UNIVERSITY OF NAIROBI

SCHOOL OF LAW

SUSTAINABLE MANAGEMENT OF RIPARIAN AREAS IN KENYA: A CRITIQUE OF THE INADEQUACY OF THE LEGISLATIVE FRAMEWORK GOVERNING THE PROTECTION OF SUSTAINABLE MANAGEMENT OF RIPARIAN ZONES IN KENYA

A DISSERTATION SUBMITTED TO THE SCHOOL OF LAW, UNIVERSITY OF NAIROBI IN PARTIAL FULFILLMENT OF REQUIREMENTS FOR THE AWARD OF A MASTER OF LAWS DEGREE (LLM) ENVIRONMENTAL LAW.

BY

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REG. NO. G62/76094/2014

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NOVEMBER 2015
DECLARATION

I hereby declare that this research proposal is my original work and a product of my own research, hard work and contribution by my supervisor and that to the best of my knowledge and information, this work has neither been accepted nor is it being concurrently submitted for any other degree of any university, or any other institution for any academic credit. All information obtained from other sources and used herein has been acknowledged.

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The thesis has been submitted for examination with my approval as supervisor.

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Supervisor’s Name: DR.IWUONA RUMMEL BULSKA

Dated…………………………………………………………………………
I dedicate this thesis to my wife Edna Moraa and my son Matunda Motari for the support they accorded me when I was working on this research and the many late and absent days from home for the purpose of accomplishing this within the one year period.
ACKNOWLEDGEMENT

Special tribute to and gratitude to Dr. Iwona Rummel Bulska my supervisor for the very dedicated times and weekends she took to guide me through this work and timely returns of my work for corrections and amendments. The encouragement that all that seemed impossible was actually achievable and I have achieved it.

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To my late father Duke Matunda, I salute you for the vision that you left for us to follow and that has helped us grow to where we are as family.

My mother Mary Matunda, you understood it better that you had to think deeply to see me be where I am today.

My brother Morara Matunda, I have no words to describe the work that you have done to my life, your forever love for me, your continued guidance and support is unmatched, thanks for never letting me grow up because you have owned me and made me what I am today, much love brother.

My siblings Elizabeth, Ogake, Otero and Marita, Nyangwechi and Mokaya and sisters in-laws Josephine and Kwamboka, I have no words to explain the support you have accorded me to reach this far, you have always supported me and made sure that success must follow, to this day I say thank you so much.
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ASALA</td>
<td>Arid and Semi-Arid Lands assessment</td>
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<tr>
<td>CBD</td>
<td>Central Business District</td>
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<td>CBO</td>
<td>Community Based Organization</td>
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<tr>
<td>CDM</td>
<td>Clean Development Mechanism</td>
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<td>CLR</td>
<td>Contaminated Land Register</td>
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<td>COK</td>
<td>Constitution of Kenya 2010</td>
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<td>CP</td>
<td>Cleaner Production</td>
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<tr>
<td>DRSRS</td>
<td>Department of Resource Surveys and Remote Sensing.</td>
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<tr>
<td>EEZ</td>
<td>Exclusive Economic Zone</td>
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<tr>
<td>EG&amp;S</td>
<td>Environmental Goods and Services</td>
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<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<td>EA</td>
<td>Environmental Audits</td>
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<td>EMCA</td>
<td>Environment Management Coordination Act, 1999</td>
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<td>EMP</td>
<td>Environment Management Plan</td>
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<tr>
<td>EP&amp; RC</td>
<td>Environmental Planning and Research Coordination</td>
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<td>ESA</td>
<td>Environmentally Significant Area</td>
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<tr>
<td>GIS</td>
<td>Geographic Information System</td>
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<td>GoK</td>
<td>Government of Kenya</td>
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<td>ICT</td>
<td>Information Communication Technology</td>
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<tr>
<td>KFC</td>
<td>Kenya Forest Service</td>
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<td>KWS</td>
<td>Kenya Wildlife Service</td>
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<tr>
<td>MDG</td>
<td>Millennium Development Goal</td>
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<tr>
<td>MEMR</td>
<td>Ministry of Environment and Mineral Resources</td>
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<td>MEA</td>
<td>Multilateral Environmental Agreement</td>
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<td>MPA</td>
<td>Marine Protected Areas</td>
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<tr>
<td>MTP</td>
<td>Mid-Term Plan</td>
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<tr>
<td>NBSAP</td>
<td>National Biodiversity Strategy and Action Plan</td>
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<td>NEAP</td>
<td>National Environment Action Plan</td>
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<td>NEMA</td>
<td>National Environment Management Authority</td>
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<td>NEC</td>
<td>National Executive Council</td>
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</table>
NES………………………………… National Environment Secretariat
NLC .................................National Land Commission
NGOs ..............................Non-Governmental Organizations
NRPB...............................Nairobi River Basin Program
OS .................................Open Space
CDE ...............................County Director of Environment
PDP ...............................Part Development Plan
PPCSCA ........................Permanent Presidential Commission on Soil Conservation and Afforestation.
RAP ...............................Resettlement Action Plan
SEA ...............................Strategic Environment Assessment
SHEC ..............................Safety Health Environment Committees
SIA ...............................Social Impact Assessment
SMP ...............................Site Management Plan
SoE ...............................State of Environment
UNCCD ............................United Nations Conveension to Combat Desertification
WSSD ..............................World Summit for Sustainable Development
WRMA ............................Water Resources Management Authority
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ABSTRACT

Riparian area is a critical component that holds several benefits to the environment as it essential for high water streams, rivers, lakes and along shorelines. However, riparian area has remained relatively unprotected from poor agricultural practices, residential and commercial construction, landscaping and logging.

In Kenya, however, the law on riparian zone protection is not in a piece of a single legislation, the law is fragmented in numerous pieces of legislations like Environment Management and Coordination Act (EMCA) 1999, the Water Quality Regulations (WQR) (2006), Water Resources Management Rules (WRMR) (2007), the Agricultural Act (Cap318), Forest Act, 2005, the Land Act 2012, the Water Act, 2002 and the Wildlife (Conservation and Management) Act 2013 presenting a problem of overlapping mandates and lack of coordination in enforcement.

There are several acts that deal with the management of riparian area, even with the many acts and policy papers governing the activities and resource use that are within the riparian area, sustainable management of these areas has not been achieved. Further sustainable management of riparian areas has not been a key objective of this legislation which is oriented towards limited and specific activities with no clear policy framework in which to apply the legislation and for the approval and enforcement.

There is lack of clear approval and enforcement agencies for the protection of the riparian area and further lack of Geographical Information System of data for the effective and sustainable management of riparian areas.

This has presented a big problem for the preservation, protection and management of riparian areas which are endowed with a number of natural resources that need to be protected through a better and effective system of management.
CHAPTER ONE: OVERVIEW OF THE RIPARIAN AREA AND THE LAW GOVERNING ITS SUSTAINABLE MANAGEMENT IN KENYA.

1.1. Background

The term ‘riparian’ comes from the Latin word ‘riparius’ which means “of or belonging to the bank”. Karisa (2010) further defines a riparian reserve to be the interface between land and a flowing surface water body. Section 2 of Land Act defines the riparian reserve to mean “the land adjacent to the ocean, lake, sea, rivers, dams and water courses”. Also, the Water Act 2002 defines riparian zone as “land lying within a distance equal to the width of the water course with a minimum of 2 meters and a maximum of 30 meters.” From the foregoing, it is evident that the approach used by different laws is diverse in order to cater for specific interests that are meant to be addressed by that particular law.

The riparian area in Kenya is owned by the person and or entity who owns land bordering water bodies such as streams, rivers, lakes and ocean. The riparian owner enjoys certain rights like ownership of the land up to the center of the water course, the riparian owner enjoys the right of water to flow onto the land in its natural quantity and quality and the right to protect property from flooding and land from erosion and the duty of pass on the flow of water without obstruction, pollution or diversion affecting the right of others.

Riparian areas are commonly thought of as those lands bordering water bodies such as streams, rivers, and lakes. They include areas that are adjacent to and hydrologically connected to rivers and streams through overland surface runoff, inundation during floods, or subsurface flow. They also encompass flood prone areas, wildlife corridors, associated riparian soils, and wetland communities.

Riparian areas serve as an interface between surface water bodies and terrestrial ecosystems and play a crucial role in helping to maintain the quality and ecological integrity of highlands open

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1. Webster New Universal Unabridged Dictionary, 1976
2. Land Act No. 6 of 2012
waters. This closeness with adjacent waters is an intrinsic part of the structure and functioning of riparian areas. In an ecologically healthy landscape, streams and their riparian areas form an inseparable unit—the stream corridor. The stream corridor encompasses not only the active river channel, but also the exposed bars and areas of pounded water near the channel, as well as the floodplain surfaces above and outside the channel banks. Riparian areas are “ribbons of life” since they are considered the most productive habitats. For instance, in the arid western United States, riparian areas are estimated to occupy around 2 percent of the total land area. In Arizona riparian area covers up to 0.4 percent of the land. Currently, most of the world’s cities with population above half a million reside along the coast and 10 of the world’s largest cities occupy coastal, estuarine or lacustrine sites.

This biologically distinctive area that borders the waterfront with the diverse vegetation that grows along streams, rivers or reservoirs acts as a protective buffer between the land and the water. Riparian areas are unique ecosystems that provide a great variety of services to humans and the environment. Their uniqueness is due to their semi-aquatic characteristics, since they are ecotones between terrestrial and aquatic ecosystems.

Riparian’s areas protect water quality by capturing, storing and treating water through their soils before it gets to steams. A thick growth of diverse vegetation plant residues covers the soil surface and non-compacted soil facilitates water capture.

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www.highlands.state.nj.us/njhighlands/.../9_7_06_council_minutes_revision assessed on 6.10.2014


6 Ibid p 453


Health stream banks with high water tables provide water storage capacity, health growing plants take up nutrients that are transported into the riparian areas, soil organic matter captures and facilitates degradation of contaminants’ healthy riparian area with a diversity of plant species are most effective in slowing the flow of water and storing it for future use hence the need to conserve the riparian area that is able to provide the storage of water and protect the riparian zone.

The big negative effect of degrading of the riparian areas is stream flushing which occurs when runoff is heavy following an intensive storm or rapid snowmelt and this leads to stream levels rising rapidly after the flood stage.\(^9\)

The ability of riparian areas to stabilize stream flow levels throughout the year is critical to the survival of many fish and other aquatic species. Stable water levels provide water temperature required for the growth of aquatic organisms that they use for foods.\(^10\)

A river channel or riparian area that is disconnected from its riparian area cannot store water and accumulates sediment, thus losing many of its ecological functions.\(^11\) Riparian zones are significant in ecology, environmental management, and civil engineering because of their role in soil conservation, their habitat biodiversity, and the influence they have on fauna and aquatic ecosystems, including grassland, woodland, wetland or even non-vegetative grounds. However rivers, streams, and lakes and their attendant riparian systems have been utilized for centuries, generally with limited knowledge about the environmental consequences of such actions on either current or subsequent generations and as a result of this there has been massive degradation of this habitat.

Over the years, the riparian areas in Kenya have been put under pressure due to Urban subdivisions, Country residential developments, Cottages ,Farm buildings, Golf courses

\(^9\) Ibid 8
\(^11\) Ibid.p16
Commercial buildings, Storm water ponds, Roads and dikes and other structures, temporary land uses such as sand and gravel pits, human settlements, industrial activity, and urban agriculture\textsuperscript{12}.

The main effects of degradation of the riparian environment in Kenya are habitat loss, solid waste, liquid waste, and raw sewage disposal in the areas. For instance, three Nairobi Rivers; the Nairobi river, Mathare river and Ngong river which their riparian zones have numerous informal settlements without adequate sewerage and sanitation services.

In most cases, the rivers have been used to discharge raw sewage. Additionally, most of the industries find it cheaper to discharge their effluent into the rivers without any satisfactory treatment.\textsuperscript{13} The role played by riparian zones can only be sustained if this ecologically sensitive environmental resource is managed sustainably for the benefit of present and future generations. Riparian buffer strips entail vegetated areas adjacent to water sources that protect aquatic environment from excessive sedimentation, surface runoff, pollutants and contaminants from adjacent landscape.

