NATIONAL DEFENCE UNIVERSITY-KENYA

ENVIRONMENTAL DIPLOMACY AND CLIMATE CHANGE ADAPTATION: THE CASE STUDY OF KENYA

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DECLARATION

I Wario Kuduba Guyo declare that this research is my original work and has not been submitted for a degree in any other university.

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DEDICATION

I dedicate this work to my beloved mother, Hawo Wario Kuduba, whose unwavering prayers and constant encouragement have been the guiding light throughout my journey to achieve this significant milestone. Her steadfast support and belief in my abilities have been the foundation upon which I've built my success.

To my cherished family, whose enduring patience and unwavering love sustained me during the long periods of separation while I devoted myself to this research, I offer my deepest gratitude. Your sacrifices and understanding have been the cornerstone of my pursuit, and I am profoundly grateful for your unwavering support.

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ABBREVIATIONS AND ACRONYMS

ASALs	-	Arid and Semi-Arid Regions
AU	-	African Union
BTS	-	Bartlet test of sphericity
EFA	-	Exploratory factor analysis
EIA	-	Environmental Impact Assessment
EMCA	-	Environmental Management and Co-ordination Act
GDP	-	Gross Domestic Product
GHG	-	Green House Gas
GEF	-	Global Environment Facility
KIIs	-	Key Informant Interviews
KMO	-	Kaiser-Meyer-Olkin
MLE	-	Maximum Likelihood Extraction
MSA	-	Measure of Sampling Adequacy
NGOs	-	Non-governmental organizations
OLR	-	Ordinal Logistic Regression
SDGs	-	Sustainable Development Goals
SEAs	-	Strategic environmental assessments
SESAs	-	Strategic Environmental and Social Assessments
SPSS	-	Statistical Package for the Social Sciences
UNCED	-	United Nations Conference on Environment and Development
UNEP	-	United Nations Environment Programme
UNFCCC	-	United Nations Framework Convention on Climate Change
UN	-	United Nations

OPERATIONAL DEFINITION OF TERMS

Adaptation - refers to the act of adjusting to the difficulties brought on by an environmental condition that is evolving, whether that environment is the predicted foreseeable climate or the one that exists now. The goal is to lessen the risks that could result from the negative effects of climate change.

Climate Change - The phrase describes a shift in climate that is either directly or in part linked to human activity, changing the nature of the Earth's atmosphere in along with the natural variability seen over a similar time span (UNFCCC, 1992).

Environmental Diplomacy - This concept relates to gatherings (conventions) that are arranged by international organizations and countries to discuss issues like tackling pollution and the management of biodiversity use.

ABSTRACT

This study provides an in-depth analysis on environmental diplomacy and how it influences climate change adaptation and mitigation in Kenya. Climate change is considered a significant global challenge in the 21st century facing the international organizations. Climate change has detrimental effects on international security alongside global stability. The study's general objective was to investigate the role of environmental diplomacy in advancing climate change mitigation and adaptation in Kenya. The specific objectives were: first to assess Kenya's level of compliance with global environmental treaty obligations; secondly, to determine the role of environmental diplomacy in climate change adaptation in Kenya and third, to evaluate the challenges and opportunities in leveraging Kenya's diplomatic efforts for Climate Change adaptation. The study utilized descriptive research design with the target population being environmental activists, government officials, NGO officials alongside diplomats. Purposive sampling technique was used to identify the respondents, after which proportionate sampling was applicable to categorise the sample respondents into ten per category. A semi-structured and interview guide were applicable as data collection instrument. Factor analysis was applicable with ordinal regression method employed to model the relationship between the ordinal outcome variable and the independent variables with results being presented in form tables and graphs. Thematic analysis was applicable in the analysis of the qualitative data. The key findings suggest that environmental diplomacy has a substantial impact on Kenya's climate adaption measures through facilitating discussions on several bilateral, regional, and international accords. The research emphasizes that successful environmental diplomacy involves the active participation of governments, organizations, and people in addressing climate-related requirements. Furthermore, the study highlights the importance of implementing complete plans that take into account the expenses of adaption and the monitoring of advancements. Suggestions involve strengthening Kenya's diplomatic efforts to enhance cooperation and efficacy in addressing climate change issues. In summary, the research provides vital knowledge on how environmental diplomacy might be utilized to promote climate action in Kenya and similar situations. The study recommends that environmental diplomacy should examine several aspects of implementation on adaptation strategies, including who will bear what costs and how progress may be tracked.

CHAPTER ONE
INTRODUCTION

1.0 Introduction

Chapter one provides an overview of the study, setting the stage, importance, and research emphasis on environmental diplomacy and climate change adaptation in Kenya. This section establishes the foundation for the next chapters, which provide more detailed analysis of the literature, methods, findings, and implications of the research. The chapter lays out the identified problem, the study's objectives, and research questions, justification of the study, study significance, assumptions as well as the scope and limitations of the study.

1.1 Background of the Study

The background of this study provides the context and review of the concept of the research leading to the topic. The section outlines the nature of the issue under investigation, its corresponding context in connection to theory, research, and practice, its scope, and the degree to which earlier investigations of the issue have been successful. It also highlights any areas in which the research may fall short.

1.1.1 Global Perspective

Climate change has emerged as one of the most pressing global challenges. The pursuit of sustainable development is being threatened by climate change on a global scale. This is related to the negative effects that climate change is already having and will continue to have on the environment and on people (Masson-Delmote et al., 2019). This inevitably affects both the availability of food and economic activity. Governments and regional bodies have responded to the climate change discussion in large numbers as it is becoming increasingly obvious that no country can avoid the effects of climate change (Lisinge-Fotabong et al., 2016).

The Earth is already experiencing significant impacts as a result of global warming, including increasing sea levels, acidification of oceans, and more frequent and intense weather events (Constible, 2022; Eissa, 2021; Fry, 2022; Poushter, Fagan & Gubbala, 2022). The fundamental cause of climate change, according to the scientific community, is the generation of greenhouse gases, which are mostly produced by combustion of fossil fuels. Though decades of

international efforts have been made to combat climate change, little has been accomplished (Hornsey & Fielding, 2020). The 2015 signature of the Paris Agreement was a critical turning point in international collaboration to address climate change. But the exit of the United States of America in 2017 from the deal and the absence of notable advancements thereafter have brought attention to the difficulties in tackling climate change on a global scale.

Globally, climate negotiations garner significant interest across nations. This is where parties in meetings such as United Nations climate conferences assist in comprehending the very intricate climate politics through comprehensive summaries of policy concerns, viewpoints of key countries, political processes, and significant decision outcomes (Morin et al., 2020). Further, the global concept of Environmental diplomacy focuses on public communication that specifically addresses international public goods such as ecology and related concerns like global warming and degradation of biodiversity (Morin et al., 2020).

The notion of environmental diplomacy emerged in the late twentieth century in connection with conventions organized between nations and transnational organizations to address issues pertaining to the regulation of natural resource utilization and pollution (Mbengue & Cima, 2022). The matter concerning the environment, its conservation, and measures to address its issues have been established over an extended period of time. Conventions, multilateral treaties, and transnational organizations have gained visibility and received extensive media coverage. However, commercial interests have frequently taken precedence over environmental concerns. The foreign policy of the more powerful states has historically neglected environmental concerns (Morin et al., 2020).

Implementing structural reforms of large transnational institutions, such as the United Nations (UN), could be the most efficient approach to address the climate catastrophe and achieve global environmental governance (Perrez, 2020). An objective that can only be attained by worldwide collaboration. Collaboration is essential for individuals to achieve tasks that are above their own capabilities (Zurba & Papadopoulos, 2023). For instance, issues that are widespread and the administration of resources that benefit the entire world have significant implications for humanity and require collaborative worldwide efforts.

However, it wasn't until the latter part of the 20th century that the international community took substantial strides toward addressing climate change as a global concern. In the subsequent decades, environmental diplomacy evolved into a multilateral endeavour, reaching a pivotal moment with the convening of the Stockholm Summit in 1972—a historic event dedicated to addressing environmental issues on a global scale (Ali & Vladich, 2016; Orsini, 2020). The conference served as the catalyst for worldwide discussion about the significance of ecological issues and how they relate to social and economic growth (Chasek, 2022). The United Nations Environment Programme (UNEP) was established as a result of the conference, and environmental issues were acknowledged as critical global issues.

1.1.2 Regional Perspective

Regionally, Africa as a continent is vulnerable to the effects of climate change; however, little efforts have been made to prepare for these difficulties (Opoku et al., 2021). In 2007, the African Union (AU) implemented a Declaration on Climate Change and Development, marking the initial step made at the regional level. This marked the inaugural occasion in which the continental body adopted a unified stance on climate change (Songwe et al., 2021). This stance is widely regarded as a reflection of the shared position held by African negotiators at the Copenhagen Conference of Parties in 2009, as well as the African Common Position on Climate Change as outlined in the AU/AMCEN report of 2009.

The African collective stance on climate change, commonly referred to as the African collective position, was founded on the fundamental principle of 'environmental justice' and placed a high focus on climate change adaptation. The objective was to develop robust solutions while developing collaborative networks with other interested groups in order to reduce greenhouse gas emissions (Songwe et al., 2021). Subsequently, there was a progression towards engaging in multicultural, bilateral, and regional collaborations with many stakeholders to address climate change concerns.

Thus, the African collective stance on the African Sustainable Development and Environment conferences afforded Africa the chance to collectively and formally tackle the issue of climate change as a continent (Naidoo & Gulati, 2022). It fostered the introduction of tenets that, in a safe interpretation, constitute African environmental diplomacy. The meetings prioritized

economic progress, enhanced quality of life, tackling poverty, and the promotion of sustainable environmental practices across the continent. The manifesto asserted that the continent can only achieve security in terms of energy and food by ensuring a sustainable environment. Therefore, governments in Africa reaffirmed their constitutional authority to explore natural resources within their borders in order to achieve environmentally friendly development, with food and energy security being viewed as critical issues (Naidoo & Gulati, 2022).

Research carried out by Alhendi (2022) on international legislation and environmental protection revealed that more than 500 internationally acclaimed ecological agreements exist, including anything from conservation agreements to agreements on toxic materials and substances. However, these agreements have yielded mixed results in terms of their effectiveness (Mitchell et al., 2020). Some negotiations have been found to have successfully achieved their goals. For example, ozone accords such as the Montreal Protocol are responsible for the decrease in the generation and consumption of chlorofluorocarbons (CFC) in industrialized countries (Mitchell et al., 2020). However, Li et al. (2020) discovered that while joining international environmental agreements seemed to lower CO2 emissions in countries from the global south over a short period, doing so over the long run was linked to greater CO2 levels for nations that were developed and those from Global South.

1.1.3 Kenyan Perspective

Kenya like many African nations faces unique challenges in dealing with climate change, including vulnerability to severe weather conditions, food insecurity and limited access to resources for adaptation. The country has witnessed significant shifts in weather patterns, with changing climate conditions affecting the frequency and intensity of extreme weather events. For instance, drought cycles have transitioned from occurring every 20 years to becoming an annual occurrence in recent years, notably impacting arid and semi-arid lands (ASALs), which cover over 80% of Kenya's landmass (Mateche, 2011; Odhiambo, 2013). As a country that heavily relies on climate-sensitive sectors like agriculture, tourism, and natural resources, these climate-induced changes have led to severe economic losses, estimated at 3-4 percent of the Gross Domestic Product (GDP), hindering development efforts (GoK, 2020).

Kenya was selected as the case study because it plays a leading role in influencing African nations' climate diplomacy. For instance, in addition to amending its climate change statute and lifting the embargo on renewable energy transactions, the nation hopes to attract climate-related investments for industrialization by putting in place an auction mechanism for prospective projects. The nation anticipates that carbon credits will contribute significantly to export revenue. Kenya highlights the significance of striking a balance between climate justice and environmentally conscious development in order to address climate change in Africa in a way that is both impartial and inclusive.

Further, Kenya has a unique opportunity, offering a superb illustration of mainstreaming at the local level, where adaption measures are eventually put into practice. The Kenyan government realised that the incorporation of adaptation into county development plans was not keeping up with national successes. Therefore, in addition to requiring that these plans take climate impacts into account, they also established the creative County Climate Change Funds (CCCFs) to provide subnational authorities and communities with the tools they require to successfully construct resilience.

In light of this global, regional and local panorama, this research aims to explore the role of environmental diplomacy in advancing climate change mitigation and adaptation using Kenya as a case study. The study delves into the specifics of Kenya’s climate policies, international partnership and diplomatic efforts, seeking to contribute to ongoing discourse and collaborative efforts to combat climate change regionally and globally.

1.2 Statement of the Research Problem

Climate change has rapidly evolved into one of the most critical challenges facing the globe with implications extending beyond environmental concerns to encompass the realms of development, global health and poverty reduction (Abbas et al., 2022). Despite the international recognition of the urgency of climate action, there remains notable gap between commitments made on the global stage and their translation into concrete actions on the ground. The disconnect between rhetoric and action has raised questions about the effectiveness of diplomatic efforts and international cooperation in achieving tangible results. It is also believed that environmental commitments made on these targets has faced obstacles due to conflicting interest and competing priorities among different countries (Galan-Martin

et al., 2018). Therefore, to bridge the gaps between rhetoric and action and enhance the effectiveness of environmental diplomacy in addressing climate change, a comprehensive examination is essential.

Despite the country ratifying the global climate change treaties and protocol the impacts of climate change still on the rise (Omuko-Jung, 2021). Therefore, a further need to investigate the country's level of effectiveness in addressing climate change and whether its diplomatic initiatives have fostered enhanced collaboration with neighbouring nations to mitigate and adapt to these impacts is necessary. Although environmental diplomacy is acknowledged as a crucial instrument for tackling climate concerns, there is a lack of comprehension of how these diplomatic endeavors manifest as tangible actions and results within the specific circumstances of Kenya (Naeku, 2020). The importance of this issue is in the possible repercussions of insufficient measures taken to address climate change. Should the disparity between verbal expression and practical implementation persist, Kenya could encounter significant socio-economic consequences, such as heightened susceptibility to climate-related effects, loss of means of subsistence, and escalated conflicts arising from limited resources. Hence, it is crucial to undertake a thorough assessment of Kenya's environmental diplomacy in order to identify obstacles and prospects in utilizing diplomatic endeavors for successful climate change adaptation.

This study seeks to address the current lack of understanding by assessing the impact of environmental diplomacy on promoting climate change adaptation in Kenya. The purpose is to evaluate the country's adherence to international environmental agreements, analyze the influence of environmental diplomacy on climate adaption, and identify the obstacles and potential advantages within this context. The research will offer vital insights into how Kenya and other similar nations can effectively navigate the intricate terrain of climate change mitigation and adaptation. This will ultimately contribute to more efficient and cooperative environmental governance.

1.3 Study Objectives

The main objective of this research was to determine the role of environmental diplomacy in advancing climate change adaptation in Kenya. Specifically, the research aims to:

1.3.1. To assess Kenya government’s level of compliance with global environmental treaty

obligations

1.3.2. To determine the role of environmental diplomacy in climate change adaptation in Kenya.

1.3.3. To establish the challenges and opportunities in leveraging Kenya government's diplomatic efforts for Climate Change adaptation.

1.4 Research Questions

The study was guided by the following questions:

1.4.1. How does the Kenyan government comply with key global environmental treaties?

1.4.2. How does the environmental diplomacy affect climate change adaption in Kenya?

1.4.3. What obstacles does Kenya have in utilizing its diplomatic endeavors to promote climate change adaptation, and what possibilities exist to strengthen these endeavors?

1.5 Justification of the Study

The global catastrophe of climate change presents enormous dangers and difficulties for economies, ecosystems, and civilizations all around the world. It requires immediate and concerted action at the global, national, and local levels. Comprehending the function of environmental diplomacy in promoting adaptation to climate change is vital for formulating efficacious tactics and regulations to alleviate and adjust to its consequences. The promotion of international cooperation, negotiation, and teamwork among countries to combat climate change is greatly aided by environmental diplomacy. Diplomatic efforts result in the development of international accords, frameworks, and procedures to govern global climate action. Therefore, it is crucial to investigate and evaluate the efficacy of these diplomatic endeavors in order to pinpoint optimal methodologies, refine approaches, and augment global collaboration.

In addition, environmental diplomacy draws together a diverse range of stakeholders, including governments, international organisations, non-governmental organisations, and communities, to confront the complex challenges of climate change adaptation. Examining how the diplomatic channels, agreements, and alliances contribute to the advancement of adaptation initiatives can shed light on practical strategies, possible roadblocks, and possibilities for collaboration.

