests and about 2% had once participated in a research that addressed forest management policy. About 10% did not respond to the question. This result points to a weakness in the framework for development of the policy and legal framework.

The focus group discussions revealed that while the legal framework outlined the benefits and proposed incentives and benefit sharing, it was not specific on modalities for benefit sharing. The discussions found that the law supports community participation in forest management but does not provide for quantification of benefits. The key informants had divergent views on the model for benefit sharing, with one participant advancing the view that natural resources should be a reserve of the state to be managed by the state to avoid conflicts while another participant was of the view that forests are susceptible to the "tragedy of the commons". The divergent thoughts indicated a possibility of conflict of interests in regard to sharing forest benefits, as opposed to focusing efforts towards sustainable management and protection of public forests as part of natural heritage.

The discussions with the key informants identified proposals for review of the regulatory framework to strengthen benefit sharing and minimize conflict among the different actors. The results indicate that all the key informants recommended the development of a comprehensive framework on benefit sharing. From the study, it was found that quantification of the benefits and incentives would bring clarity and guidance on implementation of benefit sharing. This study noted that the regulatory framework must be clear on the kind of benefits to be shared with the

participating communities for conservation and livelihood goals to thrive. Secondly, it is advisable to popularize non-quantifiable benefits such as micro-climate, carbon storage, air filtration and water purification to local communities. The understanding of the effect of uncontrolled extraction of quantifiable forest benefits on non-quantifiable forest benefits will help communities to embrace the concepts of tradeoffs and synergies in forest management[10].Efforts to adhere to legal and policy framework were noted and this provided a good model for management of Karura forest. The adherence to the legal and policy framework improved the security and sustainability of the forest.

The study noted that the policy and legal framework outlining the arrangement for benefit sharing from forest resources is inadequate and requires to be enriched. The recommended aspects for review relate to the modalities for benefit sharing, quantification of the benefits and the roles and responsibilities for community members in sustainable forest management.

[10]Duncker, P. S., Raulund-Rasmussen, K., Gundersen, P., Katzensteiner, K., De Jong, J., Ravn, Spiecker, H. (2012). How forest management affects ecosystem services, including timber production and economic return: Synergies and trade-offs. *Ecology & Society*, *17*(4).

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This Chapter outlines the conclusions from the findings of the study, and the recommendations made to improve benefit sharing arrangements. The conclusion and recommendations are based on the following key findings:

Karura forest is a model case of challenges that have faced sustainable management of public forests in Kenya. This is exemplified by its historical events related to illegal allocation of its land area to private developers.

The contemporary challenges facing Karura forest are as a result of non-explicit and inadequate benefit sharing mechanism. The regulatory framework for the sustainable management of public forest lacked the rigour to offer clear guidelines on benefit sharing among stakeholder.

The benefits to be shared were undefined. This left vacuum for biased decision-making on what benefits communities living near the forest should enjoy.

The incentives currently provided to the neighbouring communities such as employment, school bursaries were inconsistent in quality and quality and do not effectively influence the community to fully support the sustainable management of Karura forest.

Properly designed and executed benefit sharing mechanism can help achieve equity, transparency and accountability in the management of public forest, as well as ensuring inclusive and sustainable management of the forest by all stakeholders.

5.2 Conclusions

The results showed that benefit sharing mechanisms present an opportunity for sustainable management of public forests in Kenya. The involvement of FKF in the joint management of

Karura forest provides important lessons for the nexus between benefit sharing and management of public forests. It demonstrates that involvement of stakeholders in karura forest can change their perception on benefit sharing and improve the sustainability of the forest.

In regard to objective one, the study found that the existing legal framework is inadequate in providing for benefit sharing mechanisms that support community involvement in sustainable forest management. It can be deduced that the existing policy and legal framework is vague as regards the implementation of benefit sharing from forest resources. The Constitution of Kenya provides for sharing of benefits derived from managing and utilizing natural resources including forests. The Forest Conservation and Management Act 2016 acknowledge the role of benefit sharing in enhancing forest management. The Act incorporates the models of "participatory forest management", "community and private sectors involvement" and "incentives" in managing public forests. Even though there have been strides made in incorporating benefit sharing in forest management, the policy and legal framework lacks the key elements of clarity and certainty, it has not adequately provided the mechanism for benefit sharing. There are still challenges in establishing a concise arrangement for benefit sharing in the legal and policy framework. This means that enforcement of the benefit sharing arrangements is difficult for lack of certainty as to the actual extent of the legal obligations of both the state and stakeholders including the communities.

Referring to objective 2, The study found that while the law recognizes that communities, private sector and other actors have rights to benefit from forest resources, it lacks a specific way through which these benefits can be demanded and flow to them. This was supported by two main observations; first, that the community members had limited involvement in determining the incentives, second, that the KFS reported its inaccessibility of the funds collected by FKF despite being a major stakeholder in the co-management arrangement. In this regard, FKF needed to create opportunities for all members of the community to benefit from the forest. They should also accommodate more community groups, and ensure fair representation in the decision-making organs. The knowledge on regulatory framework by the community, forest users, FKF and KFS differed significantly with more gaps being identified within the community and forest users. The study concludes that programs should be developed to educate the communities' members and other stakeholders on the provisions of the Constitution and the FCMA, 2016. This will improve

their knowledge; collaboratively pursue more defined benefit sharing mechanisms and appreciation for the forest and the benefits that they derive therefrom.