For effective functioning, riparian areas should be protected and kept healthy. Placing permanent and even temporal structures in riparian areas not only compromises riparian function, but puts people and property at risk from flooding, unstable ground and other dangers. Developing riparian zones can lead to undesirable outcomes such as altered drainage and sedimentation processes, bank instability and aggravated soil erosion, introduction of invasive species, habitat loss, and other visual impacts. In many cases, development near water will be constrained by an active flood plain and topographic factors such as steep slopes and unstable ground. Keeping development back from such hazards will in most cases be sufficient for avoiding riparian areas.

The legal and policy framework of a country plays a key role in sustainable management of riparian resources. In Kenya, however, the law on riparian zone protection is not in a piece of a

\textsuperscript{12}Karisa Charles (2010), Negotiated Rehabilitation of Riparian Zones, 46\textsuperscript{th} International Society Of City And Regional Planners Congress 2010 held in Nairobi Kenya p 16.

\textsuperscript{13}Karisa Charles(2010), Negotiated Rehabilitation of Riparian Zones; 46\textsuperscript{th} Congress International Society Of City and Regional Planners Congress 2010 held in Nairobi Kenya p 18,

1.2 Statement of the Problem
Questions such as why, where, when and how planning and planners have responded to the use of land in riparian zones are yet to be comprehensively addressed. The high demand for land, issues of competition and greed has made economic and social activities to be engaged in riparian zones\textsuperscript{14}. The available legal mechanisms have not fully addressed this emerging danger and even the role of the government as a planner is a matter of concern and ought to be addressed.

The environmental legislation framework in Kenya is marked by a series of legislations on environment protection which are scattered across different laws or Acts of Parliament. This is associated with various aspects of the environment policy cutting across different institutions and different mandates in the respective regimes\textsuperscript{15}. This loophole in scattered law has led to legal and policy vacuums earmarked with uncoordinated implementation of sectoral and management plans in environmental protection. Legal fragmentation has greatly affected protection of riparian zones.

The laws that deal with policies important to riparian management are: Environment Management and Coordination Act (EMCA) 1999, the Water Quality Regulations (WQR) (2006), Water Resources Management Rules (WRMR) (2007), the Agricultural Act (Cap318), Forest Act, 2005, the Land Act 2012, the Water Act, 2002 and the Wildlife (Conservation and Management) Act 2013. Survey act cap 299, National Land Commission Act 2012, Wildlife Conservation And Management Act. Therefore, it can be noted that there is no single legislation

\textsuperscript{14}Space Contestation in the Riparian Zone of Nairobi of Nairobi CBD Ngara Section, (2009). available \url{https://www.academia.edu/4219098/Space_Contestation_in_the_Riparian_Zone_of_Nairobi_CBD_Ngara_Section} 2009 ( Last accessed on 12/03/2015)

\textsuperscript{15}Kenya Vision 2030,
on riparian zone protection or a national environmental legal, policy and institutional framework that provides for proper use and management to ensure the sustainable management of Kenya’s riparian areas. EMCA 1999 serves key environmental framework law and it is augmented by the Constitution 2010\textsuperscript{16} which proposes sound conservation and protection of ecologically sensitive areas. The Constitution 2010\textsuperscript{17} further creates an obligation on the state and persons to ensure sustainable use of the environment and natural resources and to establish “environmental impact assessment, environmental audit and environmental monitoring processes\textsuperscript{18}”.

The performance of the above mentioned laws have been hindered by their contradicting mandates, uses and management regimes. Therefore, lack of a proper legal, policy and institutional framework encompassing the interests of government and riparian stakeholders in the use and management of the riparian areas needs to be solved to promote sustainable riparian areas management. Also, due to continued and aggravated degradation of the riparian zones, the legal regimes and regulations, and policy framework providing for its protection needs to be revisited to ascertain the extent to which it meets its intended objective of sustainable management of the riparian zone for the present and future generations as it is enshrined in the United Nations Conference on Human Environment, Stockholm\textsuperscript{19}.

1.3 Research Questions
This study shall be guided by the following research questions:

1. What is the legal, policy regulatory framework governing riparian zone protection in Kenya?
2. To what extent does the existing legal and policy regulatory framework protects riparian zones in Kenya?
3. What factors hamper riparian zone protection in Kenya?
4. What reforms are necessary in the legal and policy regulatory framework to foster riparian zone protection in Kenya?

\textsuperscript{16} Article 60 (1) (e), Constitution of Kenya 2010
\textsuperscript{17} Article 69, Constitution of Kenya 2010
\textsuperscript{18} Supra note 14
\textsuperscript{19} Principles 1, 2, 3, 9 and 11 Declaration of the United Nations Conference on the Human Environment, Stockholm 5\textsuperscript{th} to 16\textsuperscript{th} June 1972 (accessed on 12\textsuperscript{th} September 2015)
1.4. Purpose and Objectives
This study aimed at achieving the following purpose and objective:

1.4.1 Purpose
The purpose of this study was to examine the legal and policy regulatory framework that exist in Kenya governing riparian zone protection and analyze the extent to which they promote or hinder riparian zone protection. The study will further analyze the factors that impede riparian zone protection and propose possible reform areas. This will be broken down into four specific objectives:

1.4.2 Objectives
i. To critically analyze the existing legal and policy regulatory framework governing riparian zone protection in Kenya.
ii. To critique the extent to which the existing legal and policy regulatory framework governing riparian zone protection protects the riparian reserve.
iii. To examine the factors that hamper riparian zone protection in Kenya.
iv. To make proposals for reform towards effective riparian zone protection in Kenya.

1.5 Research Hypothesis
The study presumes that the existing legal and policy regulatory framework on riparian zone protection in Kenya have not adequately provided for proper regulations that can promote and protect the riparian zones in Kenya. The study also presupposed that, due to the myriads of statutory legislations touching on riparian zone protection, it is imperative that it is almost impossible to execute the mandate due to divided roles among the series of legislations.

1.6 Research Justification
Riparian zone forms a critical part of the environment which continues to be under threat; given its fragile and sensitive nature. It continues to face dire consequences of human interference through, discharge zone of industrial and household wastes, pollution, encroachment, and large scale agriculture among others. Thus this study plays a key role in contributing towards creating solutions for sustainable management and utilization of riparian areas.
This study seeks to contribute to the body of knowledge on riparian zone protection in Kenya against the environmental principle of sustainability. The research findings are important in providing information necessary towards adopting necessary legal and policy reform towards effective riparian zone protection towards environmental sustainability.

1.7 Scope of the study
This research examined, interrogated and criticized the role the various laws and policies in the protection and conservation of the riparian reserves under the Constitution 2010. In this regard, the research will analyze flaws in the existing laws and propose appropriate changes in the law. The study will explore amendments which may be put in place for the protection of the riparian areas in line with the Constitution 2010. Further, the research will propose the reforms that could be taken to make developmental institutions comply with environmental practices, laws and policies under the Constitution 2010.

1.8 Study Limitations
Key impediments that the Researcher encountered in the course of this study include:

i. Limited availability of both primary and secondary information on this subject. There exist limited studies that have been undertaken on riparian protection in Kenya. However, the Researcher shall endeavor to obtain all information to enable him present a credible study at the end of the study.

ii. Financial and time constraints: The riparian zones in Kenya provide a vast study target that would require substantial time and resources to collect data. This is expected to be a major constraint to the study. Larger volumes of conventions, articles and papers required a lot of analysis and study for examining the relevant materials touching on the riparian area.

1.9 Research Methodology
This Chapter outlines the methods to be used in carrying out this study. The methodology, data needs and sources and finally data analysis method adopted. The study is library-based and involves analysis and review of relevant primary and secondary data on riparian area regulations and protection and the inadequacy in various Kenyan legislation to address the riparian areas and
as compared with other certain countries which have better legislation that have addressed the riparian area activities.

In this regard, the research will entail exploration of primary and secondary material including books, articles, and other relevant literature on the law on riparian area protection in Kenya and elsewhere in the world. The study will, also, analyze legal instruments including the main statutes and delegated legislation further it will encompass published works of renowned authors on the subject, downloadable internet materials and riparian area publications. It will also critically look at the Constitution of Kenya 2010, existing laws on environment regulation and protection statutes and environmental judicial decisions.

1.10 Data Needs, Methods and Sources
Data and information that was collected included both from primary and secondary sources. This study include surveying existing literature, articles, reports, agreements, treaties and data from various international and governmental organizations on riparian areas protection. Primary data and secondary data shall be collected from information available in the library and the internet.

1.11 Data Analysis
Given the nature of the method, content analysis will be employed as it tends to be more descriptive, summarizing apparent facts, rather than explanatory (attempting to clarify a given interpretation). Moreover, content analysts tend to look at the manifest or surface content of texts because these elements are less subject to interpretive variation that might undermine reliability and generalizability. The Research shall also analyze the data collected in line with the Research questions and research objectives thematically as a guide to ensure that the research actually answers the questions posed at the beginning of the study. Finally, the Research has made recommendations from the data collected and critically examined.

1.12 Expected Output
This research endeavored to evidently:

- Illustrate the various laws, policies and international instruments that govern management of riparian areas in Kenya.
Illustrate how the involvements of the various policies, legal and institutional frameworks have/haven’t led to sustainable management of riparian areas in Kenya.

Illustrate and recommend the need for a holistic legal and policy framework encompassing holistic enforcement and coordination to achieve sustainable riparian areas management in Kenya.

1.13 Theoretical Framework

There is a growing recognition that the resilience of social–ecological systems is being undermined by human activities, and there are many indications that new approaches to both understanding and managing change are needed\(^{20}\). Human activities on land and gas emissions are contributing to potentially unprecedented environmental changes\(^{21}\). These changes create challenges in terms of the protection of environmental resources including the riparian area that citizens might expect from the state. Social contracts, which have served as an important conceptual tool for managing the relationship between citizens and states in western liberal democracies, will be discussed in this context. They have been presented both as a cause of social and environmental problems, and as a possible solution.

Given the complex and far-reaching impacts of climate change on ecological systems, it is time to discuss the potential role of social contracts as a remedial response to a changing climate. The social contract theory postulates that morality consists in the set of rules that govern or regulate behavior that is acceptable by rational people, provided others accept them also\(^{22}\).

In the environmental context, the state should promulgate rules and regulations that govern human conduct in relation to the surrounding environment. If human beings are left to live in a


state of nature, the results, especially on environmental resources, may not be favorable for the existing, leave alone the future generation. In the case of Anthony A Oposa v/s Factoran, a suit was filed by Mr Oposa and 43 minors in 1993 seeking to protect the environment mainly forests resources as man was just a trustee of the environment of the future generation and was allowed by the Supreme Court of Philippines.23

The realities and potential dangers of human-induced climate change add a sense of urgency to discussions and debates about social contracts. The potential for dangerous climate change has led to urgent calls for action, including reorganization of the society to better enhance human well-being and enable societies at all levels, from local to global, to grapple more effectively with complex problems such as environment degradation, widespread impacts of climate change extending beyond national borders and influencing both present and future generations, raise new questions of responsibility and compensation for citizens and government.24

The principle of sustainable management of riparian areas borrows from the environment principle of sustainable development. It provides that development projects should meet the needs of the present without compromising the ability of future generations to meet their own needs.25 Hence sustainable management of riparian zones ensures that riparian communities utilise these ecosystems in ways that serves them without reducing the resources to minimal levels and that the ecosystem is also able to manage its functions both for present and the future generations.

To attain sustainable management of riparian areas therefore, the state should put in place legal and policy frameworks that govern the use and the utilisation of the riparian zones. Also, the


current threats and challenges facing the riparian areas ought to be addressed by the state and propose solutions towards protection of sustainable management of riparian areas. As noted earlier there are many divergent laws and management stakeholders interested in riparian areas thus leading to overlaps in the mandates.