1.6 Significance of the Study

This study findings provided vital information that added to the body of coordinated efforts towards climate change adaptation from the academic and policy perspective.

1.6.1 Academic Justification

The research study explored the mechanism through which international agreements and partnerships influence a country's policies and actions, shedding light on the dynamics of diplomacy in climate governance. By using Kenya as case study, the study provided valuable insights into the real-world application of environmental diplomacy. In addition to expanding the corpus of academic knowledge, this study lays the groundwork for further research and discussions on the relationship between diplomacy and climate change adaptation.

The academic rationale is based on various fundamental factors. As it pertains to the broadening of the knowledge base, this study enhances the existing literature on environmental diplomacy by presenting empirical evidence and theoretical ideas that demonstrate how diplomatic efforts might support climate change adaptation. This contribution is vital in an area where practical applications of theory are frequently neglected. Moreover, the findings establish the foundation for additional research and discussions regarding the correlation between diplomacy and the adaptation to climate change. The study promotes continued investigation into how diplomatic techniques might be improved to effectively tackle climate concerns by highlighting existing knowledge gaps and proposing opportunities for future research. The concrete illustrations derived from Kenya's engagements in environmental diplomacy function as a benchmark for both academics and professionals. This practical application not only exemplifies abstract concepts but also showcases the intricacies and subtleties associated with enacting climate legislation through diplomatic means. The research promotes an interdisciplinary approach by incorporating perspectives from environmental science, international relations, and policy studies. A comprehensive viewpoint is crucial for comprehending the complex and diverse characteristics of climate change and the significance of diplomacy in tackling it.

1.6.2 Policy Justification

The findings of this research provide actionable recommendations for policymakers, both within Kenya and in the broader international arena. These could help in refining climate policies, enhancing diplomatic strategies, and improving the alignment between global commitments and local actions. The empirical evidence and actionable recommendations presented herein can fortify their advocacy for more effective climate policies, international cooperation, and investments in sustainable development initiative.

The purpose of this research is to provide practical suggestions for policymakers at both the national and international levels. The study offers a path to improve the efficiency of Kenya's diplomatic efforts in climate adaptation by identifying the associated challenges and opportunities. Policymakers can employ the knowledge acquired from this research to enhance their strategies, enhance adherence to international environmental agreements, and promote increased cooperation among stakeholders. An applied approach is crucial in order to transform abstract ideas of environmental diplomacy into concrete results that effectively tackle the challenges posed by climate change.

Environmental diplomacy is crucial in influencing both national and international actions taken in response to climate change. This study explores the ways in which Kenyan policies and practices related to climate adaptation are influenced by diplomatic efforts. The study improves the comprehension of how diplomacy functions in the context of climate change by examining the interaction between international agreements, national policies, and local actions. This comprehension is crucial for stakeholders, such as governments, NGOs, and communities, since it offers valuable insights into how joint endeavors might be organized to optimize their influence.

1.7 Assumptions of the Study

i. Collaboration and negotiation: The assumption of environmental diplomacy is that progress towards climate change adaptation requires dialogue and collaboration. It recognises that numerous jurisdictions have various objectives, interests, and viewpoints about issues relating to climate change. In order to promote communication, close gaps, and come to agreements on adaption plans, financing sources, and

implementation schedules, diplomatic initiatives use negotiation methods to facilitate agreements on adaptation measures.

ii. Environmental concerns are interconnected: Environmental diplomacy assumes that the effects of climate change is a global issue that must be addressed collectively. It acknowledges the linkages between several environmental problems, including deforestation, biodiversity loss, global warming, and shortages of water. The goal of diplomatic efforts is to tackle these interrelated issues from a broad perspective, taking into account their cross-cutting effects on economies, society, and ecosystems.

1.8 Scope and Limitations of the Study

The research focused specifically on Kenya, examining its climate policies, international partnerships, and diplomatic efforts related to climate change mitigation and adaptation. It primarily considered climate change policies, diplomacy, and actions in Kenya for the last decade. It also referenced historical developments when necessary to provide context. The study examines Kenya's adherence to international environmental agreements, the influence of environmental diplomacy on adaption initiatives, and the obstacles and prospects of utilizing diplomatic channels for addressing climate change.

The main constraints of this study on environmental diplomacy and climate change adaptation in Kenya can be succinctly outlined as follows.

i. A notable constraint is the possible absence of extensive and dependable data, particularly about diplomatic archives and accords. The lack of public availability of certain crucial information impeded the thoroughness of analysis and the capacity to derive strong and reliable findings. This constraint could have an impact on the overall conclusions of the study and the precision of the evaluations about Kenya's adherence to global environmental agreements.

ii. Also, the willingness and capacity of crucial players, including government officials, NGOs, and community groups, to furnish information can vary considerably. This heterogeneity had an impact on the process of collecting data, resulting in responses that are incomplete or skewed. The study's capacity to comprehensively assess the effectiveness of environmental diplomacy in climate change adaptation was also

constrained on the ground that specific viewpoints or experiences were not well represented.

iii. The study's specific focus on Kenya posed issues in terms of the generalizability of its findings to other African states or areas. Climate adaptation techniques of various countries may be influenced by their distinct socio-economic situations, environmental concerns, and diplomatic dynamics. Consequently, the knowledge acquired by studying Kenya may not be readily transferable to other contexts, thus restricting the wider relevance of the research findings.

iv. The study utilized qualitative methodologies, such as interviews and surveys, which are susceptible to biases inherent in self-reported data. Respondents may exhibit response bias by providing answers that are socially desirable or by withholding complete information about their experiences or beliefs, which could possibly distort the findings. Moreover, the utilization of purposive sampling might potentially add selection bias, as it specifically targets individuals who may not accurately represent the larger community.

v. The study's cross-sectional design provided a picture of Kenya's environmental diplomacy and climate adaptation activities at a given point in time. This method may not adequately include the rapidly changing and progressive characteristics of climate policy and diplomatic endeavors, which can swiftly alter in response to novel developments, international agreements, or changes in political leadership.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviewed studies and theories on environmental diplomacy and climate change mitigation and adaptation measures. The chapter is divided into three sub-sections theoretical review, conceptual review and empirical review.

2.1 Theoretical literature Review

Several theoretical perspectives are used to analyse international efforts to address climate change. This section discusses two theories as pertains to environmental diplomacy and climate change; green theory in international relations and tragedy of commons theory.

2.1.1 Green Theory in International Relations

This theory was propounded by Dryzek, Robyn Eckersley, Val Plumwood and Andrew Dobson in the 1970s. By focusing on three key concepts—decentralization of power, limits to growth, and ecocentric ethics—green theory helps us better comprehend global politics and environmental challenges. These characteristics recreate global politics while maintaining an environmental perspective. The green theory aims to create a harmonious coexistence between people and nature, particularly as long as people are still dependent on the environment for their survival. Thus, it anticipates that in order for the planet and its inhabitants to experience a safe future, the relationship between man and the environment needs to be radically reformed (Adesina, 2011; Cassegård & Thörn, 2022). This is particularly relevant because, according to Horsfall and Spiff (2013), human meddling in the natural environment is currently endangering the survival of both humans and other species. After World War II, when global economies were expanding and new technology started to necessitate higher energy use, the argument gained acceptance as pollution levels increased. The environmental issues become more complex and challenging to solve as technology advanced and man's desire for a stress-free life increased (Graham, 2012; Horsfall & Spiff, 2013).

Nevertheless, green theory has faced criticism for its excessive idealism and limited practical implementation. Although it presents a vision for a more sustainable global order, it fails to adequately address the political and economic challenges that hinder the implementation of

such a vision. Environmental diplomacy functions under the limitations of the existing global framework, and green theory does not offer a definitive guide for effectively navigating this situation.

The green school of thought rejects both liberalism and socialism, ideologies that support unrestricted industrialization at the expense of humankind's ecological and social well-being. Thus, the notion suggests interacting and working together with the environment to lessen the current environmental disaster. According to the theory, this is achievable if humans prioritize environmental health over unsustainable environmental practices, such as the industrial revolution's surge, the population's growing concentration in cities, and the rapid use of technology. All of these continue to undermine the environmental health required for coexistence between man and the environment. However, one of the weakness of green theory is that as opposed to conventionally narrow human interests, the theory prioritises long-term ecological goals. Therefore, according to green theory, various aspects of human organization in daily life must be fundamentally changed from those that promote environmental health and the oppression or marginalization of certain social goals to those that promote environmental health and the unjustifiable exploitation of the natural world. This theory supported the first and second objectives of this study since the focus is on creation of a harmonious coexistence between people and nature.

2.1.2 Tragedy of the Commons Theory

This economic theory was first proposed in 1833 by British author William Forster Lloyd (Ostrom, 2008). According to the theory, a shared resource will eventually be exhausted by people or organisations acting in their own self-interest. Prior to being discussed by American ecologist and philosopher Garrett Hardin in a 1968 edition of "Science" magazine, the broad theory and the ideas contained within it were generally ignored. It's critical to realise that within the framework of the theory, any naturally occurring resources that are available for use and consumption by the general population are referred to as the "commons." The resources are not individually held by any person or business. The fundamental tenet of the tragedy of the commons is that people are rational, self-centered agents who only care about themselves,

constantly seek for opportunities to further their own interests, and never consider the needs of others (Ostrom, 2008).

Without any real-world examples, this theory was merely considered a theoretical essay. For this reason, it is regarded as a myth. Furthermore, some economists assert that right-wing activists utilise this idea as propaganda to push for the private control of natural resources (MacLellan, 2016). Furthermore, since there is no risk of resource depletion on the internet due to the growth of the internet and digitization, sharing and networking benefit society more. Among its flaws is the notion that this theory describes the selfishness of humans rather than the reasonable behaviour of an individual, since a rational person considers future possibilities while making decisions. This idea also supports economic privatisation, yet it has been shown that private companies have exploited natural resources in many nations (MacLellan, 2016).

The misuse and abuse of natural resources, even when it is necessary for civilizations to thrive and establish global ties, is the main subject of the tragedy of the commons (MacLellan, 2016). If one person or group uses the resources in question overly, others could feel entitled to do the same. The tragedy is in how resource exploitation spirals out of control and spreads, potentially becoming a global issue in the future. It may be argued that the occurrence of global warming serves as the best example of the tragedy of the commons. For millennia, people have survived using chemicals, running factories, and driving cars all over the planet, all of which have caused a detrimental impact on the atmosphere's ozone layer. Therefore, the theory was used to support the third objective of this study, this is because the theory highlights the challenge of ensuring equitable access as well as distribution of shared resources. In the context of climate adaptation, environmental diplomacy aims to address the equity dimension by advocating for fair burden-sharing among nations.

The Tragedy of the Commons Theory, however, provides an explanation for the collective action difficulties that environmental diplomacy aims to resolve. When nations prioritize their own self-interests without considering the global common good, it results in the excessive use and deterioration of environmental resources that are shared by all. This idea emphasizes the necessity of collaboration and synchronization in order to prevent such consequences.

Environmental diplomacy plays a crucial role in addressing the problem of shared resources in the context of climate change. Diplomacy can encourage nations to limit their emissions and support adaptation efforts by creating common standards, regulations, and organizations. Nevertheless, the theory fails to provide specific guidance on the most efficient utilization of diplomacy to accomplish this goal.

2.1.3 Gaps in Current Theories

Although these two theories offer valuable perspectives for examining environmental diplomacy and climate change adaptation, they fail to fully encompass the intricacy of the situation. Both theories primarily emphasize the international level, however, addressing climate change adaptation necessitates taking action at the national and local levels as well. The theories fail to adequately tackle the complex difficulties of multi-level governance.

In addition, the theories fail to consider the involvement of non-state players, such as NGOs, corporations, and civil society, in environmental diplomacy and adaptation endeavors. While these players have a growing impact on climate policy and action, they are not the main focus of the theoretical frameworks being examined. Whereas Green Theory and Tragedy of the Commons Theory provide significant perspectives, they have limits in completely elucidating the connection between environmental diplomacy and climate change adaptation. There is a need for more sophisticated theoretical approaches that take into account the various levels and stakeholders involved in the situation. Empirical study can further enhance and expand upon these established theories to cultivate a more thorough comprehension of environmental diplomacy within the context of climate change.

2.2 Conceptual Literature Review

A conceptual literature review summarises and synthesises existing theoretical and conceptual frameworks, models, and concepts relevant to the research issue. The main ideas and theoretical foundations that guided the research field are highlighted in this section.

2.2.1 Climate Change

Climate change concept is used in this study to refer to the gradual alterations in several climate parameters over an extended duration (Raihan, 2023). Variations in temperature, precipitation, wind, storms are used to measure this concept. Climate change is also measured using

additional significant The United Nations Framework Convention on Climate Change (UNFCCC, 2007), characterizes climate change as "any shift in the climate over an extended period, presumably resulting from mankind's actions or natural volatility" with indicators, such as sea level rise such as precipitation, temperature, and wind patterns. This indicates that changes in climate are brought about by either natural or man-made factors. Natural events also contribute to climate change, even though human activity is frequently highlighted as the primary cause. According to Schnegg et al. (2021), ecological issues caused by humans are to blame for climate change, which results in global warming. When the demand for fossil fuels rises worldwide, there is an increase in Earth's temperature and an increase in Green House Gas (GHG) emissions into the atmosphere, resulting into global warming.

As noted by Rüttinger et al. (2015), climate change can be viewed as the ultimate 'threat multiplier' for developing countries, exacerbating existing vulnerabilities and potentially contributing to social upheaval and conflict. Consequently, in regions affected by fragility and conflict, individuals face formidable barriers to achieving effective adaptation (Rüttinger et al., 2015). These countries could leverage environmental diplomacy to access crucial support including climate finance, technology transfer, capacity and knowledge (Georgieva, Gaspar, & Pazarbasioglu, 2022).

As a global issue that impacts all countries, climate change demands global governance in a world that is becoming more interconnected on a number of levels. Although Africa's increased Green House Gas (GHG) emission is only a small part of the continent's overall contribution to climate change, it nonetheless poses a problem for the continent (Tsega, 2016).

2.2.2 Climate Change Adaptation

Adaptation aims to lessen the negative effects of climate change (Abbas et al., 2022). There are significant variations between M&A in practise, including the sizes of the departments and the research engaged, despite the fact that they have the same end goal, which is the sustainable growth of human civilization. According to Schoenefeld et al. (2022) adaptation is the use of regulatory methods in the face of existing or anticipated climatic stimulation; the goal is to lessen the effects of climate change and increase adaptive capability. Adaptive measures that are implemented well could lessen area risk while also opening up possible growth prospects.

Compared to mitigation, adaptation has garnered less attention. As a result, research on adaptation is still in its infancy and frequently falls short, particularly in developing nations. When compared to mitigating measures, adaptation entails greater complexity, constraints, and challenges.

The study's application of the mitigation concept focuses on Lu (2013) perspective that centres on lowering the rate of increase and the magnitude of changes in greenhouse gases (GHG). However, Rezvani et al. (2023) explains that adaptation concept seeks to focus on the increase of defence and resilience, which lessens the impact of climate change in a passive manner. In order to achieve the goal of slowing down the rate of climate change and decreasing the incidence of catastrophic events, mitigation activity decreases the GHG accumulation by cutting GHG emissions and increasing carbon sinks (Lu, 2013).

The majority of mitigation efforts are carried out on a national and regional level. Globalisation will result from the beneficiaries of mitigation spreading to outer regions, making the net advantages of mitigation greater on a global than regional scale. Although adaptation actions have multifaceted implications and expenses, the overall advantages at regional scales outweigh those at a global scale: the adaptation action is more appealing when the benefits are smaller in space (van Vuuren et al., 2011).

2.2.3 Environmental Diplomacy

Environmental diplomacy encompasses the diplomatic discussions and accords that take place between nations and global organizations with the objective of tackling environmental concerns, specifically focusing on climate change. The scope of its activities includes the creation of international agreements, involvement in worldwide meetings, and the development of collaborative structures for environmental management. The importance of environmental diplomacy is in its capacity to promote cooperation among states, ease the exchange of optimal strategies, and mobilize resources for climate adaptation and mitigation endeavors. Studies suggest that good environmental diplomacy can result in improved climate policies and increased adherence to international agreements (Bodansky, 2010). Environmental diplomacy facilitates the inclusion of many viewpoints in climate change

measures by including multiple stakeholders such as governments, NGOs, and local populations.

2.2.4 Institutional Capacity

The relationship between environmental diplomacy and climate change adaptation is significantly influenced by the institutional capacity of nations (Feld & Fetzer, 2024). Environmental diplomacy involves international negotiations and cooperative efforts aimed at addressing global environmental challenges, particularly climate change. It encompasses building coalitions, fostering agreements, and mobilizing resources to enhance collective action against climate impacts (Feld & Fetzer, 2024). In contrast, climate change adaptation refers to the adjustments made in ecological, social, or economic practices to minimize the damage caused by climate change. Effective adaptation requires not only a commitment to international agreements but also the capability to implement those agreements at the national and local levels.