Guided by objective 3, the study has demonstrated that the incentives of casual employment, fuel wood and recreation were not sufficient as incentives for sustainable forest management. There were major issues that emerged regarding the incentives received by the community i.e. issues related either to declining quality or quantity of the incentives. Majority of the community were satisfied by the employment opportunities but dissatisfied in the manner that it was allocated. The communities required profitable projects that will improve their social and economic wellbeing. This is major contribution to knowledge because current literature did not provide such information.

From the study, it can be concluded there are numerous challenges in the framework for forest management and benefit sharing. The main challenges identified are:

1. Skewed perception of incentives and varying interests among different groups at Karura Forest: the community members had incorrect information about the benefits they were entitled from, for example, the forest revenue. That it, some believed that all students in the community needed to be supported with scholarships. This revealed that the actual records of monthly and annual financial revenues collected by FKF were not shared by community members.
2. Elite capture leading to the perception that FKF is for certain members of society: it was the opinion of the community members that the decision-making by the FKF was exclusive. Certain decisions were arrived at by a few people, and forced on to the other CFA members to ratify them. Therefore, although membership to FKF was open to all groups of people of different socioeconomic status, including forest visitors, the power relations and influence on major decision was by a few personalities.
3. Limited knowledge of the role of the community in sustainable management of the forest: The knowledge gap about the details of participatory forest management as contained in the Forest Conservation and Management Act 2016 were scanty among community members. The part of the community with limited information felt that the forest only

benefits a small percentage of the community, and that the process of selecting members of the FKF and beneficiaries was biased.

4. Policy formulation needed to be inclusive and participatory. It was realized that even the formation of by-laws to control behavior of visitors in the forest was done without knowledge of some CFA members.
5. The rules and regulations governing access and benefit sharing have not been developed under the Forest Conservation and Management Act 2016. Although the legal and policy framework of sustainable forest management in Kenya had stipulated how to enhance livelihoods and conservation goals within public forests, the specific rules guiding on the type of benefits, selection of beneficiaries, and the process of availing benefits to beneficiaries were missing.
6. Competing interests that could view public forest as enterprises for private good instead of the view that they are public assets meant for public good: there was total disregard of non-quantified forest benefits in the benefit-sharing debate. Benefits such as climate regulation, water purification and air filtration did not feature in the interviews with the local people. Some local people also felt that probably more activities such as farming should be accommodated in the forest.
7. FKF engages too many partners without involving KFS: KFS as a key stakeholder felt that FKF were making decisions without a consultative process as guided in law. This may interfere with trust and transparency as core values in the co-management of the forest.
8. Lack of documentation of research activities and hence inadequate knowledge on the performance of the management: it was noted that information sharing between FKF and KFS was not up to date. Secondly, many research activities that had been conducted in the past were not documented by FKF. It meant that all recommendations from the previous studies were not accessible by the management to improve of their performance.
9. Inadequate capacity building for the staff working in Karura forest: over time, technical and leadership demands for the FKF staff were not in tandem the level of capacity building support. It was felt that the changes occurring in forest conservation needed a well-trained team to deal with the emerging challenges.

In a nutshell, the study has set a strong platform of reviewing the current benefit sharing mechanisms in Kenya, since a majority of Kenya's public forest managements are gearing toward implementing the existing regulatory framework, as well as identifying and addressing gaps therein.

5.3 Recommendations

In order to realize sustainable management of Karura forest, the mandates, roles and rules of engagements must be clear for all stakeholders. The study thus revealed the following recommendations that emanated from the results:

The laws and policies relating to benefit sharing including the FCM Act 2016, the Forest Policy, National Land Policy, Environment Management and Coordination Act, the Land Act and the Community land Act require to clearly describe benefit sharing and the modalities for implementing the benefit sharing mechanisms. The proposed benefit sharing Bill 2014 should be concluded and signed into law as the framework to guide benefit sharing for all natural resources in Kenya.

The rules and regulations guiding benefit sharing for forest resources as provided for in the FCM Act to be developed. This will bring clarity in the legal framework on benefit sharing, especially regarding the role of different actors in sustainable forest management. The regulations will also outline the contribution of all the actors and the expected benefits from the investment in forest management. This will improve knowledge regarding the legal, institutional and policy guidelines related to public forests in Kenya. Developing the regulations will also protect the rights of communities and secure the benefits derived from forests.

The procedure for communities to participate in forest management and the benefits to accrue to them should be well outlined. The character and form of benefits for different stakeholders ought to be specified. The Forest Conservation and Management Act 2016 contain a broad range of benefits that can accrue to communities without a proper mechanism outlining how they can reach the communities. Communities have been disenfranchised as regards the benefits, while KFS receives monetary benefits in terms of fees and royalties.

Community sensitization is needed in relation to the available opportunities for benefit sharing and the modalities for membership to FKF. This will ensure the community is fully able to participate in the co management of Karura forest. It will also address the perception that FKF favours some communities and deliberately excludes others. Closely related to sensitization is capacity building and awareness for community members and proper dissemination of information especially from the FKF management to the community members. KFS and FKF to develop targeted training programs that will equip the communities with necessary skills to participate in sustainable forest management.

There is need for transparency in the revenue collection and expenditure by the community forest association. There ought to be developed a framework for community participation in identifying the priority areas for development expenditure. This will create harmony and promote cohesion among the community, and subsequently enhance sustainable forest management and benefit sharing.

The linkages between KFS and FKF need to be reviewed and clarified so that the responsibilities of both parties are well set out. Similarly, the mode of engagement and co-management for public forests ought to be clearly set out to effectively address conflicts between KFS and communities on the sustainable management of public forests.

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