These overlaps lead to misuse and mismanagement of the riparian areas. Such divergent mandates and uses need to be collated under a National Riparian areas Programme which will lead to sustainable management of riparian areas. The state has the responsibility of regulating and moderating infrastructural development such as buildings of roads, ports, railways, information communication technology, pipelines, irrigation systems, residential and commercial houses, airports and electricity transmission which takes place along riparian areas.26

1.14 Literature Review

Charles Karisa in his article, A negotiated framework for rehabilitation of riparian zones in Nairobi city: The Case of Mathare River Valley, 46th ISOCARP Congress, 201027, notes that Nairobi riparian zones are under attack from human settlements, industrial activities, and agricultural activities in urban areas. He attributes degradation of the riparian environment to loss of habitat, solid and liquid waste, and raw sewage disposal. He further notes that riparian reserves of the three Nairobi Rivers; Nairobi river, Mathare River and Ngong river have informal settlements which lack adequate sewerage and sanitation services. More often than not, the rivers have been used to discharge raw sewage.

Karisa observes that most of the industries find it cheaper to discharge their effluent into the rivers without any satisfactory treatment. According to UNEP Report of 2003, the Nairobi River Basin houses above 50% of Kenya’s manufacturing and service enterprises and is the most polluted river basin in the country, showing that it is one of the riparian areas under siege and the institutional and legal frameworks are yet to address the threat.28

26 National Environmental Policy, Government of Kenya, revised draft of 13th February, 2013 by the Ministry of Environment and Natural Resources. Available at www.environment.go.ke.
27 https://www.uonbi.ac.ke/charles_karisa/negotiate
Karisa notes that several policy approaches and interventions have been explored on Nairobi riparian areas with mixed results. The government has tried through a series of agencies to resolve the problem of riparian occupation and degradation by addressing several components including land use which mainly touch on access to use of land and security of tenure, especially by the urban poor.

The government participated in the drawing memoranda of understanding with communities; korogocho slum upgrading programme and the kibera slum upgrading programme on squatting on government land as well as land sharing with communities squatting on private land like the Waitiki farm in Mombasa in order to regularize security of tenure and expand land area under the low income. However, most of the landless have found easy target in riparian areas as land for settlement. The government has tried land use planning and development control which led to the implementation of the Nairobi Metropolitan Growth strategy. The government also tried housing and shelter improvement to avoid encroachment on riparian areas.

It has also involved international organizations and civil society organizations via the partnership model and has seen the inception of several pilot projects. For example the main objective of Nairobi River Basin Programme (NRBP) is a restored river in ecosystem with clean water for the capital city and a healthier environment for the people of Nairobi. Karisa notes that the main challenges in riparian protection are due to the fragmented legislation, institutional overlaps, inadequate capacity, and lack of land bank and Low level of awareness.

In the Article Observing Changes in Riparian Buffer Strip Soil Properties Related to Land Use Activities in the River Njoro Watershed, Kenya (E. M. Enanga, W. A. Shivoga, C. Maina-Gichaba and I. F. Creed 2004), water sustainability depends on ecosystem structure and function and in Kenya and the existing water policy ignore water as an ecosystem service. The rural communities are increasingly encroaching on riparian areas, forest reserves, and commercial

agricultural areas for their own pasture and crop production. This trend has persisted in the face of persistent dry conditions and decreasing water flows in rivers serving Kenyan rangelands, despite the recognition that these actions will impact the communities that depend on the rivers’ ecosystem services. Baldya T. J. recognizes the fact that riparian buffer strips have become an integral part of watershed management in American and European landscapes.

Riparian buffer strips are marked to be the vegetated areas which are adjacent to water sources and other waterways that protect aquatic environments from surface runoff pollutants, excessive sedimentation, and contaminants from the adjacent landscape. Decker R. C further notes that in many parts of Africa, riparian buffer strips are not used and scientific support for using riparian buffer strips to mitigate changes in water resources is needed within African landscapes. In traditional African culture, there is no separation of people from nature since nature and people are viewed to be the same. Lelo F K observes that the practice of cultivating within riparian areas poses a significant threat to the ecosystem.

With an increasing human population and increased intensity of adjacent land use due to increased commercial agricultural activities, there is need to pay more attention to these areas to ensure that they are not overburdened. Magana A B observes that in River Njoro Watershed, the riparian area provides resources to local communities and supports critical downstream watershed services, the river has a narrow strip of indigenous riparian vegetation averaging about 15–20 meters, and some sections have been completely cleared to provide access to the stream. With the current changes in population and climate, Magana AB argues for the need of a

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32 Decker, R. C. (2003). Current regulations, guidelines and best management practices concerning forest harvesting and riparian zone management. Buffer zone working group literature review, fisheries and oceans Canada, science, oceans and environment branch, environmental sciences section, St. John’s, NL, Canada.
legislative framework to protect this riparian zone. Magana A B underscores the fact that there is no proper institutional and regulatory machinery in place to remedy the danger posited.

Vermont Agency of Natural Resources Waterbury, Vermont 2005 on their technical paper entitled ‘Riparian Buffers and Corridors’ note that the zones are unique in their high biological diversity and the states within which this riparian zone are located ought to ensure sustainable exploitation of this riparian zones. Very E S observes that the zones are characterized by frequent disturbances related to inundation, sediment transportation, and the abrasive and erosive forces of water and ice movement that, create habitat complexity and variability resulting in ecologically diverse communities.

To note is the fact that Riparian areas are not only important plant and animal habitat, but also contribute to the health of the waters near them. Very E S observes that downed wood, leaves, and other organic material that riparian areas contribute to aquatic systems are important components of the food base and habitat structure in Vermont’s water bodies. The Article notes that the riparian zones are under a serious threat due to various human activities such as agriculture and settlement. These calls for an international regulatory framework which can ensure that the resources within these zones are used in such a way that promotes sustainable development.

1.15 Chapter Breakdown

Chapter One is the brief background of this research study. Outlines, the statement of the problem, the Research questions and objectives that the study seeks to meet. It brings out the significance of the study and existing literature on the subject. It further illustrates the hypotheses adopted by the researcher, the research methodology to be adopted to ensure the objectives of the research are met and finally the limitations in the study.


Chapter Two is devoted to a comparative study, examining protection of riparian areas on specific countries as an important component of the environment. It attempts to bring out international and regional instruments if any that seek to protect riparian areas and highlights key provisions therein in order to highlight the best practices in riparian protection.

Chapter Three discusses the legal and policy framework in Kenya that governs management of riparian areas. It brings out the provisions of the various pieces of legislations on the issue of riparian areas. The challenges that the implementation of the laws have faced together with the inadequacies that contributed to the proper implementation of the law in the protection of the riparian area in Kenya.

Chapter Four details out the impediments to sustainable management of riparian area protection in Kenya. This Chapter undertakes a Strengths, Weakness, Opportunities and Threats analysis of the existing legal and policy framework. It concludes by bringing out other factors that also hamper riparian area protection.

Chapter Five is the concluding chapter. It undertakes to give the general conclusion of the theses and gives an outline of the research findings as against the Research questions earlier outlined to ensure the research questions are answered. It finally makes recommendations and proposals towards effective management of Kenya’s riparian areas.
CHAPTER TWO: PROTECTION OF RIPARIAN ZONES: A COMPARATIVE ANALYSIS OF THE VARIOUS LEGISLATION IN CERTAIN COUNTRIES.

2.0 Introduction
As observed from chapter one of this research paper, riparian zones are a very critical part of the physical environment. The zones are currently being invaded by human beings who have opted to conduct various economic activities such as farming, establishment of industries and plants, and even settlement in these areas. There is a dire need to ensure that the resources within these zones are sustainably used so that they can be able to serve the current and future generations. Without proper utilization of these zones, there is likely to be an overuse and depletion which will finally lead to adverse changes of the surrounding environment.

Despite the greatest importance of riparian zones, it has been noted that between 70 to 90 percent of this zones have already been lost or have been degraded due to various human activities and or are in the verge of collapse. These necessitates that states should plan for and implement a number of strategies to save this zones, conserve them and provide a long-term stewardship for this important habitat. Riparian areas serve as both buffers and corridors and such zones which are not mowed, undisturbed, and naturally habituated buffers ought to be maintained. The buffers assist in protecting water quality and provide for aquatic life.

This chapter will focus on a comparative analysis of riparian zone protection between Kenya and other countries, focusing on South Africa, Tanzania, Canada, United States of America and New Zealand to establish the milestones they have moved to protect these delicate zones. In doing so, the chapter will analyze the legal, policy and institutional frameworks that have been put in place by the preferred countries to achieve the mentioned objective. The chapter will finally have a brief conclusion on the analysis carried out.

2.1 SOUTH AFRICA

2.1.1 Introduction
South Africa has 2,798 kilometers (which is equal to 1,739 miles) of coastline that stretches along the South Atlantic and Indian oceans. South Africa is the 25th-largest country in the world by land area, and with close to 53 million people, is the world's 25th-most populous nation. Also, the country has a vast area that can be categorized as a riparian zone in its interior which is in constant attack by human settlement.

2.1.2 Legal Framework
The Constitution of the Republic of South Africa provides the right to environment. It provides that everyone has the right to environment which is not harmful to their health or well-being. The citizens have the right to have the environment protected for the benefit of the present and future generation and this is achieved through a reasonable legislation measures. These measures prevent pollution and ecological degradation; promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. The South African Constitution fails to provide for a clear constitutional proviso on environment protection. Therefore, the South African Constitution forms the basis under which protection of various ecologically sensitive areas can be protected even though it does not directly make the most relevant provisions. By guaranteeing the citizens the right to clean environment, it indirectly prohibits such activities that can make various environments uninhabitable. This includes encroached riparian zones.

South Africa has in place The National Water Act which is aimed at establishing a balance between the use and protection of water resources, in which the entire aquatic ecosystem is recognized as a water source. This legislation has gotten a wider interpretation in which case the

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40Article 24, the Constitution of South Africa, 1996
41South African National Water Act; Act 36 of 1998
definition of an aquatic ecosystem is meant to include the full range of goods and services that an ecosystem provides. Under the legislation, all water resources are under the custody of the national government to ensure proper and uniform regulation. There is no individual ownership of water but only a right or authorization to use or utilize\textsuperscript{42}.

The law defines riparian zones to mean “the physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterized by alluvial soils, and which are inundated or flooded to the extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those adjacent areas\textsuperscript{43}.

The Act\textsuperscript{44} provides that “the state should ensure that the water resources are protected, used, developed and conserved, managed and controlled taking into consideration the basic needs of the present and future generation, equitable access to this resources, social and economic development, the public interest, the growing demand for water resources, ecosystem and biological diversity.” The Act also provides that the State is under derivable duty to meet its international obligations on environmental issues.

This is in line with upholding the principle of sustainable development. Even if the Act\textsuperscript{45} vests protection of such resources in the hands of the citizens, this resources are basically held by the state in trust for its citizens. The public trust doctrine has served as a legal tool that encapsulates the state’s fiduciary responsibility throughout the Act\textsuperscript{46}. The Act also gives every citizen the right to access the existing water resources.\textsuperscript{47} This section brings utilization of water related resources to international standards.


\textsuperscript{43}Section 2, South African National Water Act; Act 36 of 1998

\textsuperscript{44}Section 2, South African National Water Act, Act 36 of 1998

\textsuperscript{45}Section 3, South African National Water Act, Act 36 of 1998


However the International Covenant on Economic, Social and Cultural Rights of 1996 fails to specify that the right to this resource falls in the category of guarantees for securing adequate standards of living. Further, African Charter on Human and People’s Rights provides for the state parties to the charter to take necessary measures to protect the health of the people, but access to water resources is not adversely mentioned.

The National Environment Management Act lays down basic principles that are very crucial in protection of riparian zones. The Act provides that environmental management must place their needs at the forefront of its concern and should be able to serve their physical, developmental, psychological and social interests equitably. This means that an environment management practice should not go against the common needs of the citizens. Any environment development should also be environmentally and economically sustainable. Sustainable development requires that some relevant factors such as reduction of disturbances of ecosystems and loss of biodiversity is minimized. Also, exploitation and use of non-renewable natural resources such as riparian zones should be used equitably and responsibly, and should take into account the consequences of depletion of these resources.