Institutional capacity, defined as the ability of organizations and governments to effectively implement policies, manage resources, and coordinate actions, plays a crucial moderating role in this relationship (Knaepen & Dekeyser, 2023). Countries with strong institutional frameworks are better equipped to engage in environmental diplomacy and translate international commitments into actionable adaptation strategies. This includes having well-trained personnel, robust data management systems, and clear policies that integrate climate considerations into national development plans. For instance, Turkey has made significant strides in integrating climate change adaptation into various policy sectors, supported by initiatives aimed at building institutional capacity. This has allowed for a more coordinated response to climate risks, illustrating how strong institutions can enhance the effectiveness of environmental diplomacy.

However, many nations, particularly in the Global South, face challenges that hinder their institutional capacity (Knaepen & Dekeyser, 2023). Limited financial and technical resources often impede their ability to build adequate frameworks, which in turn affects their participation in environmental diplomacy and the implementation of adaptation strategies. Additionally, effective climate adaptation requires coordination across various sectors and

levels of government; weak institutional capacity can lead to fragmented approaches, making coherent adaptation strategies difficult to achieve. International support and collaboration are essential in this context, as global partnerships can provide the necessary resources and expertise to enhance local capacities.

The moderating effect of institutional capacity on the relationship between environmental diplomacy and climate change adaptation is profound. Strong institutions facilitate effective negotiation and implementation of adaptation strategies, while weak capacities can impede progress. Thus, enhancing institutional capacity is crucial for countries aiming to navigate the complexities of climate change and foster effective environmental diplomacy. By investing in their institutional capabilities, nations can better respond to climate challenges and contribute to global efforts in combating climate change.

2.2.5 Relationship between the Concepts

The concepts explored within the framework of environmental diplomacy and climate change adaptation are interconnected and jointly contribute to a holistic comprehension of how international collaboration might impact national policies and activities. Notably, Environmental diplomacy plays a vital role in promoting climate change adaptation. Diplomacy refers to the process of negotiating, reaching agreements, and engaging in collaborative efforts between nations with the specific goal of tackling environmental concerns. Environmental diplomacy facilitates the exchange of information, resources, and effective strategies among states to address the challenges posed by climate change.

International agreements such as the Paris Agreement establish mechanisms that incentivize governments to pledge to particular adaption plans. These diplomatic endeavors have the potential to result in the creation of financial institutions and technical assistance for nations that are at risk, allowing them to successfully undertake measures to adapt to their circumstances. The relationship between environmental diplomacy and climate change adaptation is mutually reinforcing. Effective diplomacy may strengthen adaptation efforts, while successful adaptation can boost the credibility and efficacy of diplomatic operations.

International environmental agreements are crucial in influencing the development of national climate policies and plans for adapting to climate change. These agreements establish

enforceable objectives and offer instructions for nations to adhere to, shaping their internal policies. For instance, the obligations established by the United Nations Framework Convention on Climate Change (UNFCCC) and its successor protocols necessitate that countries prepare national adaptation plans that are in line with global goals. The efficacy of these accords, however, frequently depends on the desire of governments to actively participate in diplomatic efforts and uphold their obligations. The relationship in this context is marked by a reliance; the effectiveness of initiatives to adapt to climate change is frequently dependent on the strength of global accords and the determination to enforce them at the domestic level.

2.3 Empirical literature Review

The empirical literature review entails reviewing and analysing existing empirical studies and research findings on a certain research topic. It aided the researcher in comprehending the state of knowledge at the time, spotting research gaps, and coming to conclusions supported by data.

2.3.1 Diplomacy and Climate Change

Bremberg (2023) conducted an investigation of the function that the Organisation for Security and Cooperation in Europe (OSCE) served to fulfil in the realm of climate security. It investigates the manner in which Swedish and other diplomats with similar perspectives expanded the realm of knowledge on climate-related security issues within the Organisation for Security and Cooperation in Europe (OSCE) by building on the OSCE's approach to security. Interviews with diplomats and officials were held during Sweden's chairpersonship of the Organisation for Security and Cooperation in Europe (OSCE). According to the findings of the study, the current political impasse in the Organisation for Security and Cooperation in Europe (OSCE) does not always indicate that efforts that have been pushed by groups of nations that share similar values, in conjunction with the OSCE secretariat, need to be paralysed.

Schunz (2021) conducted research to determine whether or not the European Union (EU) has strategically modified its external involvement strategy in global climate politics since 2015 in order to respond to changes in geopolitical conditions. In order to advance its interests and

principles in global climate governance, it is said that the European Union (EU) has adopted a policy known as "multiple bilateralism" (MB) as a complementary strategy to its traditional multilateral participation. The study defines MB as a strategic hedging behaviour that involves interacting with numerous partners across several levels of governance through bilateral agreements or dialogues on climate-related issues. This interaction takes place in order to mitigate the effects of climate change.

Specifically, Jayaram (2021) investigated the situation of India as a developing economy and a significant participant in the field of climate diplomacy. This study was conducted with the intention of gaining an understanding of the elements that influence India's climate policy, both domestically and internationally, as well as the ways in which these policies are influenced by ideational and material factors. The research was conducted utilising a qualitative methodology, which included conducting interviews with policymakers and experts as well as using discourse analysis. Several factors, including India's economic goals, energy security, regional leadership, global reputation, and normative commitments, are influencing India's climate diplomacy agenda, according to the findings, which demonstrated that this agenda is driven by a complex interaction of forces. The report provided a number of recommendations, some of which include increasing India's bilateral and international partnerships on climate action, enhancing India's internal capacity for low-carbon development, and striking a balance between India's interests and obligations within the global climate system.

Researchers O'Sullivan, Overland, and Sandalow (2018) conducted an investigation into the ways in which technological innovation and deployment influence the emissions, preferences, and interests of various nations, as well as the ways in which these factors influence the chances for international cooperation on climate change. The analysis was conducted utilising a quantitative methodology, which involved the use of data and models pertaining to energy systems, emission scenarios, and economic implications. The findings demonstrated that technology advancement can bring about both possibilities and problems for climate diplomacy. This is because the relative costs and benefits of various energy sources for various nations can have a significant impact on the outcomes of climate diplomacy. A number of recommendations were made by the report, some of which included speeding the creation and

deployment of low-carbon technology, working with major countries on their energy transitions, and responding to the shifting geopolitical landscape of climate change.

Schunz (2021) conducted an analysis to determine how the European Union (EU) has modified its strategy for external engagement on climate change in response to the expanding number of new actors and the shifting global backdrop. The study was conducted utilising a qualitative methodology, which included procedures such as process tracing and document analysis. The findings demonstrated that the European Union (EU) has chosen a strategy known as "multiple bilateralism," which entails engaging with a variety of partners on various areas of climate action, including mitigation, adaptation, finance, and technology. Among the recommendations that were made by the report were the following: the European Union should continue to play a leadership role in international forums; it should broaden its bilateral alliances on climate concerns; and it should improve its strategic hedging against risks and uncertainties.

A study by Berry et al. (2015) focused on the cross-sectoral linkages between adaptation and mitigation measures focusing on Europe. A number of adaptation strategies are listed, and their cross-sectoral linkages and mitigating effects are examined. However, there aren't many steps on the list, and there's no discussion of possible synergies. The study discovered that, frequently, conflicts and synergies related to adaptation and mitigation were not specifically addressed within a sector, much less across sectors. The majority of initiatives, however, were discovered to have an impact on a different sector, leading to interactions within and between sectors that were neutral, positive (synergies), or negative (conflicts). Water and biodiversity were key components of many fruitful cross-sectoral interactions; as such, they can serve as excellent places to start when implementing integrated, cross-sectoral initiatives. This analysis discovered numerous local scale initiatives that could help integrate adaptation and mitigation. While prior research suggests that adaptation and mitigation are carried out on distinct time and geographical scales, this study revealed otherwise. If mitigation and adaptation strategies are to be incorporated into policy, it is imperative that the cross-sectoral interaction between them be acknowledged openly in order to maximise beneficial outcomes and prevent unexpected consequences.

Study conducted by Nyiwul (2017), examines the factors that have influenced the growth and use of renewable energy in Sub-Saharan African nations between 1980 and 2011. The findings show that wealth contributes to the development in renewable energy use in the anticipated beneficial, albeit statistically insignificant, way. Contrary to actual data in other emerging economies, this suggests that the region's recent growth in GDP has not been matched by increased development and consumption of renewable energy. A summary of the potential causes of this discrepancy is provided. Additionally, there is a correlation between rising concerns about climate change brought on by pollutants like carbon dioxide and greater use of renewable energy.

Study by Francis et al. (2016) found that the perception of the effect of climate change was significantly correlated with the gender of the household head, the number of livestock owned, and the herd size in Turkana County, one of Kenya's counties that has been severely affected by climate change and experiences protracted periods of cyclical droughts. Consequently, the study recommended that in order to have a long-term dedication to the environmental durability of the household, initiatives and regulations should aim to improve these attributes. They believed that taking into account communities' susceptibility, coherent and effective climate change governance was necessary to address the risks and costs of climate change. Such a strategy links to the current study as a robust adaptation measure towards climate change mitigation.

Parry's (2016) analysis of Kenya's ongoing and future adaption plans made note of the efforts taken to create a comprehensive policy framework to direct and address climate change. In addition, it was discovered that Kenya is taking adaptation measures to lessen the vulnerability of its agriculture, livestock, and water sectors, particularly in ASALs (arid and semi-arid regions). Parry (2016) suggests stepping up efforts to draw attention to climate change through improved county government capability and knowledge building across professional communities. Universities have a big role to play in knowledge creation, but the national policy framework doesn't place as much emphasis on their efforts and objectives. The current study will incorporate the place of such institutions as key participants on climate policy creations that ultimately contribute to climate change mitigation.

2.3.2 The Role of Environmental Diplomacy in Climate Change Adaptation

Khan & Hou (2021) utilized US data from 1980 to 2015 and the Environment Kuznets Curve (EKC) paradigm to examine the causal connection involving carbon dioxide (CO2) releases and global ecological diplomatic efforts in the context of wealth formation, use of green energy, and prosperity. The study used robust least secure (ROBUSTLS) and generalized linear models (GLMs). The findings showed that while the use of renewable energy sources enhances environmental quality over time, environmental diplomacy, capital accumulation, and economic expansion ultimately worsen it. These findings validate the EKC hypothesis for the US and imply that, initially, more environmental diplomacy raises CO_2 emissions to a certain degree, after which CO_2 emissions begin to decrease with additional increases in international commitments and solid diplomatic ties between nations.

A study conducted by Pickson & Boateng (2022) focused on climate diplomacy and global warming in Africa. This study offered fresh proof of how climate change affects food security in Africa. Sen's slope estimator and the Mann-Kendall test were used in the study to assess trends in climate change. In addition, the Dumitrescu-Hurlin panel causality test and the pooled mean group technique were employed to examine the impact of climate change on food security in fifteen African nations from 1970 to 2016. Examining the data more widely, the results showed that rainfall is a major factor in Africa's food security and that there is no significant long-term effect of temperature on food security. Then, in Africa, there is a bidirectional causal relationship between temperature and food security, with the exception of rainfall. In this instance, in order to increase food production, African nations must reduce their reliance on rain-fed agriculture.

Marigi (2017) established the ineffectiveness of Kenyan policies and capabilities in addressing the vulnerabilities of climate change hazards through the use of both a desk review of the journals, articles, case studies, projects, and programs undertaken in the nation, including policy and regulatory documents, and online interviews with 47 County directors of meteorology and County heads for environment in Kenya. The northern regions and the southernmost tip of the coastal strip were judged to be the most vulnerable in the author's analysis of the vulnerability of the entire nation.

Marigi thus advocated for improving human capacity to track climate factors and the frequency of natural disasters at both the technical and community levels. Intriguingly, a study conducted

jointly by Bielefeld University, FIAN Germany, Kenya Youth Foundation, and CEMIRIDE in Tana Delta, Kenya, revealed detrimental effects of climate change policy on local residents' basic human rights. The study found that evictions were common in line with the agro-fuel production practices that used reforestation, depriving the local population of essential resources for its livelihood and jeopardizing human security.

2.3.3 Challenges and Opportunities in Leveraging Diplomatic Efforts for Climate Change

Li, et al. (2020) in their study, noted that the progress in combating climate change has been sluggish despite the numerous laws and measures that nations and organizations have put into place. This is as a result of many difficulties and restrictions. The authors noted that the absence of political will and the economic interests of a nation present two major obstacles. Notably, owing to their reliance on fossil fuels for their economy, developing countries frequently encounter obstacles when trying to implement climate policies and measures. Additionally, worries about economic competitiveness and the possibility of employment losses may prevent industrialized nations from taking meaningful action on climate change. The lack of financing and resources for addressing climate change is another drawback. Many developing nations lack the technical know-how and financial means to put into place efficient climate policies and plans. Moreover, a global reaction is necessary to address the complexity of climate change, although this can be difficult to do. The United Nations Framework Convention on Climate Change (UNFCCC) negotiations can be drawn out and acrimonious, and the absence of a legally binding agreement may compromise the efficacy of global efforts.

Apollo & Mbah (2021) in their research study on the need to address climate change identify a chance to help the area undergo the necessary economic transformation. They contend that climate-resilient, low-carbon development may promote inclusive growth, close the energy gap, and lessen poverty and food insecurity. In this instance, the urgency of sound, growth-promoting policies that can survive the climate threat is increased by climate change. Energy-poor nations could skip decades of ineffective spending on polluting energy sources and jump right to clean energy, which is one critical area where the climate change imperative presents an opportunity for Africa.

This is significant because, over the past 15 years, Africa's disproportionate access to electricity has exacerbated larger disparities related to gender, poverty, and the rural-urban split. Rebuilding energy systems also creates the conditions for subsidy reform and carbon pricing alone to increase government income, sustain growth, improve health, eradicate poverty, and create low-carbon jobs (GCEC, 2018). Policies centered on utilizing science and digital technologies also hold the greatest promise to address food security concerns, as climate change threatens the means of production and the nourishment of the continent's population.

Summerlin et al. (2020) in their study note that there is still a gap in implementation when it comes to local efforts to integrate adaptation into CIPDs, despite the benefits of integrating climate adaptation into development. The authors noted a mismatch between the development plans and sectoral policies on paper and actual community practice. Three lessons can be learned from Kenya's mainstreaming of climate adaptation into development, according to Summerlin et al. (2020): i) incentivised mainstreaming encourages action; ii) local leadership fosters support for adaptation; and iii) stakeholders' inclusiveness addresses local vulnerabilities. The authors stress the crucial roles that capacity building, strong stakeholder involvement, and access to funding have in furthering the implementation of programs for climate-resilient, sustainable development.

2.3.4 Kenyan Government Policy on Environment

The National Environment Policy (2013) emphasises the importance of implementing an integrated strategy for the management of Kenya's natural resources. This idea suggests that environmental concerns ought to be included into economic planning and development initiatives, as well as other elements of government operations. This all-encompassing framework is vital for promoting a green economy and enhancing social participation. Although these goals have existed, there hasn't been a consistent approach to incorporating environmental policy into larger governance frameworks. For instance, sectoral targets are still unclearly implemented and sometimes lack the necessary political will and resources, even though the Climate Change Act of 2016 mandates the formation of a National Climate Change Action Plan (NCCAP).

One of the primary problems Kenya is currently facing is the lack of strong governance systems that can facilitate the effective implementation of the nation's environmental policies. The 2013 policy acknowledges the continued inadequacy of environmental issue management, especially in areas like chemical management, in the lack of robust governance frameworks. The state of environmental degradation has also gotten worse due to rising urbanisation and population growth, especially in rural areas where there is a high demand for resources. Regulations that might not adequately address the root causes of environmental degradation have been created as a result of the government's typically reactive rather than proactive reaction to these issues (NCCAP, 2013). In recent decades, there has been an increased focus in academic journals and the media on the relationship between environmental issues and human security. A large amount of the research given here has focused on the effects of climate change on developing nations, where a significant population is vulnerable to human insecurity. Kenya faces a variety of political and social challenges, as do other nations in the Horn of Africa. "Endemic poverty, inadequate leadership structures, protracted conflicts, population pressures, and rapid urbanisation" are some of these difficulties.