The National Environmental Management: Protected areas (amendment) Act 57 of 2014 whose main purpose is to provide for the protection and conservation of ecologically viable areas is a key representative of South Africa's biological diversity and its natural landscapes and seascapes and for the management of those areas in accordance with national norms and standards; for intergovernmental co-operation and public consultation in matters concerning protected areas is the most narrowed law to riparian protection.

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48 Article 16(2), of the African Charter on Human and People’s Rights of 1981
49 Act No. 107 of 1998
50 Section 2(2), National Environment Management Act. Act No. 107 of 1998
The Act\textsuperscript{52} defines protected area to mean nature reserve or protected environment which is managed by a municipality. In the Act, management with regards to protected areas includes control, conservation, protection, maintenance and rehabilitation of this areas putting into regard the use and extraction of biological resources, in a manner that is consistent with the Biodiversity Act. With this provisions that are almost meeting the need to protect the riparian area in South Africa, the act falls short of defining what a riparian area or zone is setting the standard limits and taking into account the various water frontiers that touch on the riparian zone like riparian river, riparian sea, riparian ocean and riparian lake limit. The Act does not also include riparian zones as national protected areas but mentions coastlines only. The Act\textsuperscript{53} mandates the minister responsible for environment to maintain various protected areas which include marine reserves.

Declaration of those protected areas is made mandatory in order to protect the ecologically viable areas. Also this assists in preserving the integrity of these areas, conserve the biodiversity, and protect ecologically sensitive zones among others\textsuperscript{54}. The Act also requires for declaration of marine protected areas which will assist in prohibiting some activities that are ecologically sensitive in this area\textsuperscript{55}.

This is bold and positive step towards protecting the riparian zones. Amendment should be made to this Act to provide for the current challenges that are faced in environment protection. Also, the issue of legal fragmentation is observed since there are many laws that regulate environment protection in the riparian area and a clear definition of the riparian area with strict guidelines by the parties interested in carrying out activities within this area.

Therefore, as it can be noted from above, the laws in the Republic of South Africa have drawn recognition to the protection of the riparian area rights related to environment. The Constitution accords the citizens the right to a clean environment. The other laws have a number of provisions that address environment as a whole. Therefore the lead institutions rely on indirect provisions to handle the issue of sustainable use of riparian zones.

\textsuperscript{52}Section 1, National Environment Management: Protected Areas Amendment Act 21 Of 2014  
\textsuperscript{53}Section 10, National Environment Management: Protected Areas Amendment Act 21 Of 2014  
\textsuperscript{54}Section 17, National Environment Management: Protected Areas Act Amendment Act 21 Of 2014  
\textsuperscript{55}Section 22A, National Environment Management: Protected Areas Amendment Act 21 Of 2014
2.2 Republic of Tanzania

2.2.1 Introduction
The Republic of Tanzania has wide areas that can be classified as riparian zones. The country harbours some of the largest lakes like Tanganyika and very important rivers that cut across the Country. It also enjoys a long coastline towards the Indian Ocean at the West. Without adequate laws to protect such areas in close proximity or associated with this riparian zones, there may be loss of useful natural resources along this zones. The state has laid down a number of institutional and regulatory frameworks to protect these zones.

2.2.2 Institutional Aspects of Sustainable Development in Tanzania
In Tanzania, the Office of the Vice President is the one that is responsible for the Environment. It harbors the Department of Environment which is responsible for the development of policy options, and coordination of environmental programmes and projects. It facilitates meaningful involvement of the civil society in environmental activities. The office performs the duties and responsibilities of environmental research, environmental policy making, environmental planning, environmental monitoring, and environmental coordination of both national and international environmental issues. There is an established National Environment Management Council (NEMC), by an Act of Parliament which advises Government in issues of environment in relation to the activities that support the United Nations Conference on Environment and Development Agenda 21\textsuperscript{56} in pollution prevention and control; environmental education and carrying out public awareness, and finally natural resource conservation and management.

\textsuperscript{56} Agenda 21 is a non-binding, voluntarily implemented action plan of the United Nations with regard to sustainable development. It is a product of the Earth Summit (UN Conference on Environment and Development) held in Rio de Janeiro, Brazil, in 1992. It is an action agenda for the UN, other multilateral organizations, and individual governments around the world that can be executed at local, national, and global levels. The "21" in Agenda 21 refers to the 21st Century.
2.2.3 Legislation

The Constitution\textsuperscript{57} stipulates that every person has a right to life and to the protection of life by society. The High Court of Tanzania, in the case of \textit{Festo Balegele v. Dar es Salaam City Council}\textsuperscript{58} interpreted the Article to give it a meaning that all the citizens are entitled to a healthy environment. This Constitution obliges the Government to ensure that national resources are harnessed, preserved, and applied toward the common good\textsuperscript{59}, reflects the government commitment towards sustainable development. Tanzania relies on the common law; principles of equity; statutes of general application; Islamic law in some instances; customary law; international conventions to which Tanzania is a party; constitutional law; and principal, subsidiary, and case law, as its sources of law. Like Kenya, Tanzania has a several legislations which govern issues related to the environment.

The existing legislations include the Mining Act (1979), Fisheries Act (1974), Water Utilization and Control Act (1974), and the Forest Ordinance (1959) which are currently undergoing review to ensure that they promote sustainable use of resources. Most of those statutes that can be termed as environmental statutes are merely exploitative statutes. This is because they generally deal with exploitation of existing resources.

The Environment Management Act\textsuperscript{60} was passed by the Tanzanian National Assembly in 2004\textsuperscript{61} which was assented in 2005 and repealed the National Environment Management Council Act, 1983. The Act has various provisions for institutional and legal frameworks to protect the environment. Section 4 of the Act\textsuperscript{62} guarantees every citizen a right to a clean environment. Also, it provides that the courts should be guided by the principles of sustainable development and the

\textsuperscript{57}Article 14, the Constitution of the Republic of Tanzania (1984).
\textsuperscript{58}(Misc. Civil Case No. 90, 1991)
\textsuperscript{60}Act No. 20 of 2004
\textsuperscript{61}The first draft of Environment Management Act. 2004 was released in November 2003 and it was subject to consultation that involved 140 stakeholders from diverse sectors, districts and regions. Comments and suggestions from those works were the one that were used to produce a second draft of the Act which was considered by the cabinet and was submitted in the National assembly in 2004. The Act gives detailed measures for protection of ecological processes, environmental protection and sustainable utilization of resources.
\textsuperscript{62}Section 4, Environment Management Act 2004
principle of intergenerational and intra-generational equity when dealing with environment issue\textsuperscript{63}. The Act also imposes duty on the citizens to safeguard and protect the environment. They are under obligation to report to the relevant authority of any activity or phenomenon which is likely to affect the environment\textsuperscript{64}. The Act specifies swamps to be environmentally sensitive areas hence should be protected.\textsuperscript{65} Most importantly, the Act empowers the Minister responsible for environment to declare riparian zones such as rivers, riverbanks, lakes, lakeshores and shoreline to be protected areas. Consequently, the Minister can impose restrictions necessary for protection of these zones from environmental degradation. Furthermore, the Council and Local Governments have been mandated to issue guidelines on protection of riparian areas\textsuperscript{66}.

In conclusion, the Tanzanian Constitution does articulate environment protection issues widely, this has been well provided under the Environment Management Act of 2004. The Act has well addressed the protection of riparian zones as it has been seen from declaration of this zones as protected areas and even allowing councils to issue guidelines for sustainable use of resources around riparian zones.

2.3 New Zealand

2.3.1 Introduction

New Zealand has vast areas that can be categorized as riparian zones. Proper institutional and legal mechanisms are necessary to protect these ecologically sensitive areas. Resource management and conservation in New Zealand is a very critical social responsibility. The Resource Management Amendment Act 1993 and the Conservation Amendment (No.2) sets out a base for resource management. The requirements under this Acts have a direct influence on how riparian zones should be protected. In this section, the paper will focus on analyzing the two Acts and how they impact on riparian zones protection.

\textsuperscript{63} Section 5, Environment Management Act 2004
\textsuperscript{64} Section 6, Environment Management Act 2004
\textsuperscript{65} Section 52, Environment Management Act 2004
\textsuperscript{66} Section 54, Environment Management Act 2004
2.3.2 Resource Management Act 1993

Part II of the Act provides a broad framework for environmental management. The resources mentioned include land, water, plants, animals and soil. The Act focuses on promoting sustainable development of natural and physical resources. Sustainable management within the confines of the Act refers to management of resources so that they can be able to promote the wellbeing of citizens of the present and future generations within environmental limits. The Act addresses the need to remedy or mitigate any adverse effects on the environment.

This forms the basis under which the authority can advance to protect riparian zones even if they are used to promote economic and social well-being of the members of the society. The Act cites protection and preservation of the natural character of wetlands, lakes and rivers and their margins as a matter of national importance. These areas are part of riparian zones.

The Act lays down a direct implication of riparian zone management which lays a requirement for maintaining and enhancing the environment and protecting of trout and salmon habitats when decisions are being made about development, use, and protection of resources. This can be achieved by appropriately implementing riparian management strategies.

Part III of the Act is very important because it imposes duties and restrictions. Planting or introduction of any plants and disturbance, removal or, damage or destruction of plants or the habitats of any plants or animals in or under the bed of any lake or river is criminalized unless the same is expressly allowed by regional plan rules or by a resource management content. In this case, the term bed includes varying portions of the riparian zones. The environment management is also tasked to avoid, remedy or mitigate any adverse effects on the environment that arise from activities undertaken.

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67 Section 5(1), Resource Management Act 1993
68 Section 5 (2), Resource Management Act 1993
69 Section 6(a)(Part II), Resource Management Act 1993
70 Section 6© and 7 (h), Resource Management Act 1993
71 Section 13 ©, Resource Management Act 1991
72 Section 17, Resource Management Act 1991 as read with the means of enforcement of individual duty spelt out in Sections 314 and 322, relating to Enforcement Orders and Abatement Notices respectively.
2.3.3 Regional Council Responsibilities

They are supposed to prepare regional policy statements to regulate conflict between the use, development or protection of natural and physical resources or mitigation of such conflicts. They also restore and enhance natural and physical resources which are in a deteriorated state or mitigation of such deterioration. The Act also establishes councils with authority to control the use of land for purposes of soil conservation, or to maintain and enhance the quality of water in water bodies.

Therefore, from the foregoing discussions on the Act, regional councils can make rules for management of riparian zones for instance rule that prohibit grazing 20m of an open watercourse. However, section 32 of the Act is an impediment since such rule will not be able to stand scrutiny. In most cases, regional councils adopt education tools and incentives to protect various aspects of the environment. They also give expertise priority to educate the community on good practices along riparian zones.

2.3.4 Conservation amendment Act 1993.

The Conservation Amendment Act (No.2) 1993 promotes conservation of natural and historic resources. Conservation in the context of the Act means the preservation (maintenance of intrinsic values) and protection (maintenance of current state which also includes augmentation, restoration of current state, expansion or enhancement) of natural and historic resources and safeguarding them for the good of future generations.

Natural resources include animals and plants, the air, soil, landscape and landform, geological features and systems of living interacting organisms and their environment. Part III of the Act deals with Conservation Areas which include land, foreshore, and part of banks of rivers, creek covered or uncovered by the flow and ebb of tide at ordinary springs. The Act empowers the Minister to identify Specially Protected Areas. Such include Water Course Areas, marginal

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73 Section 65(3) (a), (b), (f), (h), Resource Management Act 1991
74 Section 30, Resource Management Act 1991
75 Section 23 Conservation Act, 2003
strips\textsuperscript{76} which are pieces of land that lie on the high side and within 20m of any foreshore, of any lake exceeding 8ha or any bay or inlet of this lakes and along the bank of any river or stream that has an average height of 3meters or more. The provisions for Marginal Strips are undergoing review currently. Therefore, it is true that this Act and other laws regulating and protecting the environment are doing a great deal in protecting riparian zones.

2.4 Canada

2.4.1 Introduction
Canada stands as one of the world’s most water wealthy nations. However, the country lacks when it comes to proper protection of river banks and other riparian zones. There are no river’s line flow regime due to a series of activities that are carried out along river banks. River’s flow regime serves as a natural pattern of high and low flows, just like blood pressure in human body, which is a vital indicator of overall ecosystem health\textsuperscript{77}.

Healthy rivers provide a variety of goods and services to Canadians which they tend to take for granted. They are a reliable water supply, they are a source of fish and other types of foods, they assist in water purification, and they have cultural, spiritual and recreational values\textsuperscript{78}. This necessitates the need to protect these ecologically sensitive areas especially by addressing mechanisms that are available to protect riverbanks and other areas adjacent to these water sources.

The Brisbane Declaration\textsuperscript{79} took the view of identifying environmental flows as the quantity, timing and quality of water flow required to sustain freshwater and estuarine ecosystems and human livelihoods and well-being that depends on these ecosystems. Without proper

\textsuperscript{76} Section 24 Conservation Act 2003
\textsuperscript{78} Ibid at p4
\textsuperscript{79} Proclaimed at the 10\textsuperscript{th} International River symposium and Environmental Flow conference held in Brisbane, Australia, on 3-6 September 2007
management of riparian zones, free flow of water will be hampered. The Government of Canada has put in place various laws that are aimed at protecting these ecologically sensitive zones.

2.4.2 The Canadian Environment Protection Act 1999.

The main object of this Act is to ensure that various aspects of the environment are protected. The Government of Canada has been empowered by the Act to deal with various aspects that indirectly ensure sustainable use of resources that are along riparian zones. Under the Act, the Government should exercise power in such a manner that protect the environment, human health and foster application of the precautionary principle. The Government should also adopt preventive and remedial measures to protect, enhance and restore the environment. This can also refer to prevention of settlement in ecologically sensitive areas such as riparian areas. Further, the various social and economic decisions made by the Government should be informed by the need to conserve and protect the environment. Finally, the Act imposes an obligation on the Government to ensure that there is public consultation and citizen participation when dealing with decision making on environmental issues.

The Act creates a National Advisory Committee. The Committee advises the Minister in charge of Environment on proposed laws and regulations that can be a good mechanism for protecting the environment. The Act adopts the precautionary principle in environment dealings. Therefore, the Act fails to make adequate provisions in relation to protection of riparian zones.

The Act relies on general principles that can be indirectly applied to control activities carried out along river banks such as the precautionary principle. Finally, the committee has been empowered to make recommendations in relation to new laws and regulations aimed at curbing misuse of land and water resources. If this power can be utilized, it can form a basis under which riparian zone protection rules and regulations can be formulated.

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80 Section 3, Canadian Environment Protection Act 1999
81 Ibid, section 6
82 See Section 691)(1.1) of the Act
2.4.3 The Water Act 1985
Under this Act\textsuperscript{83}, the various projects which are carried out in streams on around water courses need approval. This is done by seeking an approval from the Regional Water Management Office which has been given power to give or deny such approvals. These approvals regulate the various activities that can be carried out on such areas together with the times for carrying out such projects. The office can restrict the nature of work that should be carried out within a stream. For instance, in the Fraser River estuary, an approval from Fraser River Estuary Management Program (FREMP) is mandatory and this approval incorporates the approval under the Water Act.

Therefore, the Canada Water Act forms a sound ground under which the projects or works carried out along riparian zones can be regulated. The only setback with the Act is that it tends to focus more on activities done on or inside the water sources and sidelines those on riverbanks.

2.4.4 Dike Maintenance Act, Cap 95
The main object of the Act\textsuperscript{84} is to regulate building of dikes. The Act\textsuperscript{85} has established the office of Inspector of Dikes who has the powers to enter into any land and carry out the objects of the Act. The Act also allows private individuals to carry out inspections to carry out inspection of dikes. Finally, the Act makes it an offence to change water flow in dikes with a fine of 200,000 pounds or 12 months imprisonment.

2.4.5 Navigable Water Act (1985)
The Act\textsuperscript{86} prohibits construction, placement, altering, repair or rebuilding of structures along navigable waters except as provided in the Act. The Act further requires that erecting structures on around navigable waters require special permission.\textsuperscript{87} The applications for permission to construct such structures are done to the minister and they are processed upon payment of application fees. The Minister assesses the characteristics of the navigable water in question,

\textsuperscript{83} Canada Water Act R.S.C., 1985, C. C-11
\textsuperscript{84} Dike Maintenance Act (RSBC 1996) Chapter 95
\textsuperscript{85} Ibid section 2
\textsuperscript{86} Section 3, Canada Navigation Water Act R.S.C 1985
\textsuperscript{87} Ibid section 4(1)
safety of navigation, current and anticipated navigation and finally impact of the work of navigation. The minister can cancel approvals obtained fraudulently.\textsuperscript{88}

Therefore, Canada does not have the law that adequately regulates activities carried out in riparian zones. All the relevant statutes fail to define what a riparian zone is. This means that the zones are protected by applying provisions of the environmental laws which indirectly refer to riverbanks and coastlines.

\textbf{2.5 United States of America}

\textbf{2.5.1 The United States Constitution}

The Constitution of the United States of America has always been on constant attacks for being interpreted to mean that it is not environment protection friendly. This is partly attributed to its preamble that that does not in any way alludes, to sustainable development or protection of the environment. However, the Constitution guarantees every citizen a right to an environment which is not harmful to their health or wellbeing. The Constitution also advocates for protection of the environment for the present and future generation and this is achieved through reasonable legislations that: prevent pollution and ecological degradation, promote conservation, secure ecologically sustainable development and use of natural resources while justifying economic and social development.\textsuperscript{89} Therefore, the US Constitution forms a basis under which various aspects of the environment can be protected.

Various laws have been enacted to augment the Constitution with regards to protection of natural resources. However, these laws are enacted at state levels. In this case, the State of Columbia will be used as a case study for the rest of the states.

\textbf{2.5.2 The State of Columbia}

The rules and regulations relating to protection of riparian zones have been enacted under Section14 of the Fish Protection Act. The parent Act defines a protected river as a river

\textsuperscript{88} Ibid Section 7(1)

\textsuperscript{89} Section 24, The Constitution of the United States of America 1789
protected within the meaning of section 4(1) of the Act. Section 4 (1) of the Act has a list of rivers that are protected and some activities such as erection of buildings, agriculture and construction of dams along these rivers is illegal.

Section 41 of the parent Act restricts depositing of debris into rivers, stream channels or areas that are adjacent to rivers or streams. This section directly prohibits any dealings along riparian zones that may end up discharging harmful substances along riparian zones. The section further prohibits any attempt by persons to have such substances being deposited on these protected zones.

The Riparian Area Regulations of Columbia was enacted pursuant to the provision of Section 14 of the Fish Protection Act. The regulations define riparian to mean streamside protection and enhancement area.\textsuperscript{90} The regulations further define riparian assessment area to mean; for a stream, 30 meters strip on both sides of the stream, measured from the high water mark; for a ravine less than 60 meters wide, a strip on both sides of the stream measured from the high water mark to a point that is 30 meters beyond the top of the ravine bank.

The purpose of the regulations are to establish directives to protect riparian areas from development so that the areas can provide features that can support natural resources and life fish processes, and to facilitate intergovernmental cooperation in implementation of the regulations.\textsuperscript{91}

The regulations provide that before commencement of a project on riparian areas, an assessment must be carried and this is done by the local government safe for a few exceptions mentioned in Subsections 2 and 3 of the regulations.\textsuperscript{92} These exceptions include a notification of approval from Ministry of Fisheries and Oceans.

In conclusion, the United States has gone a milestone in protecting riparian areas. Apart from the constitutional mechanisms that have been put in place to protect the environment, the states have

\textsuperscript{90} Section 1, Riparian Area Regulation, Province of British Columbia, approved on 27 July 2004
\textsuperscript{91} Ibid section 2
\textsuperscript{92} Ibid section 4
gone steps ahead to formulate riparian area regulation rules which play a crucial role in protecting riparian zones.

CONCLUSION

As it has been discussed from the foregoing, the countries that have been used as case study have made a tremendous step towards protection of riparian areas. However, Tanzania and South Africa are also gambling with the issue of fragmentation of environmental laws since both have a plethora of laws governing this aspect. Also, most of the laws discussed from the two countries above lack in debt provisions for riparian zone management and protection. However, the Tanzanian, National Environment Management Protected areas Act (2004) is a milestone towards protection of these riparian zones. The Act fails to identify what riparian zones are but nonetheless a series of crucial provisions that protect the riparian zones are in existence.

In the context of New Zealand, protection and management of riparian areas are widely directly and impliedly articulated. There is adequate provision for this. However, Section 32 of Resource Management Act is an impediment since it can be used to defeat guidelines that have been put in place to protect riparian areas by the council.

2.7 Regulation of Land use on Riparian Zones: International Legal Framework

At international level, primary management and protection of river line and riparian zones is vested in national and local control. The national sphere is both protected and limited by international law: states can exploit their lands, waters and other resources in relation to their environmental laws and policies but they are under duty to ensure that such activities do not cause harm to other states or common space.\(^93\) Also, there are in place specific treaty obligations which further define the rights and duties and they also endorse responsibility of states in relation to the environment.

\(^93\) Principle 21 of the Stockholm Declaration on the Human Environment, U.N.Doc.A/CN.48/14/Rev.1,11 I.L.M 1420(1972), also included in art.3 of the Biodiversity Convention, and generally accepted as a rule of customary international law today
National water, land and other resource management policies are analyzed in relation to a number of protection goals and means that states have adopted in international level. For instance, reference can be made to the recommendation that was adopted during the Dublin International Conference on Water and Environment. This recommendation, in relation to protection of aquatic ecosystems and fresh water resources, various nations are urged to “plan and implement environmentally sound management of aquatic and terrestrial ecosystems including catchment and riparian forests, wetlands, riverine floodplains and associated freshwater and estuarine habitats as integral component of comprehensive water resources development.”

The most recognized regulatory mechanism is the establishment of protected area networks and integration of ecological values (diversity, productivity, and dynamics) to protect threatened zones.

Protected area approach can be traced back to establishment of Yellowstone National Park in 1872. However, this has currently undergone modification and diversification. The listing of such ecologically sensitive areas is notable in conventions such as Ramsar Convention on Wetlands, and the World Heritage Convention. Zoning can also be used as a better mechanism to protect riparian areas and other ecological corridors. This involves regulating uses

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95 Act of March 1, 1872, 17 stat, 32

96 The Commission on National Parks and Protected Areas (CNPPA) of the World Conservation Union (IUCN) has developed a protected area classification system according to the level of human presence in the area. The categories constitute a continuum between Scientific Reserves, Strict Nature Reserves, and Multiple-use Management Areas/Managed Resource Areas. IUCN, CATEGORIWS, objectives and criteria for protected areas (1978).

97 Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Feb.2, 1971, T.I.A.S No 11084, I.L.M 969(1972) (entered into force Dec.21, 1975) hereinafter known as Ramsar Convention. The List of Wetlands of International Importance is maintained by the IUCN under articles 2(1) and 8 (1) of the Ramsar Convention.

of land to adjust them to the particular characteristics and purposes of an area. Therefore, the existing international legal instruments can play an important role in protecting riparian zones. Even if there is no specific instruments addressing riparian zones, conventions such as Ramsar Convention, Stockholm Convention and Biodiversity Convention indirectly apply to protect the riparian zones.

The Commission on National Parks and Protected Areas (CNPPA) of the World Conservation Union (IUCN) has developed a protected area classification system according to the level of human presence in the area. The categories constitute a continuum between Scientific Reserves, Strict Nature Reserves, and Multiple-use Management Areas/Managed Resource Areas. IUCN, Categories, Objectives and Criteria For Protected Areas (1978).