M'mboroki et al. (2018) studied the relationship between climate change and interpersonal conflict in Kenya. The results of the study brought to light the connection between resource-based conflicts in the nation and climate change. The study's conclusions indicate that strain over natural resources is already a concern, and that climate change is adding to the burden. Although the study clearly shows that resource-based conflicts are one aspect of interpersonal conflict, this inquiry raises concerns regarding the likelihood of other aspects of interpersonal conflict in Kenya.

Furthermore, a study carried out in Kenya's Laikipia County by Kabubo-Mariara & Kabara (2018) emphasises the importance of natural resources as a stress factor for conflict brought on by climate change. The results showed that conflicts amongst agropastoralists had escalated recently. Historical analysis of the county's frequency of conflicts between farmers and pastoralists revealed this. The study's conclusions indicate that an increase in conflicts over traditional herding territories in Laikipia County is probably due to the disastrous effects of drought, which are linked to climate change. Droughts are just one type of climate change

danger; there are also floods, heat waves, and wind hazards. This highlights the need of gaining an understanding of the ways in which various dangers have impacted the safety of people in Kenya.

More recently, a study was carried out by Medina et al. (2022) to examine the impact that climate-security concerns have in Turkana. The results of the study showed that there is a shortage of pasture, water, and food in Turkana due to climate-induced variability. This has directly led to an increase in resource-based conflicts across the county. The relationship between climate change and human security in Kenya has been extensively reported. However, the majority of the knowledge that has been available up until now has been limited to various forms of human security, apart from cultural security. As a result, the focus of this research will be on determining how climate change affects human security, particularly cultural security.

2.3.5 Participation of Kenyan Government in International Treaties/Conferences

Kenya's treaty-making procedure has undergone significant changes, most notably after the 2010 promulgation of the Constitution, which emphasises public participation and legislative review in the process (GoK, 2010). When this was not the case, there were often concerns about accountability and transparency because treaties were signed without sufficient congressional examination. International commitments are included into the framework of Kenya's national legal system since the country's Constitution mandates that each treaty ratified by Kenya be included in Kenya's legal system. Empirical research indicates that while the recently enacted constitutional provisions have improved the foundation for treaty-making, their execution has limited parliament's real participation. For instance, there is evidence to suggest that legislative monitoring has been more nominal than substantive, and there has been very little public input in the process, even though Kenya has approved a number of Bilateral Investment Treaties (BITs) since 2010.

Raghavan (2021) states that Kenya is a signatory to several international environmental agreements, including the Ramsar Convention on Wetlands and the Convention on Biological Diversity. These agreements are necessary to address the global environmental issues and

advance sustainable development. Studies indicate that Kenya's participation in these agreements reflects its commitment to global environmental governance, although the effectiveness of these pledges at the national level typically falls short of expectations. While research indicates that treaty implementation is typically complicated by weak institutional capacity, a lack of public awareness, and inadequate resources, Kenya has made progress in ratifying international agreements. Kenya has made headway in ratifying international agreements in spite of these obstacles. For instance, Kenya's obligations under international treaties have been compromised as a result of the National Environment Management Authority's (NEMA) inability to appropriately enforce environmental standards.

Pickering et al. (2020) state that Kenya has ratified several international treaties, one of which highlights the need of public participation. The foundation of Kenya's constitutional framework is this idea. The freedom of citizens to engage in public affairs is guaranteed by both the International Covenant on Civil and Political Rights and the African Charter on Human and Peoples' Rights. In order to make sure that policies represent the will of the people, this right is essential. Despite the existence of these legislative frameworks, empirical research indicates that significant challenges must be addressed to enable significant public involvement in the treaty-drafting process. Barriers to meaningful involvement include weak public engagement strategies, restricted geographic reach, and restricted access to information. This is particularly valid for marginalised communities. The public's feeling and the government's actions are out of sync, as evidenced by the recent protests against government programs like the Finance Bill. This discrepancy emphasises the need for more inclusive governance practices.

2.3.6 Role of Kenyan Government Plays on Climate Change and Adaptation at the Regional and Global Level

In her research, Ouma (2023) examines the prevalent narratives that are influencing the adaptation to climate change in Kenya, with a specific emphasis on ways to adapt agriculture. Specifically, the research underscores the fact that the Kenyan government, by means of the Climate Change Act of 2016, offers direction for climate responses and places an emphasis on the significance of equity and social justice in adaption methods. The research found that there

are four primary narratives that have an impact on adaptation policy. These narratives are as follows: climate justice, technology frameworks, gender views, and adaptive capacities. This paper contends that certain narratives have been given more prominence than others, which may have resulted in a reduction in the number of feasible adaptation strategies.

2.3.6.1 Plans for National Adaptation (also known as NAPs)

The case study conducted by the United Nations Development Program (UNDP) on Kenya provides an overview of the implementation of National Adaptation Plans (NAPs), with a particular focus on adaptation in the areas of agriculture, forestry, livestock, and fisheries. The National Action Plan (NAP) of Kenya, which was completed in 2015, is one of the first in Africa and is in accordance with international frameworks such as the Paris Agreement. According to the findings of the study, there is a substantial amount of political support for these initiatives, and the President holds the position of chairperson of the National Climate Change Council. Nevertheless, it also highlights the fact that although the NAP includes a variety of interventions, the actual benefits are still being evaluated, and capacity building is crucial for the successful execution of the plan.

2.3.6.2 Making adaptation to climate change a mainstream concern

A working paper published by the World Resources Institute investigates the incorporation of climate change adaptation into County Integrated Development Plans (CIDPs) in Kenya, with a particular emphasis on the counties of Makueni and Wajir. Specifically, it emphasizes the formation of County Climate Change Funds (CCCFs) as a means of incorporating climate risks into the planning of local development. Despite the fact that there has been progress made, the study highlights the fact that there are still hurdles to overcome in order to move from planning to implementation, particularly with regard to capacity and the participation of stakeholders. The lessons that may be learned from the experiences of these counties are extremely helpful for improving adaptation efforts throughout Kenya.

2.3.6.3 A National Policy Regarding Climate Change

It is outlined in the Kenya National Climate Change Policy that the government is committed to developing the ability for resilience and adaptation in response to the effects of climate

change within the country (Pickering et al., 2020). It places an emphasis on the significance of incorporating climate-related factors into the planning procedures of both national and county governments. The strategy emphasizes the necessity of a coordinated approach across a variety of sectors in order to improve capability for adaptation and to encourage growth that is low in carbon emissions. In addition to this, it acknowledges the role that devolved governments play in the implementation of climate solutions that are adapted to local circumstances, which is a crucial component of effective adaptation plans.

2.3.7 International Environmental Legal Frameworks

In order to make it easier to implement and comply with environmental laws and regulations, a variety of treaties, standards, and principles form the foundation of the global framework on corporate compliance with environmental obligations. While most of these treaties, guidelines, and standards only apply to states, corporations can also directly benefit from them because a state can regulate a corporation's operations within its borders in accordance with international law. The important global framework (hard and soft legislation) on environmental compliance is based on ideas created in a number of important locations, including Stockholm, Rio 1992, Johannesburg, Kyoto, Paris, Glasgow, and Espoo.

The 1972 Stockholm Declaration of the United Nations Conference on the Human Environment mandates that member states enact legislation that establishes responsibility and reimbursement for victims of environmental harm, including pollution. It also includes clauses on losses to subjects of environmental issues. The Environmental Management and Coordination Act of Kenya addresses this, including civil and legal repercussions for ecological damage. The 1992 Rio Declaration on Environment and Development enumerates a number of principles intended to preserve the reliability of the world's environment and system of growth. These include the polluter pays concept, intergenerational equity, public participation, precautionary principle, and sustainable development.

The United Nations Framework Convention on Climate Change (UNFCC) was adopted by 154 states during the United Nations Conference on Environment and Development (UNCED), which was held in Rio de Janeiro in 1992. In order to prevent "dangerous human interference

with the climate system," it formed a worldwide environmental pact that stabilises the atmospheric quantities of greenhouse gases. In the framework of sustainable development, the Agreement sought to fortify the international response to the threat posed by climate change. The Agreement includes clauses designed to limit the increase in global temperatures and regulate greenhouse gas emissions.

The goal of the 1987–1989 Montreal Protocol on Substances that Deplete the Ozone Layer is to safeguard the Earth's ozone layer by gradually eliminating the chemicals that cause it. This plan addresses both the manufacturing and consumption of substances that cause ozone depletion. It places restrictions on the manufacturing of compounds linked to chlorofluorocarbons (CFCs) that have the potential to destroy the ozone layer. Given that the Protocol is still in place today to protect the ozone layer, it is thought to have achieved its goals to date.

The first agreement of its sort to be signed by every country was the Vienna Treaty for the Protection of the Ozone Layer, which entered into force in 1988 and was adopted by all countries in 2009. The Contracting Parties to the Vienna Convention are required to take proper measures in accordance with the demands of this Agreement and of the associated protocols to which they are party in order to protect human and ecological health regarding adverse effects which ensue from or are anticipated to develop from people's actions that shift or have the possibility of affecting the ozone layer.

Adopted on December 11, 1997, the Kyoto Protocol came into effect on February 16, 2005, and as of right now, it has 192 Parties. The first international agreement to require national cutbacks in the release of greenhouse gases was the Kyoto Protocol. The UN Framework Convention on Climate Change (UNFCCC), which was ratified by almost all countries at the Earth Summit in 1992, gave rise to Kyoto. While the Convention itself only requires the Parties to implement laws and regulations on prevention and to report on a regular basis, the Kyoto Protocol operationalizes the United Nations Framework Convention on Climate Change by committing industrialised nations as well as economies in switch to limiting and reducing the release of greenhouse gases (GHG) in compliance with established individual goals.

In November 2021, Cairo, Egypt hosted the 27th UN Climate Change Conference of the Parties (COP27), which took place from November 6–18. Parties came together at the COP27 meeting to expedite efforts towards achieving the objectives of the UN Framework Convention on Climate Change and the Paris Agreement. One of the agreements made at COP27 was to create a Loss and Damage Fund, to which the larger developed nations—who also happen to be the biggest polluters and emitters—will donate money to assist the smaller developing nations—who happen to be the lowest emitters—in adapting to the effects of climate change.

Adopted by 196 Parties at COP 21 in Paris on December 12, 2015, the Paris Climate Accord, 2015, commonly known as the Paris Agreement, is a legally enforceable global mitigation and adaptation agreement that came into effect on November 4, 2016. Its objective is to keep the rise in world temperatures below two, ideally just 1.5 degrees Celsius, over pre-industrial levels. The Paris Agreement, in contrast to the Kyoto Protocol, is a turning point in the multilateral climate change process since it unites all countries for the first time in a legally binding manner to pursue bold initiatives to mitigate climate change and adapt to its repercussions.

Adopted in Espoo, Finland in 1991 and coming into effect on September 10, 1997, the Convention on Environmental Impact Assessment in a Transboundary Context lays out the responsibilities of Parties to evaluate the ecological effects of specific activities at an early planning stage. Additionally, it establishes States' general duties to inform and confer with one another on any large-scale projects that are being considered and that could have a substantial negative cross-border environmental impact.

A suite of guidelines known as ISO 14000 were created by the International Organisation for Standardisation to assist organisations in addressing environmental challenges in a proactive manner. The standards require organisations to carry out a number of environmental governance-related tasks, such as assessing their environmental impacts, setting goals and targets for environmental management, pledging to implement dependable and efficient solutions like pollution prevention, and accepting personal accountability for actions

pertaining to the environment. The significance of these standards lies in their ability to enable organisations to evaluate their environmental initiatives in comparison to internationally recognised benchmarks.

2.4 Theoretical Framework

The study is ideally suited to green theory since it articulates the political orientation towards climate change in terms of agency and value (Goodin, 1992), things like who should value something, how to get it, and what needs to be prized. Green theory is a component of the critical theory tradition insofar as environmental issues cast doubt on our interpersonal interactions in the context of collective and community decision-making. Thus, it has long been discussed where the boundaries between political communities are. These worries manifest as queries about the appropriate political echelon at which to seek solutions to cross-cutting environmental issues. Green theorists believe that alternative theories of political connection derived from our ecological relationships hold the keys to the solutions.

More drastically, green theory questions established political, social, and economic systems. It specifically questions liberal political and economic assumptions that are widely held, especially those that go outside the confines of established political communities (for traditional international relations, this implies states). According to Goodin (1992), one characteristic that sets green theory apart is its allusion to a cogent moral vision, or "green theory of value," which functions apart from a theory of practises or political agency. In this study, green theory made it easier to comprehend adaptation of climate change in terms of long-term ecological values as opposed to immediate human needs. Governments typically invest in technology to further these interests, but there isn't a simple technical fix for climate change brought on by humans. According to green theory, this technological deadlock offers a chance for political innovation or perhaps a radical change in the direction of world politics since it necessitates a transformation of human values and behaviour.

The following diagram provides a diagrammatic presentation on how various theories applicable in this research underpins the study variables (Figure 2.1).

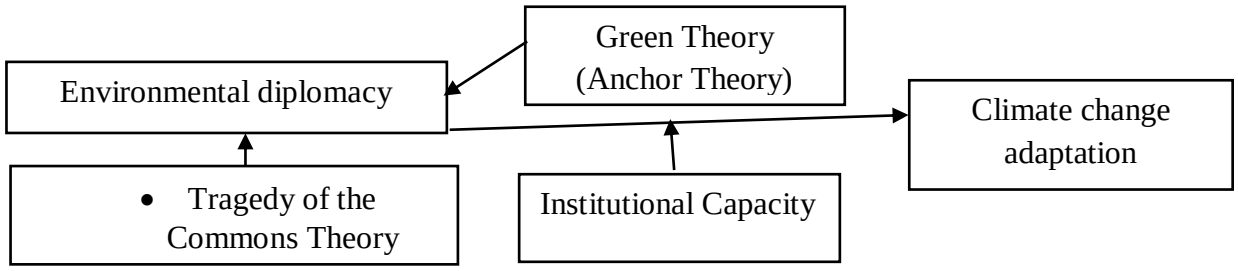


Figure 2.1: Theoretical Framework (Source: Author, 2024)

2.5 Critique of Literature and Summary of Knowledge Gap

According to a thorough examination of the empirical literature on the relationship between environmental diplomacy and climate change adaptation, it is clear that this particular component has not gotten adequate research attention. Furthermore, it is obvious that a considerable share of empirical information (Berry et al., 2015; Parry's, 2016; Khan & Hou, 2021; Pickson & Boateng, 2022; Marigi, 2017; Li, et al., 2020) generalizes the findings on both mitigation and adaptation as a unit without specific focus on adaptation. Two gaps are thus identified by a review of the literature on the relationship between environmental diplomacy and climate change: conceptual and methodological gaps. From a conceptual standpoint, the majority of research focus on efficacy without methodically outlining how governments must convert international accords and procedures into domestic environmental policy. Thus, there is a discrepancy in the relationship between the resolution of environmental issues and conventions as tools of governance.

Stated differently, understanding the efficacy of environmental diplomacy in addressing measures for adapting to climate change requires evaluating how each country implements environmental agreements and providing an explanation for variations in performance. Secondly, a basic methodological flaw exists. While most analyses only provide data for a small number of nations, other research concentrate on particular agreements without providing national statistics that enable cross-country comparisons. In light of this, research must be reevaluated to ascertain how environmental diplomacy via conventions is carried out throughout all member states throughout time in order to comprehend why some nations conduct differently.

Therefore, creating a coherent framework that explains how environmental diplomacy might be effective in Kenya's environmental sector has the potential to provide vital insights into the implementation of climate change adaption measures. The following table highlights these deficiencies, ultimately influencing the direction of this research.