The first draft of Environment Management Act. 2004 was released in November 2003 and it was subject to consultation that involved 140 stakeholders from diverse sectors, districts and regions. Comments and suggestions from those works were the one that were used to produce a second draft of the Act which was considered by the cabinet and was submitted in the National assembly in 2004. The Act gives detailed measures for protection of ecological processes, environmental protection and sustainable utilization of resources to which Kenya should adopt.
CHAPTER 3: ANALYSIS OF LAWS PROTECTING RIPARIAN AREAS IN KENYA: A CRITICAL PERSPECTIVE

3.1 Introduction
The protection of the Riparian area in Kenya falls within the area that is public area that ought not to belong to any party in exclusivity, the Cok, National Land Policy 2009 and the Sectional Paper Number 3 Of 2009 has mandated the management of public land in the National Land Commission. The commission is required to manage public land on behalf of the national and county government; recommend a national land policy to the national government; to conduct research related to land and the use of natural resources and make recommendations to the appropriate authorities; to monitor and have oversight responsibilities over land use planning throughout the country for the purpose of redressing the land issues in Kenya going by the history of the problems in relation to land use and acquisition.

The National Land Commission hence has an upper hand in relation to the management of riparian area in terms of allocation of land adjacent to the river line and in conjunction with other bodies and it ought to have a strong framework and policy legislation to control any use of land adjacent to the riparian area.

The policy that are to be formulated in Kenya ought to be adopted by various agencies and institutions in different legislation regimes that are mandated to regulate land use and planning in Kenya; National Environmental Management Authority, Environmental Management Coordination Act 1999, Physical Planning Act Cap 286(Amended in 2012), Survey Act Cap 299, Water Act of 2002, county governments as enshrined in the Kenyan constitution 2010 Chapter 11.

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100 National Land Commission Act 2012
101 Article 67(2) of The Constitution Of Kenya 2010
102 Article 67(2) of The Constitution Of Kenya 2010
Therefore there are a plethora of laws that provide a very important source of laws and regulations that play a critical role in protecting riparian zones in Kenya. This chapter will in detail discuss the various laws and its sections that have been legislated to fulfill this purpose.

As noted earlier, the legal, policy and institutional framework on environment has been spread across a series of legislations. In trying to analyze these laws, this chapter will bring into perspective this fragmented laws and draw the most critical provisions that are of utmost importance to riparian zone protection. The Biodiversity Convention as an international instrument for instance urges parties to promote environmentally sound and sustainable development on adjacent areas to enhance protection required by riparian areas.

3.2 The Constitution of Kenya 2010

The constitutional provisions for environmental management are not new, and already existing in other countries, environmental provisions were outlined, albeit superficially in the previous constitution of Kenya. The current constitution’s innovation is the presentation, in greater detail, of obligation in respect of specific natural resources, as well as the human as the human aspects of environment management.

The Constitution of Kenya 2010 provides for the national values and principles of governance\textsuperscript{103}. The principles generally bind all State Organs, state officers and public officers when interpreting the Constitution, enacting and implementing the public policy decisions. One of the principles enshrined in the Constitution is sustainable development. Therefore the constitution ensures that the existing resources should be utilized in such a manner that it can benefit both the current and future generations. This is key provision to protecting riparian areas that risk extinction due to encroachment by human beings.

The Constitution of Kenya 2010 further guarantees and provides the right to a clean and healthy environment which includes the right to the environment protected for the benefit of the present and future development. This underscores the principle of sustainable development\textsuperscript{104}. Whence,

\textsuperscript{103} Article 10, Constitution of Kenya 2010
\textsuperscript{104} Article 42, Constitution of Kenya 2010
this indirectly reflects and focuses on the need to protect riparian zones from encroachment. It is imperative that when riparian zones are attacked by human beings who establish farms and manufacturing plants in this areas, the resulting impact is that the effluents from this factories and homes end up being discharged into the streams which not only infringe, threaten and violate the right to safe and healthy environment but also endangers the fauna and flora in such an ecosystem.

The constitution has gone a milestone to address the issue of land and environment in Kenya that have always been regarded as being emotive. The Constitution provides that land in Kenya ought to be held, managed and used is such a manner that is equitable, efficient, productive and putting into regard sustainable and productive management of land resources, sound conservation and protection of ecologically sensitive area\textsuperscript{105}.

The riparian zones are now categorized as being ecologically sensitive zones and ought to enjoy the full protection of the law. They should be used in such a manner that is efficient and sustainable so that they can be protected to serve the interests of the generations to come. Further, the State can regulate the use of any land or any interest in or right over any land, in the interest of defense, public safety, public order, public morality, public health or land use planning\textsuperscript{106}.

The state should ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources and ensure the equitable sharing of the accruing benefits. The State is also under responsibility to ensure that at least 10 percent of the land should be under forest cover. The state should encourage public participation in the management, protection and conservation of the environment. It should eliminate processes and activities that are likely to endanger the environment.\textsuperscript{107} Therefore, the Constitution tasks the state with a very big responsibility to ensure that riparian areas, being part of endangered environment, are protected and activities which amount to encroachment and consequential interference of this zones are curtailed.

\textsuperscript{105} Article 60, Constitution of Kenya 2010
\textsuperscript{106} Article 66, constitution of Kenya 2010
\textsuperscript{107} ibid
Article 42 Cok provides that; every person has a right to a clean and healthy environment, which includes the right to; have the environment protected for the benefit of the present and future generations through legislative and other measures particularly those contemplated in article 69 and to have obligation relating to the environment fulfilled under Article 70

Article 69 of Cok provides that the state shall ensure sustainable exploitation, utilization management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits and establish systems of environmental impact assessment, environmental audit and monitoring.

Further that every person has a duty to cooperate with the state organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources.

Article 70 Article 71 of the Cok stipulates that If any person alleges that a right to a clean and health environment recognized and protected under Article 42 has been, is being or is likely to be denied, violated, infringed or threatened, the person may apply to a court for redress in addition to the any other legal remedies that are available in respect to the same;

On application for environmental redress, any person may seek the Court to give directions it considers appropriate to prevent, stop, discontinue any act or omission that I harmful to the environment.

Any transaction relating to the environment is subject to ratification by parliament if it involves the grant of any right or concession by or on behalf of any person, including that national government to another person for the exploitation of natural resources of Kenya.

The above provisions are very comprehensive and prospective in terms of environmental protection and exploitation and more so the right to use the natural resources which include the right to the natural resources emanating and or within the riparian area.
The enactment of EMCA 1999 was a milestone in promoting sustainable environmental management in the country. The Act provides for the harmonization of several sectoral statutes, which address aspects of the environment. Some sectoral statutes have inadequate provisions for prosecution of environmental offenders, while some penalties are not sufficiently punitive to deter offenders. EMCA, 1999 provides an institutional framework and procedures for management of the environment, including provisions for conflict resolution.

To start with the Act provides that “Every person in Kenya is entitled to a clean and healthy environment and has the duty to safeguard and enhance the environment." Therefore, the Act is intended to ensure that human activities do not compromise the capacity of the resource base to meet the needs of the present generation as well as those of future generations. This is applicable in protecting riparian zones.

The Act also seeks to protect lakes, rivers and other water resources. A person cannot erect, reconstruct, place, extend, remove or demolish any structure or part of any structure in or under the river, lake or wetland. The minister responsible for environment is allowed, by notice in the Gazette, to declare a lake shore, a wetland, coastal zone or river bank to be a protected area and consequently impose such restrictions as he may consider necessary. While the minister is declaring such zones protected areas, he should consider the geographical size of the lake shore, coastal, and the interest of the community in the place. The section seems to just provide only a single mechanism of riparian zones protection vide the gazette notice and it is not an obligation to be carried out but discretion to the Minister. The minister also by gazette notice is supposed to discretionary issue regulations that govern the conduct of activities on riparian areas. This includes guidelines for access and exploitation of living and non-living resources in the continental shelf, territorial sea and Exclusive Economic Zone. The Act also provides for protection of traditional interests of local communities which are around a lake shore, wetland, coastal zone or riverbanks.

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108 Section 3, Environment Management Act 1999
109 Section 42, Environment Management Act 1999
110 ibid
94 Section 43, Environment Management and Coordination Act, 1999
3.3.1 Institutions Created Under the Act
A number of institutions have been established in the Act to provide particular services which are aimed at furthering the object of the Act. These institutions play a crucial role not only in protecting and managing the environment but also form a basis under which riparian zones can be protected. These institutions are succinctly discussed below.

3.3.2 National Environment Tribunal
Part XII of the Act establishes National Environment Tribunal to review administrative decisions made by NEMA relating to issuance, revocation or denial of licence and conditions of licence. It can also give legal opinion to NEMA on complex matters where the Authority seeks such advice. In addition, the Tribunal has powers to change or give an order and direction regarding environmental issues in dispute.

3.3.3 National Environment Council (NEC)
The National Environment Council is chaired by the Cabinet Secretary responsible for of Environment matters. Other members of the Council are: The Permanent Secretaries responsible for matters in the First Schedule of the Act, namely: agriculture economic planning and development, education, energy, environment, finance, fisheries, foreign affairs, health, industry, law or law enforcement, local government, natural resources, public administration, public works, research and technology, tourism and water resources; the Representatives of public universities; specialized research institutions; the business community and non-governmental organizations. The Director General NEMA is the Secretary of the Council.

The key functions of NEC are policy formulation and direction for the purposes of the Act. Also, it Set national goals and objectives and determine policies and priorities for the protection of the environment. NEC also assists in Promoting cooperation among public departments, local authorities, private sector, non-governmental organizations and such other organizations engaged in environmental protection programs. It also performs other functions as assigned in the Act.

112 Section 125(1), Environment Management and Coordination Act, 1999
3.3.4 National Environment Management Authority

The Authority is established under the Act, as the principal instrument of government in the implementation of all policies relating to the environment. The Authority became operational on 1st July 2002 following the merger of three government departments, namely: the National Environment Secretariat (NES), the Permanent Presidential Commission on Soil Conservation and Afforestation (PPCSCA), and the Department of Resource Surveys and Remote Sensing (DRSRS).

The authority’s core functions are coordinating environmental management activities which should be undertaken by the lead agencies. It also promotes the integration of environmental considerations into development policies, plans, programs and projects, with a view to ensuring the proper management and rational utilization of environmental resources, on sustainable yield basis, for the improvement of the quality of human life in Kenya. It takes stock of the natural resources in Kenya and their utilization and conservation. It also establishes the land use guidelines. It also examines land use patterns to determine their impact on the quality and quantity of natural resources. NEMA also carries out surveys, which assist in the proper management and conservation of the environment. Other functions of NEMA include advising the Government on issues to do with international conventions that deal with the environment.

3.3.5 Environment Management and Co-ordination (Wetlands, Riverbanks, Lakeshores and Seashores Management) Regulations, 2009

These are regulations created under EMCA 1999. Parts III of the regulations provide the basic framework that can regulate utilization of resources to all river banks, lakeshores and seashores in Kenya. The main objects of the part are to facilitate sustainable use and conservation of resources on river banks, lake shores and seashores to ensure they benefit the people in the area. It also promotes integration of sustainable use of riparian zones and also prevents siltation. The regulations provide that resources that are along riparian areas should be utilized in a manner that is sustainable.

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113 Section 7, Environmental Management and Coordination Act (EMCA) No. 8 of 1999
3.3.6 Public Complaint Committee

This committee is charged with administrative mechanisms for addressing environmental harm by carrying out periodic reports on allegations and complaints of environmental degradation. It also prepares and submits to NEC periodic reports of its activities.

3.3.7 Other subsidiary legislation in support of EMCA

There are other subsidiary legislations supporting the EMCA in riparian area management, this include environment management and coordination (wetlands, riverbanks, lakeshore and seashore management) regulation 2009, environment management and coordination (water quality) regulations of 2006, environment management and coordination (waste management) regulations 2006, environment management and coordination conservation of biodiversity (BD) regulations of 2006.