Table 2.1: Summary of Knowledge Gaps

Study	Topic	Methodology	Findings	Research Gaps	Focus of Current Study
Apollo & Mbah (2021)	The need to address climate change.	Descriptive research design	Countries don't have unified plans for using education about climate change as a tool for adaptation and mitigation.	Methodological gap: Lack of methodical outline on how governments must align to international accords on climate change	The current study discusses convention as tools of governance in relation to developing countries.
Berry et al. (2015)	Cross-sectoral linkages between adaptation and mitigation measures focusing on Europe.	Comparative analysis	There exists numerous local scale strategies that could help integrate mitigation and adaptation.	Conceptual gap: the limited level of explicit evidence of the impact of cross-sectoral interactions.	The current study found certain common factors that have policy implications and can be utilised to propose potential effective strategies to climate change adaptation.
Nyiwul (2017)	The factors that influence the growth	Descriptive design	The growth of industry and population	Contextual Gap: The focus was only on sub-Saharan	The current study covers the most current data

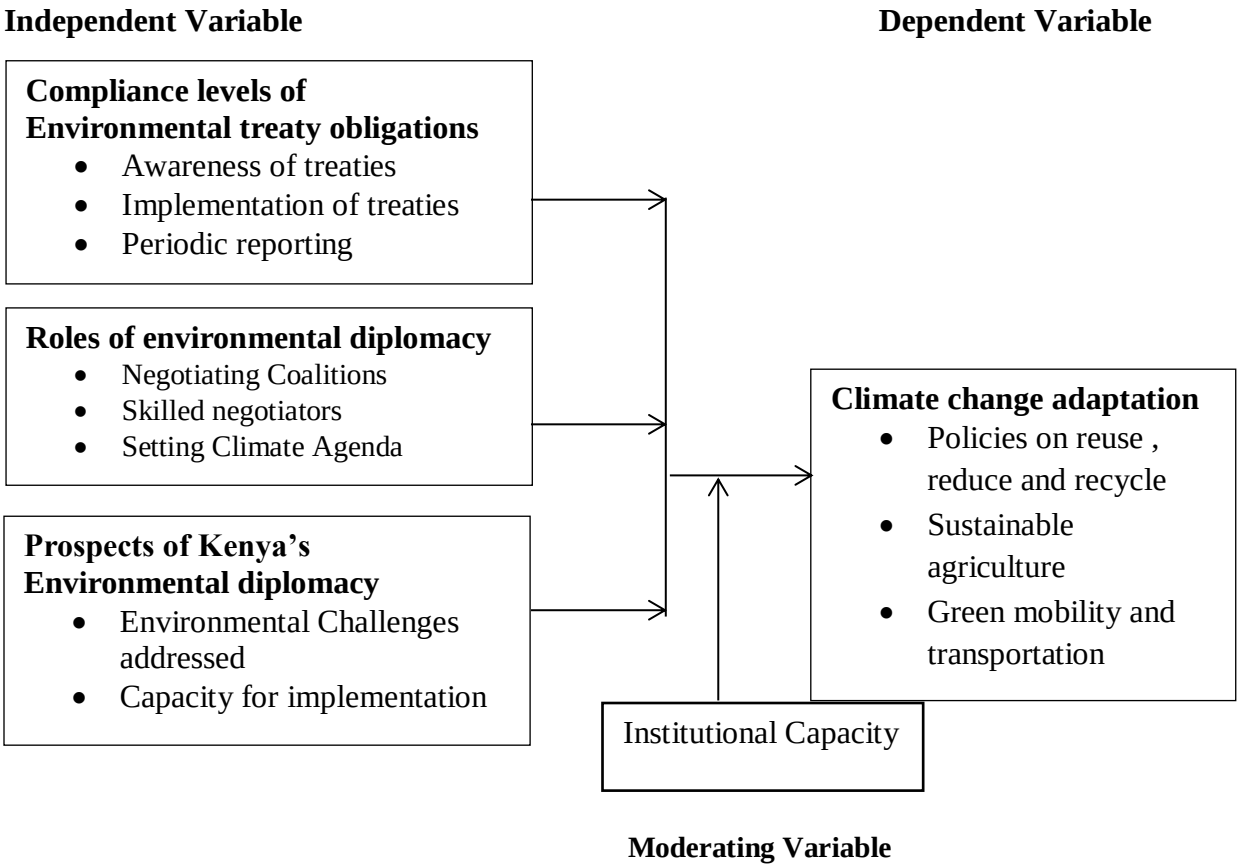
	and use of renewable energy in Sub-Saharan African.		are statistically significant factors that influence the use of renewable energy.	countries within a limited time scope	that could be generalized across countries from the global south
Francis et al., (2016)		Descriptive design	The effect of climate change was significantly correlated with the gender of the household head	Limited generalization as pertains to pastoralist perception on climate change due to limited geographical scope.	The current research fills the gap by looking at the government perspective representing entire population from all regions
Pickson & Boateng (2022)	The effects of climate change on the farming of rice and the ability of small-scale farmers to adjust	Explanatory research design	Adaptive capabilities significantly affect agricultural production	Conceptual gap: Using only one crop production for the study	The current study provides more findings on adaptation strategies across different crop productions.

(Author, 2023)

2.6 Conceptual Framework

The conceptual structure of this research aims to demonstrate the connection between the environmental diplomacy and climate change adaptation strategies (Figure 2.1) (Varpio et al., 2020). The framework consists of two types of variables: independent variables and dependent variable. The independent variables include; compliance levels with environmental treaties, the role of environmental diplomacy and Future prospects of Kenya's Environmental diplomacy. The dependent variable being climate change adaptation.

Figure 2.1: Conceptual framework (Author, 2023)



2.7 Chapter Summary

This chapter examines several studies on the contribution of environmental diplomacy to the advancement of adaptation and mitigation of climate change. The chapter brings out the empirical literature review which helps in understanding environmental diplomacy in relation to climate change from different publications. Further, there is a theoretical framework applicable in the understanding the study objectives and variables. There is also discussion of various adaptation and mitigation strategies formulated alongside future prospects with regard to Kenya. The literature review on environmental diplomacy and climate change adaptation

measures reveals significant theoretical and empirical gaps. While the Green Theory and the Tragedy of the Commons Theory provide foundational perspectives, they primarily focus on international frameworks, neglecting the essential roles of national and local governance in climate adaptation. This oversight limits their applicability, as effective climate action requires multi-level governance that includes non-state actors such as NGOs and corporations, which are not adequately addressed in these theories. Moreover, the empirical studies reviewed indicate a lack of comprehensive analysis on the interplay between innovation and environmental diplomacy. Existing research often fails to explore how advancements in technology can both facilitate and hinder international cooperation on climate issues. The need for a nuanced understanding of these dynamics is crucial, especially as nations navigate their self-interests within the context of global climate agreements. Therefore, there is a pressing need for more sophisticated theoretical frameworks that incorporate diverse stakeholders and governance levels, alongside empirical studies that examine the complex interactions amongst policy, governance, policy, and environmental diplomacy. Addressing these gaps will enhance our understanding of effective climate adaptation strategies

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter is about the research methodology. It starts by outlining the research concept, study area, sample plans, techniques for gathering data, and research tools, which include focus groups, questionnaires, qualitative interviews, and document analysis. This chapter also offers the data analysis approach, which includes specifics on how to handle, analyze, and interpret the data. The validity and dependability of the research instruments are also examined. The chapter concludes with a discussion of ethical issues.

3.2 Research Design

The framework for measuring, gathering, and analyzing data is known as the research design (Tomaszewski et al., 2020). The way a research project is designed reflects the ideas of the researcher. This is accomplished by connecting the subject matter together with a framework that shows how the main elements of the study interact to attempt to address the research questions. This facilitates the process of avoiding research frustration. Asenahabi (2019) states that there are two fundamental research approaches: qualitative and quantitative. Evaluations in quantitative research are made in independent, quantifiable quantities, which result in empirical measurements. Conversely, qualitative research investigates and attempts to comprehend the significance that an individual or group attributes to a situation (Creswell & Creswell, 2017).

Data that contributed to the answers to the study questions were gathered for the current study using a descriptive research design. A descriptive study design looks for information to carefully describe a population, situation, or phenomenon (Creswell & Creswell, 2017). It was appropriate to adopt a descriptive research approach for this study since it enables a thorough examination of the impact of environmental diplomacy on the process of climate change adaptation. This design aligned well with the study's focus on understanding how environmental diplomacy advances climate change adaptation in Kenya, as it provided a detailed and comprehensive description of the phenomena.

3.3 Area of Study

Kenya has a total area of 582,646 Km^2, which is made up of 571,416 Km of land and 11,230 Km^2 of sea surface. Arid and Semi-Arid Lands (ASALs), with a fragile environment and primarily pastoral land usage, make up about 83 percent of the total geographical area. The country is located between latitudes 50N and 50S and longitudes 380E and 400E. It has a variety of landforms, including plains, escarpments, hills, and low and high mountains. The Indian Ocean borders it to the southeast, and landmasses to the north, west, and east (Government of Kenya, 2010).

Map 3.1: Map of Kenya and Its Counties *(Government of Kenya, 2020)*

Kenya's climate varies significantly from region to region. While the seashore is hot and sticky, the country's north and northeast are frequently sunny and mild inland. Due to climate change, Kenya is increasingly susceptible to frequent, severe floods and cyclical, prolonged droughts. These repeated patterns of extreme flooding and drought are associated with significant negative consequences and economic costs. Such calamities may be made more severe by socioeconomic reasons like population expansion, which accelerates urbanization, and

deforestation. Changes to the terrestrial system, such as deforestation and the loss of natural floodplain protection, also result in economic losses (Government of Kenya, 2020).

3.4 Target Population

The population of interest is any group or entire population that the investigator is interested in examining and evaluating. After that, a sampling frame was chosen from this target group. In this study, the target population were the environmental officials from local NGOs directly involved with climate change issues, scholars from local environmental institutions, government officials and environmental diplomats directly involved with climate change issues in Kenya. In this case, the sample frame comprising of officials selected for this study were 115. The estimated population size of one hundred and fifteen (115) people was determined by making reasonable assumptions and using available data to approximate the total number of people in the target demographic (Lesko et al., 2022). It was not feasible to conduct a study that encompasses the complete population within the unit of observation for this study due to logistical issues, inability to reach key officials because of their hectic travel schedules, lack of resources, and time limits.

The population size of 115 individuals in the study, which focused on environmental experts, scholars, government officials, and diplomats concerned in climate change concerns in Kenya, was estimated based on acceptable assumptions. The assumptions were based on the premise is that the target demographic comprises distinct groups that are directly engaged in climate change matters, such as environmental officials from non-governmental organizations (NGOs), scholars from local environmental institutions, government officials, and environmental ambassadors (Lesko et al., 2022). This precise criteria aided in reducing the population size to individuals who were most pertinent to the study. It was also presumed that there existed an adequate pool of participants from the specified target population who were both accessible and willing to take part in the study. This encompassed the anticipation that these authorities would be accessible despite their hectic schedules, and that they offered essential perspectives on climate change adaptation endeavors.

The premise that the chosen sample frame of 115 individuals accurately represented the wider population of environmental officials and stakeholders engaged in climate change matters in

Kenya. This suggests that the opinions and experiences of this particular group can be applied to represent the viewpoints of the wider population. Considering the logistical challenges mentioned, such as the difficulty of reaching all key officials due to travel schedules, it was determined that a sample size of 115 would be feasible to collect meaningful data without causing excessive burden on the research process or compromising the quality of the findings (Lesko et al., 2022). The premise that the resources at hand (including time, funding, and staff) were sufficient to carry out the investigation with the selected sample size. This encompassed the conviction that the research was conducted efficiently within the limitations presented by these resources. The participants were assumed to have given consistent and honest comments regarding their experiences and perspectives on climate change adaptation and environmental diplomacy. This is essential for maintaining the accuracy and reliability of the data analysis.

3.5 Sample Size Determination

Using the Yamane formula, which presumes a normal distribution, a 95% level of confidence, and a precision level of 0.05, the suitable sample size will be determined (Yamane, 1967 as cited in Adam, 2021).

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

Where; n = sample size.

N = total target population

E= margin error (5%).

N = target population 115

E = margin error 5% (e= 0.05)

$$n = \frac{115}{1 + 115 \cdot (0.05)^2}$$

n = 89

The sample size distribution across the categories was done by use of proportionate sampling technique (Table 3.1). In this approach, the sample size of each stratum corresponded directly

to the population size of the overall stratum population. Therefore, every strata sample had an identical sampling percentage.

Table 3.1: Sample Size

Category	**Sample size distribution**
Environmental researchers	22
Government officials	22
NGO officials	23
UNEP	22
Total sample size population	**89**

(Author, 2023)

3.6 Sampling Techniques

According to Welman (2005), a sample is a fraction representation or segment of the total population. Sampling is used to draw inferences about the total population from a small sample. The objective is to reduce costs, increase efficiency, and boost accuracy of data collection while maintaining speed (Tomaszewski et al., 2020).

The sampling frame for this study included the government ministry directly dealing with environmental issues, non-governmental organisations dealing with climate change, UNEP, and environmental researchers on climate change from University of Nairobi, which the study population would be selected (Zikmund et al., 2013). In this instance, the organisations served as the unit of analysis while the officials and researchers served as the unit of observation.

Purposive sampling approach was applied to choose respondents. Choosing participants for purposeful sampling entailed considering their unique traits, areas of expertise and significance to the study problem. This was accomplished by using key informant selection alongside snowball sampling, in which participants recommended other participants from different organizations (Creswell and Creswell, 2017). The main sampling approaches used in research are compiled in table 3.2 and are divided into probability and non-probability sampling techniques. Every technique has a different method for choosing samples from a community, which affects how reliable and representative the study's conclusions are.

Table 3.2: Sampling Techniques

Sampling Technique	Description	Type
Simple Random Sampling	Every member of the population has an equal chance of being selected.	Probability Sampling
Systematic Sampling	Samples are selected at regular intervals from a list or sequence.	Probability Sampling
Stratified Sampling	The population is divided into subgroups (strata) and samples are taken from each stratum.	Probability Sampling
Cluster Sampling	The population is divided into clusters, and entire clusters are randomly selected.	Probability Sampling
Convenience Sampling	Samples are taken from a group that is easily accessible to the researcher.	Non-Probability Sampling
Quota Sampling	The researcher ensures equal representation of specific characteristics within the sample.	Non-Probability Sampling
Purposive Sampling	Samples are selected based on specific characteristics or criteria defined by the researcher.	Non-Probability Sampling
Snowball Sampling	Existing study subjects recruit future subjects from among their acquaintances.	Non-Probability Sampling
Consecutive Sampling	A single group is sampled over time, moving to another group as needed.	Non-Probability Sampling

(Source: Zikmund et al., 2013)

3.7 Data Collection and Instruments

The study used a semi-structured questionnaire as data collection instrument. The instrument included both closed and open-ended questions that were based on the study's objectives (Saunders et al., 2009; Creswell & Creswell, 2017). The respondents were asked to rate each statement from the closed ended questions on a 5-point Likert scale. A standardized interview guide was also applicable as data collection instrument, with interviews held with key informants from each of the organizations visited (Appendix 1). Interviews with government officials were semi-structured to ensure that the concept is understood. Besides, secondary data was obtained from peer reviewed scholarly articles, online sources including government publications.

Table 3.3 provide summary of the types of data, their sources, instruments used for collection, and techniques employed in research. The table 3.3 presents a comprehensive summary of the many categories of data that are gathered in research, together with information about their sources, instruments, and methods of collection.

Table 3.3: Data types, Sources, Instruments and Techniques Summary

Type of Data	**Source**	**Instrument**	**Techniques**
Quantitative Data	Surveys, Experiments, Databases	Questionnaires, Sensors, Scales	Random Sampling, Stratified Sampling, Systematic Sampling
Qualitative Data	Interviews, Focus Groups, Observations	Interview Guides, Audio Recorders, Field Notes	Purposive Sampling, Snowball Sampling, Convenience Sampling
Primary Data	Directly from participants or experiments	Surveys, Interviews, Experiments	Cross-sectional, Longitudinal Studies
Secondary Data	Existing research, Reports, Archives	Databases, Literature Reviews	Meta-analysis, Content Analysis

Type of Data	Source	Instrument	Techniques
Nominal Data	Surveys, Observations	Questionnaires, Checklists	Simple Random Sampling, Quota Sampling
Ordinal Data	Surveys, Scales	Likert Scales, Ranking Surveys	Stratified Sampling, Convenience Sampling
Interval Data	Surveys, Tests	Standardized Tests, Rating Scales	Systematic Sampling, Cluster Sampling
Ratio Data	Experiments, Measurements	Measurement Tools, Scales	Random Sampling, Stratified Sampling

(Source: Saunders et al., 2009; Creswell & Creswell, 2017)

3.7.1 Studying existing literature and policy documents

This study included a review of previously published policy materials on climate change adaptation that were retrieved from multiple government agencies' websites and organizations. "Climate change," "adaptation to climate change," "climate response," "policy," "strategy," and "Kenya" were the search terms utilized in the search. Further searches were conducted with the same phrases in significant academic databases, including PROQUEST, SCOPUS, and Web of Science. The choice of papers as well as the parameters for inclusion and exclusion were part of the procedure for evaluating the literature. In this instance, fifty policy guidelines and pertinent research articles were assessed for abstracts and/or executive summaries. The full texts of the research report and policy pronouncements that directly impacted the study context of this work were examined. In chapter 2, the results of the available literature review are presented. The literature review helped in distinguishing roles and responsibilities of NGOs, the National and County governments in Kenya. The study concluded that the government and NGOs are taking a leading role in climate change adaptation. Consequently, a wide range of County government professionals were identified from Nairobi City County. The results from interviews with policy experts are also reported in this study.