This subsidiary legislation has helped to supplement the EMCA act on management of riparian areas from any threat to the area and set down various regulations for the management, use and sustainable exploitation of the resources without interfering and wasting the said resources.

3.4 The Water Act, 2002

The main purpose of this legislation is to regulate how water is utilized in the country. It is the main statute that regulates water use as a resource. There are a few provisions in the Act that are relevant to protection of riparian zones. The Act defines a riparian habitat to mean the dynamic complex of plant, animal and micro-organisms communities and their non-living environment which are adjacent to and associated with the water course. 115

Water as a resource is vested on the State which regulates how it should be used. 116 The Act establishes the Water Resources Management Authority (WRMA). 117 The functions of the authority include making principles, guidelines and procedures that are used in allocation of water resources. The authority is also responsible in managing water resource management

strategies. It further protects water resource quality from various adverse impacts. It finally has the obligation of managing and protecting water catchment areas.

3.12 Water resource management rules 2007

The rules define riparian to mean land which by virtue of the proximity of the land to a water body management obligations shall be imposed on the owner of the land. The riparian area is further defined as the land on each side of the watercourse with a minimum of six meters or equal to the full width of the water course up to a maximum of thirty meters on either side of the bank.

The rules impose management controls on land use for water resource quality. The riparian area limit differs from one water course to another under the water resources management rules 2007 as follows:

- The width of the watercourse shall be equal to the distance between the top edges of its banks;
- The riparian area shall be measured from the edge of the bank of the watercourse and it will apply to seasonal and perennial watercourses;
- The riparian land adjacent to a lake, reservoir or stagnant body of water is defined as a maximum of two meters vertical height or 30 meters horizontal distance whichever is less from the highest recorded water level;
- The riparian land adjacent to the eye of a spring shall be minimum radius of 3 times to a maximum radius of 15 meters as measured from around the edge of the spring;
- The riparian area adjacent to the ocean shall be defined as maximum of 2 meters vertical height or 30 meters horizontal distance from the high water mark whichever is less.

The activities within the riparian areas are regulated and controlled in the by the authority which requires that no activity shall be undertaken by the riparian owner or user without the permission of the authority and any user or riparian owner may upon showing good cause request the authority in writing undertake to undertake a proscribed activity and if the same is undertaken without permission it amounts to an offence.

The proscribed activities prohibited on the riparian area include; tillage or cultivation, clearing of indigenous trees or vegetation; building of permanent structures; disposal of any form of waste within the riparian land; excavation of soil or development of quarries; planting of exotic species that may have adverse effect to the water resource.
The water resources and management rules provide for demarcation of the riparian boundary of any water course or body on any land by the authority upon a request by the riparian owner by placing permanent recognizable beacons at his or her expenses at sufficient interval to adequately represent the line of the riparian boundary.


The National Land Commission was established pursuant to the Cok Article 67(1) and its functions were provided for under article 67(2) to; to manage land for and on behalf of the national and county governments; recommend national land policy to the national government; advise the national government on a comprehensive programme for the registration of title in land throughout Kenya; conduct research related to land and use of natural resources and make appropriate recommendations; to monitor and have oversight responsibilities over land use planning throughout the country118.

Arising from the above mandate, the national land commission is one of the agencies that ought to advise the government and take control measures touching on land use, planning, allocation and exploitation of the natural resources on and within the riparian area and wetlands.

It is the duty National Land Commission when allocation un-aliendated government land to either individual or any entity to set special conditions that will be used to protect the riparian land. This will be achieved through prohibiting any activity that is likely to cause damage to the riparian area. Further the allocation of the land where the riparian area is involved shall not include the riparian zone as forming part of the title but can be annexed to the title to be held in trust for the state.

Should the riparian owner desire to use any part of the riparian area, then there must be approval from the relevant authority of the activity about to undertaken pass through environmental impact assessment to ascertain whether the activity is likely to cause any damage to the riparian zone of not.

For an already registered land, the national land commission may write to the minister for land to gazette any area as riparian land and move to protect the said land by declaring it as a protected area.

The Land Act The riparian reserve to mean the land adjacent to the ocean, lake, sea, rivers, dams, water courses as provided under the survey act. Cap 299 or any other written law.

The Physical Planning Act 2015, the mandate of initially designing for the allocation of any land begins with the department of the physical planning. Hence the protection of the riparian should begin when the area is subjected to regulations on the user of the land in any area. This will be milestone in protection the riparian area by not including the riparian area into the allocation of any land to any person or entity for user.

The Survey Act Cap 299 provides that when surveying of any land fronting any water body, a strip of land to be known as riparian reserve shall be surveyed and reserved for government purposes as prescribed. This provision does not set out the limit of riparian area but a reading together with the Land Act; it also refers the definition of the riparian area to mean the area as defined by the Survey Act. This is the inadequacy that this research seeks to remedy for proper management of the riparian area and sustainable use.

Surveying of land is critical to as it defines the boundary of any piece of land but of the surveying process itself fails to provide the limit of riparian area, this simply opens up the riparian resource to misuse and abuse hence improper sustainability.

The Agriculture (Farm Forestry Rules) 2009 under the agriculture act cap 318 provides for the establishment and sustainable management of farm forestry for the purposes of;– maintaining a compulsory farm tree cover of at least 10 percent of any agricultural land holding; conserving water, soil and biodiversity; protecting riverbanks, shorelines, riparian and wetland areas; sustainable production of wood, charcoal and non wood products; providing fruits and fodder; and carbon sequestration and other environmental services.

That each and every person who owns or occupies agricultural land shall establish and maintain a minimum of 10 percent of the land under farm forestry which may include trees on soil conservation structures or rangeland and cropland in any suitable configurations. no tree species planted or any variety planted shall have adverse effects on water sources, crops, livestock, soil fertility and the neighborhood and should not be of invasive nature. The landowner or occupier shall not grow or maintain any Eucalyptus species in wetlands and riparian areas.
The Kenya Wildlife (conservation and management) Cap 376\textsuperscript{119} as established plays an important role in regulating marine ecosystems including riparian areas along the seashore, protection of the country’s water catchment areas found within parks and reserves, these areas constitute habitat for wild animals. Three of the Kenya’s five water towers; the Abardare Ranges, Mount Kenya; Mount Elgon are all found within the protected areas.

Wildlife crimes in Kenya includes poaching, banditry, encroachment into protected areas, illegal trafficking and trade in flora and fauna and the destruction of the water catchment areas and wildlife habitats.

The Convention of Wetlands of National Importance (Ramsar Convention) 1975 is an international treaty for the conservation and sustainable utilization of wetland, recognizing the fundamental ecological functions of wetlands and their economic, cultural, scientific and recreational value.

The Ramsar definition of wetlands is fairly wide including areas of marine water the depth of which at low tide does not exceed 6 meters as well as fish ponds, rice paddies and salt pans\textsuperscript{120}.

Kenya has listed 5 sites as Ramsar sites to conform with the requirement for it to be listed as aparty to the Ramsar Convention, the wetland areas; Lake Baringo, Lake Bogoria, Lake Elmentaita, Lake Nakuru and Tana River Delta have been declared as Kenya’s wetlands under the Convention of Wetlands of National Importance (Ramsar Convention) 1975. This approach will not only create awareness to the need to protect the riparian areas but will also make the riparian areas find its place in legislation.

### 3.14 ENVIRONMENT AND LAND COURT ACT 2011.

\textsuperscript{119}\url{www.kws.go.ke/content/park-rules}
\textsuperscript{120}\url{www.en.m.ramsar_convention.org}
The system of courts envisioned under chapter 10 includes the court established under article 162 to hear and determine issues related to the use, occupation and ownership of land and natural resources. This Court enjoys the status of the High Court. The designation of the environment and land court a superior court demonstrates the prioritisation of the environment issues by the constitution and for the purpose of avoiding conflict with other institutions like public complaints committee and the national environmental tribunal which exists at similar level in the enforcement of rights. This Court came into existence vide an Act of Parliament in 2011.

**CONCLUSION**

From the foregoing, there are number of laws that basically seek to address the issue of riparian zone protection. The constitution has widely laid down a series of provisions that ensure the environment is protected. To start with, it promotes the issue of sustainable use of resources. Consequently, it recognizes the need for its citizens to be subjected to a clean environment hence accords them the right to a clean and health environment. The Constitution also lays down particular important principles for environment protection which are very critical to protection of riparian zones.

Also, the Environment Management and Co-ordination Act, 1999 and the regulations have some provisions that indirectly address the issue of riparian zone protection. For instance, EMCA regulations on Riverbanks, seashores and Lakeshores have attempted to address the mechanisms for protecting such zones. The Act has also established very important institutions such as NEMA, NEC and NET, Public Complaint Commission which play a crucial regulatory role on environment protection.

The WRMA was established to regulate water as are source and it has laid down particular principles for water management that can extend to protection of the resources that are closely associated with water sources. This includes riparian areas that should enjoy some level of
protection to enhance water quality. The Act has established WRMA as an authority that regulate water as a resource.
CHAPTER FOUR: A CRITIQUE OF THE INADEQUACY OF THE LEGISLATIVE FRAMEWORK GOVERNING THE PROTECTION OF SUSTAINABLE MANAGEMENT OF RIPARIAN ZONES IN KENYA:

4.1 Introduction.
The previous chapters have underscored the importance of protecting riparian zones. The chapters have examined best practices in resource management in various jurisdictions. Also, the existing legal, policy and institutional framework have been critically examined. It has been noted that in most jurisdictions there are a plethora of laws that regulate this zones. Kenya also draws from a series of sectoral laws which create confusion. This chapter will basically analyze the inadequacy of the laws that govern sustainable management of riparian area for the environmental protection in Kenya.

Conservation planning in riparian areas requires special consideration, a resource problem within the riparian area may be the manifestation of the upland management decisions planners working with riparian areas should consider soils, the present plant community, the state potential, geomorphology of both stream and water shed, hydrologic regime, fish and wildlife needs the management of areas of the watershed and the producers objective.

In a classical approach to the problems of riparian area degradation the following have been the common sources of riparian degradation; structural modification; stream channel aggradations; stream channel modification; land use/vegetation changes; presence of invasive species; improper livestock grazing management, urban farming, discharge of raw sewerage, construction of commercial buildings, construction of golf course.

4.2 Strengths
The existing laws have prioritized the issue of sustainable development. Article 10 of the Constitution is in place to ensure that the existing resources which include those on riparian areas are used sustainably in order to promote both intergeneration and intra-generational equity. The Constitution underscores the fact the existing resources, as they are being utilized by the current generation, should not lock out the needs of future generations.
The right to a clean and healthy environment is one of the very crucial and formidable rights that a country can accord its citizens. Article 42 of the Constitution provides for this right. For citizens to enjoy this right, they should, among other factors, be exposed to water resource that is clean. Water as a resource cannot be qualified as clean if riparian zones are encroached by human settlement, farming and establishment of industries whose effluents can be directly or indirectly discharged into water sources. Therefore, Article 42 of the Constitution forms a basis under which a citizen can appear before court to seek protection of riparian zones as long as the activities being undertaken on them have and hazardous effect to the environment.

Further the Constitution provides that land in Kenya ought to be held, managed and used in such a manner that is equitable, efficient, productive and putting into regard sustainable and productive management of land resources, sound conservation and protection of ecologically sensitive area. The riparian zones are now categorized as being ecologically sensitive zones and ought to enjoy the full protection of the law. They should be used in such a manner that is efficient and sustainable so that they can be protected to serve the interests of the generations to come. Further, the State can regulate the use of any land or any interest in or right over any land, in the interest of defense, public safety, public order, public morality, public health or land use planning. Therefore, the Constitution has gone a milestone to protect the environment.

EMCA 1999 seeks to protect lakes, rivers and other water resources. A person cannot erect, reconstruct, place, extend, remove or demolish any structure of part of any structure in or under the river, lake or wetland. The minister responsible for environment is allowed, by notice in the Gazette, to declare a lake shore, a wetland, coastal zone or river bank to be a protected area and consequently impose such restrictions as he may consider necessary.