3.7.2 Questionnaire

A wide variety of questions, both structured and semi-structured, emerged with the aid of data obtained from the literature research. A semi-structured questionnaire and interview guide were developed focusing on the variables compliance levels, role of environmental diplomacy and future prospects that entails challenges and prospects and also climate change adaptation strategies. The questions that were semi-structured were used to acquire a thorough understanding of the subjects' impressions as well as the rationales for those perceptions, as the strategy allowed the investigator to ask "how" or "why" type inquiries. The participants' identities were removed with the necessary consideration. Even yet, it is not possible to list every question that was asked during the interview because, frequently, these questions were chosen depending on the answers provided by the participants (see table 3.3).

3.7.3 Key Informant Interviews

From these organizations, a sizable number of participants were chosen. After a thorough examination of organizational structures and suitable interaction with the relevant organization's administration, participants were chosen. We allotted roughly ten to twenty minutes for semi-structured interview questions. Relevant quotes and answers were transcribed, and the interview data was summarized thematically. Pattern matching and grounded theory were used to compare and analyze the study's findings across several important questions (Yin, 2009). Saturation of the data was detected after ten interviews (Table 3.4). Every interviewee's data set was regularly compared and examined for patterns and variances. Different sub-themes were created by grouping together similar codes. Finally, categories were created inside these subcategories.

Table 3.4: Key Informants

Category	**Sample distribution**
Environmental researchers	2
Government officials	2
NGO officials	4
UNEP	2
Total Informants	**10**

(Author, 2024)

3.8 Instrument Piloting and Research Criteria

Piloting a research instrument is the process of evaluating and improving the questionnaire or interview guide, prior to its official use in the primary data collection. This study used questionnaire tool for data collection.

3.8.1 Pilot Study

In the current investigation, the pilot study is characterized as primarily an experimentation with research instruments and procedures, with participants chosen at random to receive the instruments. The pilot study was conducted at Environment Institute of Kenya (EIK) with 9 officials, not part of the sample population. Before the study was put into action, the pilot test allowed for any necessary adjustments to be made and helped the research identify any limitations or problems in the instrument design (Gani et al., 2020).

The pilot study, carried out at the Environment Institute of Kenya (EIK) with a group of 9 officials, yielded various significant advantages that contributed to the enhancement of the research. The pilot study facilitated researchers to test the research instruments, such as questionnaires or interview guides, prior to the primary study (Gani et al., 2020). Through conducting tests on a limited number of participants, the researchers were able to detect any questions that were unclear or had several interpretations. This ensured that the instruments accurately collected the desired data. This procedure facilitated the enhancement of the questions to ensure they are more exact and pertinent to the target population. The researchers conducted a pilot study to identify any potential limitations or issues in the design of the device. For example, participants may have identified questions that were challenging to comprehend or not relevant to their personal experiences. Early identification of these flaws facilitated the implementation of essential modifications, enhancing the precision and efficacy of the instruments employed in the primary investigation.

The pilot study yielded valuable insights into the participants' interaction with the research instruments. By observing the reactions and feedback of the participants, researchers were able to assess the suitability of the instruments and the entire research methodology. If participants encountered any elements of the study that were perplexing or lacked interest, the researchers

might adjust their methodology to augment participant engagement and improve the quality of data in the primary study (Gani et al., 2020). Researchers were able to assess the data collection methods, such as the scheduling and location of interviews or surveys, through the pilot project. This assessment aided in identifying operational challenges, such as the requirement for additional time or an alternative setting to enhance the quality of responses. Modifying these methods in response to pilot feedback resulted in a more streamlined and effective data collection process for the main trial. Conducting a pilot study additionally provided researchers with the opportunity to refine and enhance their research methodologies, thereby increasing their proficiency and self-assurance. Acquaintance with the instruments and methods aided in diminishing nervousness and uncertainty while interacting with the broader sample population. Having confidence in oneself can result in more efficient interactions with participants and enhanced outcomes in data gathering. The researchers enhanced the validity and reliability of the research tools by resolving the difficulties reported during the pilot study. An instrument that has undergone rigorous testing is more likely to produce reliable and precise results, which is crucial for deriving significant conclusions from the data gathered in the primary study.

3.8.2 Research Criteria

As is the case with all research, the goal of this study is to guarantee that both the methodology and the data processing are flawless. Thus, when assessing the study tools, credibility, validity, and reliability are crucial factors to take into account (Tuomi & Sarajarvi, 2018). The investigation setting is crucial for doing research since it can affect the results. Similarly, the role of the researcher is crucial (Green & Thorogood, 2018).

3.8.2.1 Credibility of Research Instruments

Credibility pertains to the veracity of qualitative research, denoting the extent to which the conclusions drawn from the study are accurate and valid (Johnson et al., 2020). It partially depends on the researchers' trustworthiness and the methodologies they use in their research. Triangulation, extended interaction with data, continuous observation, analysis of negative cases, validation of participants, and adequacy of referential information are all methods that can be used to enhance the credibility of this qualitative study. This study involved conducting supervisory analysis on the information acquired from in-depth interviews. This entailed

condensing every specific element and identifying the common underlying patterns that were coherent, which ultimately generated the fundamental observations discovered in the investigation.

The credibility of research instruments is crucial in qualitative research since it directly impacts the accuracy and validity of the conclusions derived from the study. Various techniques were implemented to bolster the reliability of the research tools employed in the study on environmental diplomacy and climate change adaption in Kenya. Triangulation is the process of utilizing numerous sources of data or procedures to validate and confirm research findings. The study employed triangulation by integrating data obtained from in-depth interviews with additional data sources, including papers, reports, and current literature on environmental diplomacy and climate change. This methodology facilitated the verification of the results and guarantees that the conclusions are not reliant on a solitary viewpoint or data source, consequently augmenting the overall trustworthiness of the research.

The researcher's prolonged engagement with the data enabled them to fully engage with the obtained information, resulting in a more profound comprehension of the context and subtleties of the responses. Through prolonged interaction with the data, the researcher found patterns, themes, and discrepancies that were not evident in a cursory study. The extensive involvement in the research process enhanced the reliability of the results by showcasing a deep comprehension of the topic. Researchers maintained continuous observation throughout the data collection process to guarantee attentiveness to the contextual circumstances in which the data was acquired. This required attentiveness to non-verbal signals, contextual elements, and the interactions within the interview space. These observations offered valuable insights that improved the data and aided researchers in appropriately interpreting the findings, hence increasing the credibility of the study instruments.

Examining negative cases in qualitative research, which are instances that deviate from predicted patterns or hypotheses, enhances the study's credibility. The researcher enhanced their grasp of the data and avoided confirmation bias by recognizing and investigating these exceptional cases. This technique exemplified a dedication to meticulousness and

comprehensiveness, bolstering the soundness of the conclusions derived from the investigation. Validating findings entailed the process of sharing early results or interpretations with the persons who contributed the data. This procedure enabled participants to validate or elucidate the researchers' comprehension of their answers, guaranteeing that the conclusions appropriately represented their viewpoints. Validation improved the credibility of the research by including the perspectives of participants and addressing any possible misunderstandings. The inclusion of appropriate referential material, such as relevant literature, theoretical frameworks, and contextual data, enhanced the credibility of the research instruments. The investigator built a strong basis for the findings by basing the study on existing hypotheses and past research. The incorporation of prior information strengthened the credibility of the research and showcased its pertinence within the wider scholarly conversation.

3.8.2.2 Validity of Research Instruments

Validity is the extent to which the outcomes of a measure accurately reflect the variable for which it was designed. In this investigation, construct and content validity were both relevant. Construct validity refers to the capacity to infer test findings from the idea under investigation, whereas content validity refers to the instrument's ability to comprehensively cover all relevant material concerning the variable. Construct validity was ensured by reviewing the theoretical framework of this study and making adjustments as appropriate. Further, the supervisor helped to guarantee content validity in this study (Blumberg et al., 2014).

The researcher enhanced the confidence in the accuracy and meaningfulness of the findings by establishing both construct validity and content validity. The researcher established construct validity by aligning the research instruments with the theoretical framework that supports the investigation. By anchoring the instruments in well-established theories of environmental diplomacy and climate change adaptation, the researchers enhanced the probability that the instruments would accurately measure the desired concepts. Additionally, by a comprehensive examination of existing literature, researcher aim to uncover the fundamental aspects and factors linked to environmental diplomacy and the process of adapting to climate change. The researcher gained a thorough comprehension of the concepts through this procedure, which was subsequently incorporated into the research tools. Requesting input and guidance from the

research supervisors to enhance the instruments and ensure their alignment with the study's objectives and theoretical foundations (Blumberg et al., 2014). The supervisors' knowledge and proficiency enhanced the construct validity of the measures. Performing a pilot study to evaluate the research tools and detect any concerns with construct validity. The pilot study enabled the researcher to evaluate the effectiveness of the instruments in measuring the targeted constructs and make any required adjustments prior to the major data collection phase.

The researcher established content validity in this analysis by conducting a thorough literature review to determine the fundamental elements and components of environmental diplomacy and climate change adaptation. This technique facilitated the researchers in acquiring a comprehensive comprehension of the content domain and guaranteed that the research instruments encompassed all pertinent components. Engaging in discussions with specialists in the topic, such as research supervisors and other scholars, to evaluate the thoroughness and pertinence of the research tools. Their opinions and recommendations contributed to the improvement of the instruments and the enhancement of content validity. Performing a pilot study to evaluate the comprehensiveness and applicability of the research tools. The pilot study enabled the researchers to detect any deficiencies or extraneous elements and make required modifications to guarantee that the instruments encompassed all fundamental parts of the constructs. Ensuring that the research instruments are in accordance with the study's objectives and research questions. The researcher improved the content validity of the instruments by making sure that they covered all the important parts of the study problem (Blumberg et al., 2014).

3.8.2.3 Reliability of Research Instruments

The consistency with which a procedure analyses something is its level of reliability. If the same result can be consistently produced under the same conditions using the same processes, then the measurement is considered dependable. The reliability coefficient, α, of Cronbach Alpha Kaiser-Meyer-Olkin (KMO) and Bartlet test of sphericity (BTS) were utilised to assess the internal reliability of the questionnaire's questions. In this instance, α approaches 1.0 of the scale items, indicating a higher level of internal consistency (Venkatesh et al, 2013). Cronbach provides evidence for both the consistency and dependability of the variable level. When the

instrument's reliability test yields an alpha value of 0.7 or higher, it is deemed acceptable and dependable.

3.9 Data Processing and Analysis

This section is an important step in research and decision-making because it allows the researcher to see patterns, linkages, and insights in the raw data. Extraction of relevant information and formulation of conclusions based on evidence were greatly aided by data analysis. The research used both quantitative and qualitative methods of data analysis.

3.9.1. Quantitative Data Analysis

The process of data analysis involved using descriptive statistics. For the quantitative data, factor analysis was employed, and for the qualitative data, theme analysis. The process of data analysis is organizing, classifying, and arranging the information gathered so that the primary conclusions may be successfully and simply reported (Cooper & Shindler, 2011). Examination of quantitative data was done using SPSS application. Each variable was given a systematic numbering in order to prevent overlaps. The ordinal regression approach was used in conjunction with factor analysis to model the relationship between the ordinal outcome variable and the independent variables. The findings were displayed as tables and graphs.

In this case, simple frequency distributions were applicable first and associated summary measures and then factor analysis. Factor analysis is used to evaluate construct validity because it can condense numerous components into a manageable or handy group of factors. In order to find the items that measure the crucial underlying variables, factor analysis was performed. In this case, Exploratory Factor Analysis (EFA) was applicable in expressing covariance or correlations among scale variables with normal distributions in a straightforward manner. The validity, reliability, and applicability of the observed variable on the variables was examined using EFA. It is used to assess the levels of construct or factor validity (suitability) in a given dataset regarding the relationships among themselves (Lowry & Gaskin, 2014).

The Kaiser-Meyer-Olkin (KMO) and Bartlet Test of Sphericity (BTS) were applicable as a way to gauge the size and suitability of the sample, and the factor analysis was carried out to establish construct validity. In the earliest stages of this analysis, numerous questions were

combined depending on the researcher's judgment with the goal of identifying the person's behavioral patterns based on various responses. Factors analysis was for the identification of the unknown variables or factors that affect the co-variations among many observations applicable in the study. These variables were key in indicating fundamental ideas that are insufficiently captured by a single variable (Lowry & Gaskin, 2014).

3.9.1.1 Tests for Factorability and Sphericity

Factorability assumes the existence of at least certain correlations between the variables in order to find coherent components. In general, the variables ought to have some relationship to one another (Fabrigar et al., 1999). Factor analysis involves a number of steps. Measure of Sampling Adequacy (MSA) with at least 0.6, KMO with at least 0.5, and a significant Bartlett's test of Sphericity (BTS) are used to determine factorability of the data in the first phase (Pallant, 2005). The extraction factor determined the number of factors to be employed, and the scree plot looked at the natural bend in the data to assist estimate the eigen value (Costello and Osborne, 2005). For the selection to be limited to significant factors, then only eigen value more than 1 is selected (Pallant, 2005).

Two indicators were assessed to determine how factorable the constructs were. They consist of the BTS and the KMO Measure of Sampling Adequacy. The two tests assisted in determining if the data were factorable or suitable for structure recognition. To determine the sampling adequacy, KMO test was applied. The index lies between 0 and 1 (Tabachnick and Fidell, 2011). KMO test statistic ought to be larger than 0.5 for an appropriate sample (Hair et al., 2013). The continuation of factor analysis is only recommended where the index is 0.6 or greater.

Due to its statistical prowess, the Maximum Likelihood Extraction (MLE) approach was chosen for EFA investigation. This is because MLE was the most comparable to Confirmatory Factor Analysis. It was picked above alternative extraction techniques like Principle Component Extraction, which is available in SPSS. After sorting the factor loadings by size, a constraint of 0.5 was employed to omit values below that level. The factor matrices in this dataset were greater than the cut-off of 0.5, therefore correlation was presumable. Vogt (1993)

defined rotation as a strategy in factor analysis whereby the researcher makes an effort to connect the measured components to theoretical entities. The approach used is determined by whether the elements are thought to be associated or uncorrelated. The constructions were found to be associated due to the data's correlated variables, hence the varimax rotation approach (Yong & Pearce, 2013) was used. An important step in the assessment of the relationship matrix was the BTS, which computes the likelihood that the relationship matrix has significant connections among certain elements.

3.9.2. Qualitative Data Analysis

Here, categories are defined through the procedure of identifying parallels and discrepancies, and data is then further sorted according to these categories. Maxwell and Miller (2008) referred to coding as a typical categorizing strategy in qualitative research (Forman & Damschroder, 2008). Many qualitative researchers have treated coding as the fundamental activity in the analysis (Bogdan and Biklen, 2003; van den Hoonaard, 2008), where data is grouped by category and compared both within and between categories.

Thematic analysis, which uses data reduction and analysis strategy (Forman & Damschroder, 2008) which uses data segmentation, categorization, summarization, and reconstruction to extract key findings from a given dataset. A method for locating, analyzing, classifying, elucidating, and communicating themes found in a data set is called thematic analysis (Nowell et al., 2017). For this study, the data was coded into categories and later used to identify connections and influence on one another. Thematic analysis was utilized to uncover and interpret the patterns revealed from the dataset collected through the interviews.

The following phases were part of the thematic analysis approach.

i. Reading and understanding the interviews that were semi-structured and conversation scripts in light of the central question.
ii. Finding relevant data sections linked to the guided search and extracting them into codes.
iii. Combining the codes to create first order themes.
iv. By combining the initial-order themes, the second-and-third-order themes were generated.

v. The data set's primary themes were determined to be third-order themes.
vi. Examining third-order themes to compare them to the current codes.
vii. Identifying the third-order themes accordingly to develop the elements to be employed in establishing the model of thought that would be generated.

3.9.3 Summary of Research Design and Data Analysis

The Table 3.5 provides the summary of the research design as well as data analysis for each specific objective as used in the study.

Table 3.5: Summary of Research Design and Data Analysis

Specific Objective	Research Design	Data Analysis
1.To assess Kenya government's level of compliance with global environmental treaty obligations	Descriptive research design	Factor analysis (Quantitative data) and Theme analysis (Qualitative data)
2. To determine the role of environmental diplomacy in climate change adaptation in Kenya.	Descriptive research design	Factor analysis (Quantitative data) and Theme analysis (Qualitative data)
3. To establish the challenges and opportunities in leveraging Kenya government's diplomatic efforts for Climate Change adaptation.	Descriptive research design	Factor analysis (Quantitative data) and Theme analysis (Qualitative data)

(Author, 2024)

3.10 Ethical Considerations

Ethical considerations guided the selection of all study protocols to guarantee participant safety and well-being. For clarity, the following list of ethical considerations were considered:

i. Participants were made aware that there was no obligation to continue with the study at all.
ii. Prior to data collection, all participants gave their informed consent after being made aware of the nature of the study and its educational objectives.
iii. Participants received assurances that the study team would be the only ones to see their remarks and private information.
iv. In order to protect the privacy of participants, responses were handled discreetly.
v. The names of the participants were protected during data collection and analysis by the use of pseudonyms or identity codes.
vi. There was less chance of danger or injury from study participation since precautions were made to guarantee participant privacy.

CHAPTER FOUR
RESULTS AND DISCUSSION

4.1 Introduction

The chapter presents the study results based on the three specific objectives. The chapter is organized into sections and sub-sections, starting with the response rate and the respondents' socio-demographic characteristics. The subsequent section is a category of subsections with analysis for every specific objective and interpretation of the results embarked by the literature review.

4.2 Response Rate

The researcher distributed 89 questionnaires to respondents who agreed to participate. However, only 87 questionnaires were completed and returned, translating to an approximately 98% response rate. According to Hendra & Hill (2019), a response rate of 50% is sufficient, 60% is good, and 70% is perfect for analysis and inference. Such a high response rate was attained due to the researcher's efforts to follow up with participants via numerous texts and phone calls regarding the need to cooperate in filling out and completing the questionnaire on time. Other underlying assumptions, including normality, the trustworthiness of correlations, and multi-collinearity, were also satisfied (See factor analysis correlation matrix, table 4.4).

4.3 Socio-Demographic Profile of the Respondents

The study sought to determine the respondents' selected profile, gender, education level, and service period within the current organization. The profiles of the 87 respondents are shown in Table 4.1. About half (53.3%) of respondents were men and 43.7% were women. Even though the gender distribution might not directly affect the research topic, it is crucial to identify any imbalances in the sample to comprehend how the study's demographics are represented. The distribution of genders among participants may reflect underlying gender differences in environmental diplomacy or the recruitment of study participants. This data raises the possibility that biases or hurdles may exist that affect men's and women's participation in environmental diplomacy and related research projects. This observation might prompt discussions on diversity in participation in environmental decision-making and inclusivity. As

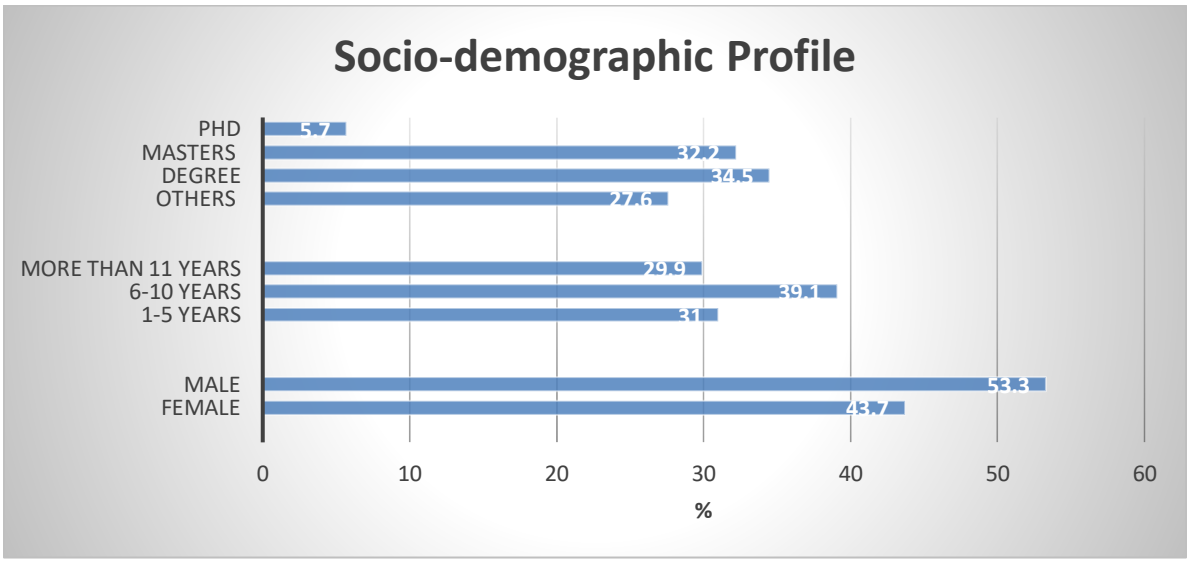
highlighted by Mehar & Prasad (2022), the gender distribution of the population studied is a reminder to include gender analysis in the study's conclusions and investigate any possible gender-specific implications or issues about climate change and environmental diplomacy.

Table 4.1: Percentage Distribution of the Study Population According to the selected Socio Demographic Characteristics

Socio-Demographic Characteristics	Percent (%)	Number (N)
Gender		
Female	43.7	38
Male	53.3	49
Service Period		
1-5 years	31	27
6-10 years	39.1	34
More than 11 years	29.9	26
Education Level		
Others	27.6	24
Degree	34.5	30
Masters	32.2	28
PhD	5.7	5
Total		**87**

(Researcher, 2024)

Figure 4.1: Percentage Distribution of the Study Population



The work history results as shown in Table 4.1 and Figure 4.1 revealed that 31% of the respondents have between one to five years of employment duration, while 39.1% of the respondents had worked in the respective organizations between six and ten years, and 29.9%

for more than eleven years. The results indicate that majority have been employed for over five years within respective organizations. This is a clear indication that they had a higher to average degree of experience, therefore, capable of providing relevant information as required for this research study. When asked what level of education they had attained, the research revealed that 34.5% of them had a Bachelor's degree, 32.2% had a Master's degree, 27.6% other professional or academic qualifications and the least number of respondents 5.7% had a Ph.D. This demonstrates that the majority of respondents in this study were educated and had a university degree as their highest level of education showing that they had the information necessary to thoroughly analyze the study objectives.

4.4 Exploratory Factor Analysis

Exploratory factor analysis (EFA) approach was used to test the validity, reliability and suitability of observed variable on the four constructs. In this case, the levels of construct or factor validity (suitability) in the given dataset regarding the relationships among themselves was assessed (Lowry & Gaskin, 2014).

Table 4.2: Factor Correlation Matrix

Correlation Matrix[a]					
	Factor	ADM	CL	RLE	FP
Correlation	ADM	1.000			
	CL	.458	1.000		
	RLE	.199	.602	1.000	
	FP	.438	.004	-.001	1.000
Sig. (1-tailed)	ADM		.072	.032	.000
	CL	.022		.000	.484
	RLE	.032	.000		.495
	FP	.000	.484	.495	

a. Determinant = .423

ADM – Adaptation measures; CL – Compliance levels; RLE – Role of environmental Diplomacy; FP – challenges and opportunities

(Researcher, 2024)

Further, Kaiser Meyer Olkin (KMO), was used in this study to further examine the suitability of how the constructs suited the data. KMO evaluated how well each model variable was sampled and how much variance there is between different variables. Bartlett's test of

sphericity was found to be significant at 60 degrees of freedom, p< 0.0001, while the KMO value was satisfactory at 0.518. Table 4.3 displays Kaiser-Meyer-Olkin (KMO) result statistics that are higher than the convectional probability value of 0.5 and over 0.60 for an adequate sample. This suggests that the sample size was suitable for factor analysis.

Table 4.3: Kaiser-Meyer-Olkin and Bartlett's Test

KMO and Bartlett's Test		
KMO Measure of Sampling Adequacy.		.518
Bartlett's Test of Sphericity	Approx. Chi-Square	6007.2
	df	60
	Sig.	.000

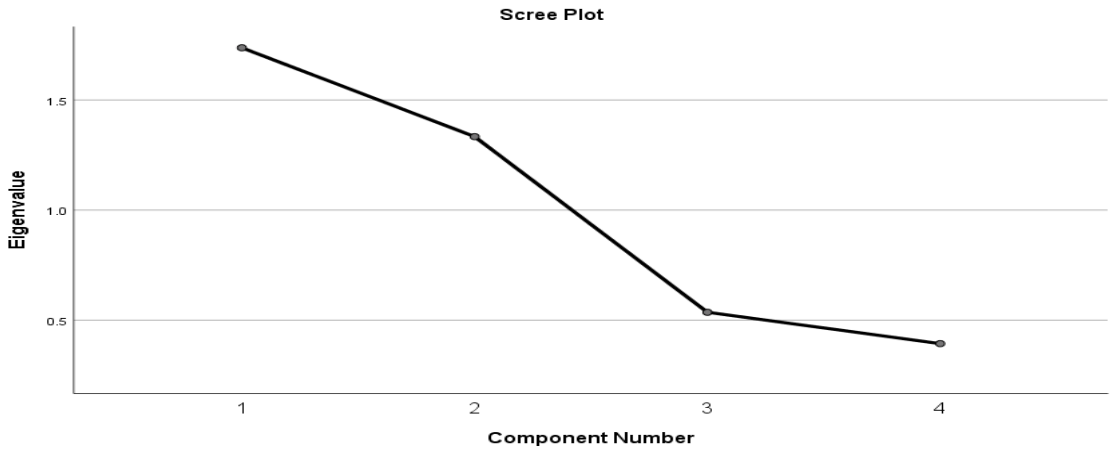
Thus, since the Bartlett's test of Sphericity was significant, it implies that the construct variables had relationships among themselves. Using the method of latent root, scree test (Figure 4.1) and percentage of covariance explained that all constructs were retained which depicted 76.76 % of the total variance explained. All the factor loadings were greater than 0.57, which is in line with the general rule of thumb that sets a minimum of 0.55 factor loading (Table 4.4).

Table 4.4: Factor Loading

Communalities		
	Initial	Extraction
ADM	1.000	.725
CL	1.000	.789
RLE	1.000	.798
FP	1.000	.759
Extraction Method: Principal Component Analysis.		

(Researcher, 2024)

Figure 4.2: Scree test



4.5 Descriptive Statistics

This section presents the descriptive study findings based on the percentages, mean and standard deviation of the variables. Table 4.5 lists the findings based on means and standard deviations computed from responses given on a 5-point Likert scale. The responses' degrees of agreement on the measures used were reflected by the data collected on this scale. The standard deviation, in particular, provides measure on how much the responses deviate from the true mean. In this instance, an SD of approximately '1-one" indicates that the respondents' answers to the questionnaire's study questions were distinct, unique and varied. Further, a mean of two to three as per the results (table 4.5) indicates that respondents' agreement or intensity with regard to the particular element under study is somewhat moderate. This may point to a moderate degree of awareness or involvement on the part of the sample regarding the effect of environmental diplomacy on climate change adaptation.

Table 4.5: Mean and Standard Deviation

Descriptive Statistics			
	Mean	Std. Deviation	N
ADM	1.91	.890	87
CL	2.55	.854	87
RLE	2.97	.902	87
FP	2.17	.529	87

(Researcher, 2024)

4.6 Presentation of the Data Guided by the Objectives

This subsection presents data in a way that is directed by specific objectives, which improves the dissemination of research findings, facilitates well-informed decision-making, and increases the study's overall impact.

4.6.1 Results on Compliance levels to Environmental Treaty Obligations

The results of the first objective measures were as shown in Table 4.6, which lists the findings computed from responses given on a 5-point Likert scale. The responses' degrees of agreement on the measures used were reflected by the data collected on this scale.

Table 4.6 shows that over 60% of the participants said that the government have issues on compliance with environmental treaties and obligations on climate change.
According to the research, the government has issues fulfilling its responsibilities and pledges under climate change-related environmental agreements. This implies that barriers, limitations, or systemic problems may hamper the government's ability to adhere to these agreements successfully. Similarly, the majority disagreed 73.5% on the issue that Kenya's environmental policies and legislations are appropriately aligned with the global Environmental Treaties and Protocols. Further, 80.5% of the participants said that the Kenyan government needs to implement international environmental treaties and policies effectively. This suggests discrepancies in how the government implements environmental laws and initiatives compared to what it intended to accomplish. This could result from insufficient funding, a need for more enforcement tools, conflicting goals, or challenging political climates.

More than half, 52.8% of the respondents, agreed that Kenya's system of governance influences their compliance efforts to global environmental treaties. An estimated 49.4% of the respondents agreed that the Legislature plays a vital role in the compliance process to international treaties and protocols. In comparison, 59.8% disagreed that the judiciary provides enough support to aid the state in fulfilling its environmental law obligations. The results can draw attention to institutional flaws in the government that prevent environmental treaty compliance, as reflected in the study by Angstadt (2023). These shortcomings may consist of

inadequate capability, problems with cooperation between various government entities, or inefficient governance frameworks.

Table 4.6: Kenya Compliance levels

Measures	SD %	D %	N %	A %	SA
The government complies with a number of environment treaties on environment and climate change	40.2	28.7	5.7	8.0	17.2
Kenya's environmental policies and legislations are properly aligned to the global Environmental Treaties and Protocols	40.2	33.3	13.8	9.2	3.4
The global environment treaties and policies are effectively implemented in Kenya	43.7	36.8	18.4	1.1	-
Kenya's governance system influences her compliance efforts to global environment policies/treaties	14.9	20.7	11.5	24.1	28.7
The Kenyan Legislature has a role to play in the compliance to the global environmental treaties and protocol process	10.3	21.8	18.4	25.3	24.1
The Kenyan Judiciary executes its mandate in aiding the state to fulfil its International Environmental Laws obligations	35.6	24.1	10.3	6.9	23

(Field Data, 2024)

The qualitative results from the KIIs complemented the quantitative results on the effect of environmental diplomacy on the climate change adaptation measures in Kenya as stated in Table 4.6. In the quest to examine environmental diplomacy effects on climate change adaptation thematic analysis was used. Various themes could be identified as pertains to environmental diplomacy on climate change adaptation (Appendix II).

The interviewees responded to the approaches to climate change adaptation created by various local and international non-governmental organisations and governments. As far as government experts are concerned, organizations focus primarily on adaptation to climate change rather than reducing and managing their carbon footprints. This is evident in the need for a clear and visible action plan. According to some NGO officials, this is one of the main drawbacks of current practice, and mitigation measures should be included in a long-term strategy for adapting to climate change. More questions were posed about how the respondents would like adaptation policies to be implemented after they suggested that they be integrated. The interviewees had a limited comprehension of the possible local and organisational

implementation of this. The respondents stated that the policy statement should address climate change risk as a unified unit addressing adaptation plan and execution framework rather than creating climate change adaptation policy directives and implementation plan separately. This is anticipated to increase the process' appeal to various national stakeholders. The results reflect the findings of Li, et al. (2020) and Summerlin et al. (2020) on the gap in implementation when it comes to local efforts to integrate adaptation into CIPDs.

According to a county government expert, the local government should establish minimum energy efficiency standards for public assets and look into and adopt renewable energy options when appropriate. Then, purchase carbon offsets for the organization's carbon emissions, set an emission target, and develop and implement suitable land use planning and coastal hazard management policies to support risk management and adaptation to climate change.

Using energy-efficient appliances was also considered crucial for the government to lower running costs and ultimately aid in adapting to climate change. While local organisations are encouraged by government bodies addressing climate change to participate in mitigation efforts, this encouragement is currently advisory in nature. Creating required policy documents and guidelines for local organisations is crucial.

The participants also acknowledged the significance of more policy-level research on the capabilities and limitations of grassroots adaptation techniques. Priority setting for adaptation projects is essential, and it must be done in light of regional limitations such as available funds, political influence, and input from other stakeholders.

In order to effectively handle and adjust to the risks brought about by changing climates, municipal governments must overcome a number of obstacles, such as ambiguity regarding the course of decision-making, the need to enhance proper emergency procedures, the management of public response, legal obligations, and the practicality of imposing constraints in areas of greatest risk. According to the interviewees, the top objectives include development constraints, emergency response, wise planning decisions, and uncertainty around climate change adaptation strategies.

Even while most of those interviewed, including government officials, are aware of the hazards posed by climate change, many adaptation efforts are undertaken piecemeal, and their efficacy needs to be clarified. The participants are worried that development is still occurring in susceptible regions and that this is frequently influenced by various governmental pressures as well as community expectations. Because there are now no significant legal obligations in Kenya to address climate change risk, the government's legal culpability was also brought up frequently. Everyone agrees that community engagement is crucial when it comes to climate readiness. Still, there is a lack of long-term reaction to the process of adapting to climate change because of poor communication about the long-term effects of climate change on community lifestyle and wellness.