Therefore, there are a number of provisions both in the Constitution, in EMCA1999 and other sectoral laws which can be successfully used to protect riparian areas.

121 Article 60, Constitution of Kenya 2010
122 Section 42, Environment Management Act 1999
4.3 Weaknesses

4.3.1 Fragmentation of Environmental Laws

The natures of laws that deal with environment are sectoral. In other words, every other part of the environment has a particular law governing the resources. For instance, Water as a resource is governed by Water Act 2002, Fish under Fisheries Act and Maritime Act, and Forests under Forest Act and the incidental regulations. This makes it hard for the implementers of the law to implement such laws which adopt different approaches in protecting particular resources. For instance, riparian areas as a resource can fall under the Provisions of EMCA 2009 and at the same time under Water Act 2009. Also, the fragmentation leads to overlapping institutional mandate between institutions such as NEMA and WRMA which are established under different legal regimes.

4.3.2 Lack of proper definition of Riparian Zones.

As observed earlier, there are a number of sectoral laws targeting riparian areas protection. However, these laws adopt different formulations on what a riparian zone is. Section 2 of Land Act\textsuperscript{123} defines the riparian reserve to mean the land adjacent to the ocean, lake, sea, rivers, dams and water courses. Also, the Water act 2002 defines riparian zone as land lying within a distance equal to the width of the water course with a minimum of 2 meters and a maximum of 30 meters. It also defines a riparian habitat to mean the dynamic complex of plant, animal and micro-organisms communities and their non-living environment which are adjacent to and associated with the water course.\textsuperscript{124} Therefore, various laws construe riparian zones in different way which makes the implementation very difficult. Non-uniformity in the laws has hampered protection of these areas.

4.3.4 Discretional Nature in Protecting Riparian Zones.

The existing laws in Kenya have not yet declared riparian zones to be protected areas. The minister responsible for environment has the discretion of declaring such areas to be protected areas as he deems fit. This is one of the discretions that are yet to be exercised. Section 18 of

\textsuperscript{123} Act No. 6 of 2012

\textsuperscript{124} Section 2, Water Act. 2002. Act No.8 of 2002
EMC (Wetlands, River Banks and Sea shore Management) Regulations 2009 provide that in a span of 5 years from the year 2009, NEMA in consultation with the relevant lead agencies was to identify river banks, and lake shores and sea shores which were at the risk of environment degradation. This discretion has never been exercised. The Authority in conjunction with the lead agencies were to prepare and maintain an inventory of river banks, lakeshores and parts of the sea shore which are at risk from environmental degradation, and causes such measures as are necessary to be taken to prevent and reduce degradation in those place. The rules further provide for the need to promote soil conservation measures along river banks, lake shores, and the seashore including building, terracing, mulching, agro forestry, grassing. This has not yet been appropriately implemented.

In the case of *Baljit Sokhi Parmjeet Sokhiv/s Hon Ngilu Cabinet Secretary For Land, Housing and Urban Development Petition number 438 of 2014*¹²⁵, the cabinet secretary issued an oral order stopping the petitioners contractor from developing the land on the basis that the same was being developed on a riparian area, the petitioner approached the Constitutional Court that the said order was unconstitutional under article 10 and article 47 of the Cok. The court on an interim basis quashed the decision of the respondent who was protecting the riparian land from degradation and abuse. This is one of the scenarios in which there is inadequacy of provisions for the protection of the riparian area in Kenya.

### 4.3.5 Institutional Overlaps

Various statutes have laid down particular institutional framework which is meant to protect the environment. For instance, Section 7 of EMCA 1999 has established NEMA which is a regulatory institution on all issues relating to protection of the environment. Also, the Water Act 2009 has established WRMA authority which in not only mandated to protect water as a resource but can also protect lands adjacent to water resources and water catchment areas. Also other sectoral environment statutes have diverse institutions which create confusion when determining the institution which should protect the environment. For instance, confusion will always arise as to whether NEMA (which is a universal environment protection institution) should be the one that regulates activities along river banks which falls under WRMA.

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4.3.6 Inadequate provisions that focus on riparian areas

As observed from the analysis of various laws governing environment, there is no specific provisions that touch on riparian areas. Mostly, there is the tendency to rely on general principles of environmental law and other general provisions from the Constitution and enabling Statutes to protect the riparian zones. The existing provision under EMC\textsuperscript{126} (Wetlands, River Banks and Sea shore Management) Regulations 2009 is too general and discretion. This nature of discretion is pegged on the Minister who is in charge of environment, this may not be exercised hence there may not be adequate mechanisms to protect the zones. Secondly, the discretion left to the minister to gazette riparian zones as protected areas has not yet been exercised which has partially contributed to so many people encroaching and settling on riparian zones.

4.3.7 Opportunities.

The Constitution is still ripe on issues of land and environment. The process of implementation is still underway with specific mechanisms such as Land and Environment Courts being brought into focus. The EMCA law is also yet to be re-visited so that it can be at par with the Constitution. This also can be used as an opportunity to enshrine specific provisions that directly seek to protect riparian areas into place. According to the Land Act, riparian zones are owned by the government and thus fall under the whims of public property. These zones include the vegetation that is growing along rivers. Being a public property, it is even easier for the government to intervene and protect them. These riparian areas are only accessible to all citizens but they are legally government property that should not be encroached into. As seen earlier, different laws define this zones differently. With proper harmonization of these laws, it can be easier to protect these zones.

There is need for declaration of riparian zone as protected area. This is due to the fact that the power to declare such areas as protected zones is discretion in nature and the Cabinet Secretary may or may not exercise it. For instance, Section 18 of the EMCA (Wetlands, River Banks and Sea Shore Management) Regulations 2009 provides that within 5 years, some riparian zones should be declared protected areas. This has not been exercised. The law should be amended to

\textsuperscript{126}Section 18EMC (Wetlands, River Banks and Sea shore Management) Regulations 2009.
have mandatory provisions on declaration of ecologically sensitive areas to be included in the already declared wetlands areas of Kenya; Lake Baringo; Lake Bogoria; Lake Elmentaita; Lake Nakuru and Tana River Delta have been declared as Kenya’s wetlands under the Convention of Wetlands of National Importance (Ramsar Convention) 1975. This approach will not only create awareness to the need to protect the riparian areas but will also make the riparian areas find its place in legislation.

4.3.8 Threats.
Without proper demarcation of the application of sectoral laws and the universal legislation EMCA 1999, there is likelihood that riparian areas may continue being neglected. Also, the zones suffer a threat in the form of the powers of discretional nature that are accorded to the relevant Minister. There is a likelihood that the minister may not gazette riparian zones as ecologically sensitive zones that call for state protection. The outcome will be a continued exploitation which will result to adverse effects.

Also, riparian zone protection can suffer a threat from the difficult of determining which law and/ or institution is to protect particular zones. This is due to the overlapping mandates of the existing laws. Therefore, their ought to be a clear framework, both legal and institutional to ensure that protection of this sensitive zones is adequately provided for.

4.4 CONCLUSION
As it can be seen from the discussions above, there are a number of strengths, weaknesses, opportunities and threats in the laws that govern protection of riparian zones. The strengths are drawn from ample Constitutional provisions and the provisions of EMCA 1999 that not only accords citizens the right to a clean and environment but also lays particular principles that are of essence in protecting riparian zones. However, these strengths are watered down by a series of weaknesses that are conspicuously observed from the existing institutional and legal frameworks. There is overlapping mandates in institutions and laws governing various aspects of the environment and this create confusion. Also, as seen from the above, the minister has discretional powers to protect the zone which is a huddle towards achieving this object.
CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion
A sustainably developed environment is a critical asset to a country that seeks to protect the interests of its citizens. It is true that the country and the environment we have is not ours, we have been entrusted for our children and grandchildren as posited by Anthony Oposa in his environmental search to protect the environmental resources. This calls for some form of caution, action and restraint when dealing with these resources. Riparian zones are at the risk of being depleted. Human beings have encroached this zones and the result is the array of industrial development, mining activities, farming, residential buildings and industrial dumping. The state and the community need to move first and put in place mechanisms to protect such activities on these zones.

Sustainable development is a priority in all laws pertaining to environment. The Constitution of Kenya 2010, in Article 10, acknowledges this principle as one of those that are pertinent to a nation bound to prosper. The Constitution 2010 is categorical to the reality that the existing environmental resources should be utilized in such a manner that they don’t compromise the needs of the generations to come. Also, the right to a health and clean environment forms a basis for health nation. Article 42 of the Constitution 2010 qualifies this right.

The other sectoral laws governing the environment and the resources attached thereto, though being exploitative in nature, have a few provisions that protect various aspects of resources. The most conspicuous setback is that they do not define what riparian zones are. The regions along lakes and river banks have been put under the guardianship of village elders, and chiefs who are not necessarily willing to monitor the use of these zones. The end result is that these zones have been left at the mercy of the community that exploits them without undue regard to the needs of generations to come.

It is clear from the foregoing discussion that the 2010 Constitution and other laws have initiated a paradigm shift in the implementation of environmental rights in Kenya. In contrast to its predecessor, the Constitution strengthens the enforcement of environmental rights, as it significantly expands the scope of fundamental rights as well as their enforcement.
mechanisms\textsuperscript{127}. This can be a better ground to protect ecologically sensitive areas such as riparian areas. Despite this, the process of implementing environmental rights in the country encounters many challenges. However these challenges are still addressable.

The Government should discharge its responsibility of formulating comprehensive integrated mechanisms to regulate activities carried out along riparian areas. The Government ought to promote public participation in decision making and above all organize for continuing environmental education to familiarize its citizens on the effects of encroaching all those zones that can be categorized as riparian areas. Measures also should be put in place to ensure that citizens have an access to information with regards to the activities that should not be carried out along this zones.

Finally, the government should increase resource allocation towards the enforcement of environmental rights and in particular regulating activities along riparian zones. These resources include designated persons across the country that monitor activities carried out along riparian zones. Resources for such purposes should be distributed equitably to all counties and must be made accessible to actors at the grassroots level. It is high time for budgetary allocation for environmental rights implementation to be made a priority in the same way as budgets for other activities in the country. Experience has shown that the restraining of funds for environmental activities has been one of the major hindrances to the implementation of environmental rights.

5.2 \textbf{Recommendations}

In order to protect riparian zones a number of institutional and legal mechanisms should be put in place. The Constitution stands ripe as far as environment issues are concerned. Implementation process is still underway even as the Environment and Land Court are put in place. Other crucial land laws such as Community Land Bill are being enacted to operationalize various Articles and Chapters of the Constitutions. However, the most immediate remedy to solve this quagmire includes:-

1. There should be a single institution tasked with management of activities along riparian zones. The Institutional overlap between different institutions creates confusion and shift of responsibility. For instance, NEMA and WRMA have same functions spelt out for them in relation to protection of these sensitive zones.

2. Consolidation of environmental laws. As noted earlier, various laws that deal with protection of riparian zones are spread across sectoral laws that deal with various aspects of environment. For instance, the Water Act 2009 takes different approach in dealing with riparian zones when compared with others such as Fisheries Act. This creates confusion. These laws should be harmonized in a manner that the a single institution created is able to deal exclusively with the management of riparian area in order to have an effective and common approach.

3. Declaration of Riparian zones as protected areas by the cabinet secretary in charge of land.

4. The existing laws suffer from inadequacy of provisions that deal with riparian zones. In most cases, the sui generis rule has been applied in interpreting those laws so that they can incorporate such zones. The EMCA 1999 and other relevant laws should be revisited to ensure that they have express provisions that deal with riparian zones.

5. Development of geographical information system that will contain data of all the riparian areas in Kenya and the same be blotted which will be used by the approval and enforcement agencies.

6. Creation and separation of the enforcement unit from the approval unit in all the counties in kenya as they are mandated to control planning.

7. Gaze ting of enforcement unit in all the counties.

8. Appointment of the enforcement and approval unit is based on relevant academic qualifications within the planning and legal field.

9. Prohibition of urban agriculture on riparian areas.
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