The triangulation of quantitative and qualitative results presents a comprehensive view of compliance levels to environmental treaty obligations in Kenya. The quantitative findings reveal that over 60% of participants believe the government faces significant challenges in complying with environmental treaties related to climate change, indicating systemic barriers to adherence. This concern is echoed in the qualitative insights gathered from key informant interviews (KIIs), where experts noted that the government primarily focuses on adaptation rather than mitigation. This suggests a lack of comprehensive strategies to fulfill treaty obligations, highlighting a disconnect between national legislation and international commitments.

Further, a substantial 73.5% of survey respondents disagreed that Kenya's environmental policies are appropriately aligned with global treaties. Interviewees supported this finding by emphasizing the absence of a clear action plan that integrates mitigation measures into adaptation strategies, reinforcing the notion of misalignment. Additionally, 80.5% of participants indicated that the Kenyan government needs to implement international treaties effectively, revealing a perception of inadequacy in policy execution. This sentiment was mirrored in the interviews, where experts stressed the necessity for stronger policy frameworks and guidelines for local organizations to enhance compliance.

The influence of governance structures on compliance efforts was also highlighted, with 52.8% of respondents agreeing that Kenya's governance system affects these efforts. Only 49.4% acknowledged the Legislature's role in the compliance process, which aligns with qualitative insights that pointed out institutional flaws and the need for improved governance frameworks. Similarly, a majority of participants (59.8%) disagreed that the judiciary provides adequate support for fulfilling environmental obligations. Interviewees noted that the lack of legal obligations in Kenya to address climate change risks contributes to ineffective judicial support, further supporting the quantitative perception of inadequate judicial involvement. While the survey results did not explicitly address community engagement, the qualitative findings underscored the importance of involving the community in adaptation strategies and the necessity for more policy-level research. Participants stressed that effective communication about climate change risks is critical for successful implementation.

The triangulation of both quantitative and qualitative data reveals a consistent narrative regarding the challenges faced by the Kenyan government in complying with environmental treaty obligations. Systemic issues such as inadequate governance, lack of alignment with international standards, insufficient implementation of policies, and the need for enhanced community engagement are prevalent across both data sets.

4.6.2 Results on Roles of Environmental Diplomacy on Climate Change Adaptation

Table 4.7 shows that Kenya plays an active role in multilateral environmental negotiations, with 43.6% of participants agreeing. This indicates that the Kenyan government has taken a proactive role in global collaborations and campaigns about environmental diplomacy and climate change. This entails working with institutions like the UNEP and participating in international conferences and discussions about climate change. Further, most participants (55.2%) disagreed with Kenya's state as per galvanizing negotiation coalitions in advancing global climate action forums. In addition, the majority, 46.1%, disagreed that professional negotiators are deployed at international forums. The results indicate that a significant proportion of participants need more confidence in the ability or reliability of the government's designated negotiators to tackle environmental diplomacy and climate change-related matters effectively. This conflict may arise from reservations about their qualifications, conflicts of

interest, or appointment bias. The discord may also reflect respondents' belief that previous attempts by the negotiators to reach acceptable results were unsuccessful. They might think that talks need to be more bureaucratic, too slow, or sensitive enough to the pressing issues that climate change presents.

Further, 49.4% expressed inadequate collaboration between environmental organizations and County and national governments. Responses saying a lack of cooperation could indicate an assumption that County and national governments need to listen more adequately to environmental groups' concerns. Experiences with limited involvement could influence this impression, ignored policies, or inadequate support from the government. Moreover, more than half of the respondents, 51.7%, agreed that environmental diplomacy is crucial in setting climate change agendas in Kenya. This implies that international accords and negotiations, such as the United Nations Framework Convention on Climate Change (UNFCCC), greatly influence Kenya's climate change objectives. They perceive these diplomatic initiatives as crucial in influencing national policy decisions and initiatives.

Table 4.7: Responses on Roles of Environmental Diplomacy on Climate Change Adaptation

Measures	SD %	D %	N %	A %	SA
Kenya plays an active role in the multilateral environmental negotiations	2.3	17.2	36.8	24.1	19.5
Kenya has effectively galvanized negotiating coalitions like Africa Group in advancing climate action at global negotiation forum	25.3	29.9	29.9	11.5	3.4
Kenya deploys skilled and seasoned negotiators at the global multilateral negotiation forum	17.2	29.9	27.6	14.9	10.3
Environmental organizations in Kenya directly collaborate with National and County governments to address environmental concerns	26.4	23.0	4.6	10.3	35.6
Environmental diplomacy plays a key role when it comes to setting climate change agendas in Kenya	16.1	23.0	9.2	16.1	35.6

(Field Data, 2024)

The triangulation of quantitative and qualitative results regarding the roles of environmental diplomacy in climate change adaptation in Kenya reveals a nuanced understanding of the

country's engagement in multilateral environmental negotiations and its implications for climate action.

Quantitatively, the survey results indicate that 43.6% of participants believe Kenya plays an active role in multilateral environmental negotiations, suggesting a recognition of the government's proactive stance in global collaborations, particularly with institutions like the United Nations Environment Programme (UNEP). However, a significant portion of respondents, 55.2%, disagreed that Kenya effectively galvanizes negotiation coalitions to advance climate action, and 46.1% expressed skepticism about the deployment of skilled negotiators at international forums. This lack of confidence may stem from concerns regarding the qualifications of these negotiators, potential conflicts of interest, or perceptions of previous negotiation failures, which respondents felt were too bureaucratic and slow to address the urgent issues posed by climate change.

Qualitative data from key informant interviews (KIIs) further elucidate these concerns. Interviewees, including government and NGO officials, highlighted that while government policy documents encourage emissions reduction, such encouragement is largely advisory rather than mandatory. This lack of enforceability may contribute to the perception of inadequate governmental action. Moreover, the interviews revealed that the government's focus has been predominantly on adaptation initiatives—such as afforestation and renewable energy projects—rather than on comprehensive mitigation strategies. This aligns with the quantitative findings that suggest a disconnect between the government's stated commitments and the actual implementation of effective climate policies. Additionally, 49.4% of survey respondents noted inadequate collaboration between environmental organizations and both county and national governments. This sentiment was echoed in the interviews, where experts pointed out that environmental organizations often feel their concerns are not adequately addressed by governmental bodies. The qualitative responses emphasized the need for improved communication and cooperation between these entities to enhance the effectiveness of climate action initiatives.

Furthermore, over half of the respondents (51.7%) agreed that environmental diplomacy plays a critical role in setting climate change agendas in Kenya. This perspective is supported by the qualitative findings, which indicate that international accords and negotiations significantly influence national climate change objectives. Interviewees noted that initiatives like the Global Environment Facility (GEF) and UNEP are instrumental in enhancing the capacity of local authorities to implement multilateral environmental agreements effectively.

The triangulation of the quantitative and qualitative findings highlights both the proactive role Kenya is attempting to play in environmental diplomacy and the significant challenges it faces in effectively translating this diplomacy into actionable climate change adaptation strategies. While there is a recognition of the importance of international collaboration and the influence of environmental diplomacy on national policies, concerns regarding the effectiveness of negotiators, inadequate collaboration, and a predominant focus on adaptation rather than mitigation underscore the need for a more integrated and enforceable approach to climate action in Kenya.

4.6.3 Results on Prospects of Kenya's Environmental Diplomacy

The study's results in Table 4.8 revealed that more than half of the respondents, 60.9%, disagreed with the statement that ratification of the treaties has helped the government of Kenya address environmental challenges. The substantial percentage of respondents who disagreed with the statement points to the opinion that, despite treaties being ratified, significant advancements or solutions to environmental problems have not been achieved. Some respondents think that ratification does not ensure proper execution or the anticipated outcomes. Further, the aspect of role capacity was a concern, with 87.4% of the respondents disagreeing with the idea that both the National and County governments can handle various environmental functions on climate change adaptation in Kenya. The substantial proportion of dissent implies that participants believe the national and local governments do not have enough financial, technological, or human resources. They may assume that governments cannot perform environmental obligations linked to climate change adaptation because of a lack of resources.

However, 55.1% of the respondents agreed on the idea that political will influences the extent of implementation of climate change adaptation measures. The agreement might be a reflection of the understanding that finance and resource mobilization for climate change adaptation initiatives depend on political will. Some respondents may assume that there is a greater chance of financial support and investment for implementation when governments show a sincere commitment to tackling climate change.

The majority of the respondents, 43.6%, agreed that financial capacity is a strong determinant of the implementation process of the environmental treaties (Table 4.8). The respondents' agreement implies that they think having sufficient funds is necessary for carrying out environmental treaties in an adequate manner. When assigning resources for tasks like formulation of policies, capacity building, monitoring, and enforcement—all essential for the execution of treaties—they can consider financial capability to be a crucial consideration. Also, 94.3% disagreed with the statement that violations of domestic environmental laws enacted as part of treaties' compliance are prevalent in Kenya (Table 4.8). The high rate of dissent may suggest that participants think campaigns to raise public awareness and educate the public have been effective in encouraging adherence to national environmental regulations. They may assume that initiatives to raise awareness of the value of environmental preservation among the general public, corporations, and other stakeholders have produced a culture of compliance and decreased the frequency of breaches. Approximately 85.6% of respondents disagreed with the statement that there is a prevalence of cases between the county governments and the central government about environmental issues and concerns over environmental treaty ratification and compliance. The respondents' disagreement could suggest that they believe Kenya's institutional frameworks governing relations between county administrations and the national government have become more resilient. They perceive that because these frameworks facilitate cooperation, offer channels for resolving conflicts, and foster collaboration, the frequency of cases involving environmental concerns and treaty compliance is less prevalent.

Table 4.8: Percentage distribution of the respondents on Prospects of Kenya's Environmental Diplomacy

Measures (%)	SD	D	N	A	SA
Ratification of the treaties have aided Kenya to address the environmental challenges	36.8	24.1	11.5	17.2	10.3
National and County governments have the role capacity to handle the environmental functions in climate change adaptation	57.5	29.9	10.3	1.1	1.1
Political will influences the extent of implementation of climate change adaptation measures	1.1	18.4	25.3	40.2	14.9
The level of financial capacity determines the success of implementation process of environmental program/treaties at national and county levels	18.4	18.4	19.4	33.3	10.3
The cases based on violation of domestic environmental laws enacted as part of the treaties' compliance are prevalent in Kenya	55.2	39.1	3.4	2.3	-
Cases on environmental treaty interpretation and the public exercising their right to prevent the state from ratifying the treaties are prevalent in Kenya.	60.9	28.7	4.6	3.4	2.3
Cases between the county governments and the central government with regard to environmental issues and concerns over environmental treaties ratification and compliance are prevalent	60.9	24.1	8.0	4.6	2.3

(Field Data, 2024)

The triangulation of quantitative and qualitative results regarding the prospects of Kenya's environmental diplomacy reveals significant insights into the challenges and opportunities facing the country in addressing environmental issues through international treaties.

Quantitatively, the survey results indicate that a substantial 60.9% of respondents disagreed with the statement that the ratification of environmental treaties has effectively helped the Kenyan government address environmental challenges. This suggests a widespread sentiment that, despite the formal adoption of these treaties, meaningful progress in solving environmental problems has not been realized. Many respondents expressed skepticism about the efficacy of ratification, believing it does not guarantee proper execution or the expected

outcomes. This aligns with interview findings where participants noted that the government's actions often lack the necessary resources and capacity to implement climate adaptation strategies effectively, as highlighted by one interviewee who remarked on the limited financial opportunities available for counties to evaluate climate risks and develop robust adaptation plans.

Furthermore, 87.4% of respondents disagreed with the notion that both national and county governments possess the role capacity to manage various environmental functions related to climate change adaptation. This overwhelming dissent underscores a belief that the government lacks adequate financial, technological, and human resources to fulfill its environmental obligations. Interviewees echoed this concern, indicating that the government's focus tends to be on adaptation rather than on a comprehensive approach that includes both adaptation and mitigation. This perspective was reinforced by comments from government officials who emphasized the need for a unified approach to climate change that integrates various sectors and policies.

In terms of political will, 55.1% of respondents agreed that it significantly influences the implementation of climate change adaptation measures. This reflects an understanding that resource mobilization for climate initiatives is closely tied to the government's commitment to addressing climate change. Interviewees supported this notion, suggesting that a sincere political commitment could enhance financial support and investment for climate initiatives. Financial capacity was also identified as a critical determinant of the implementation process, with 43.6% of respondents agreeing on its importance. They perceived sufficient funding as essential for executing environmental treaties effectively, which aligns with qualitative insights indicating that inadequate financial resources hinder the development and implementation of necessary policies and programs.

Interestingly, a high percentage of respondents (94.3%) disagreed with the statement that violations of domestic environmental laws, enacted as part of treaty compliance, are prevalent in Kenya. This suggests that public awareness campaigns may have been effective in promoting adherence to national environmental regulations, a sentiment echoed in interviews

where participants noted the positive impact of such initiatives on fostering a culture of compliance. Moreover, approximately 85.6% of respondents disagreed that there is a prevalence of conflicts between county and central governments regarding environmental treaty ratification and compliance. This indicates a perception that Kenya's institutional frameworks have strengthened cooperation and collaboration between different levels of government, which was also affirmed by interviewees who highlighted the importance of these frameworks in resolving conflicts and facilitating effective environmental governance.

The triangulation of quantitative and qualitative findings reveals a complex landscape regarding the prospects of Kenya's environmental diplomacy. This is reflected in the studies of Berry et al. (2015) and Francis et al. (2016) pointing out to inconsistent adoption of policies by organizations. While there is recognition of the importance of political will and financial capacity in implementing climate change initiatives, significant concerns remain about the effectiveness of treaty ratification and the overall capacity of government institutions to address environmental challenges comprehensively. The insights gathered from both surveys and interviews underscore the need for enhanced resource allocation, improved intergovernmental collaboration, and a more integrated approach to climate change adaptation that encompasses both mitigation and adaptation strategies.

4.6.4 Results on Climate Change Adaptation in Kenya

Table 4.9 shows the frequency distribution of the participants' responses on the climate change adaptation measures in Kenya as an outcome of the independent variables used in the study. The results show that the majority disagreed (80.4%) that the government has adequate responsible consumption measures. This significant disagreement suggests respondents need to be convinced that the Kenyan government is doing enough to encourage responsible consumption and put policies like reuse, reduce, and recycle into practice. They believe that to address these problems adequately, the government needs to provide sufficient funding or undertake noteworthy actions. Their negative opinion of the government's efforts may have resulted from seeing insufficient recycling program implementation, poor waste management techniques, or little attention to resource reduction and reuse. In addition, 72.4% disagreed with the statement that the government of Kenya promotes the use of green energy in public

transport and sustainable mobility to a greater extent. The significant number of respondents who disagree shows that they are not convinced that the government is doing enough to support green energy in public transport and sustainable mobility. They perceive that the government still needs to put in place extensive policies, plans, or financial incentives to promote the use of green energy technologies in the transportation industry.

Further, 78.2% disagreed that the government has implemented adequate and sustainable agricultural and water management practices. It is possible that respondents felt there needed to be more infrastructure and funding to promote sustainable and productive agricultural and water management methods. They perceived scarcity of water storage facilities, irrigation systems, or agricultural innovations supporting sustainable farming practices and conserving natural resources. They also perceived that effective water management and sustainable farming methods result from a lack of enforcement of environmental standards. Approximately 87.4% also disagreed with the statement that the government uses green technologies in the construction industry. The high percentage of dissent indicates that respondents think the government needs to utilise green technologies more in the building sector. They feel that using renewable resources, energy-efficient concepts, and sustainable building methods should be given more attention in construction projects.

Table 4.9: Results on Climate Change Adaptation

Measures	SD %	D %	N %	A %	SA %
The Kenyan government has adequate responsible consumption Measures (reuse, reduce, recycle)	44.8	35.6	8	5.7	5.7
Kenya promotes the use of green energy in public transport and sustainable mobility to a greater extent	43.7	28.7	9.2	8	10.3
The government has implemented effective/sustainable agricultural and water management practices	50.6	27.6	6.9	4.6	10.3
The government developed building designs and technologies that are more resilient to the effects of climate change	50.6	36.8	10.3	2.3	-

(Field Data, 2024)

While the government and non-governmental organizations have evaluated the consequences of climate change, some experts believe that state agencies ought to be in charge of this task because municipal and county administrations require greater resources. Those surveyed expressed worry that, despite the fact that climate change is taken into account during the process of preparation and making choices, appropriate policies and decisions are frequently rejected because of social standards and governments that support development. While disaster response strategies are the reason behind the implementation of community outreach plans, prospective climate adaption measures must be shared with the public as such.

Furthermore, according to those interviewed, asset management approaches do not incorporate climate risk adaption factors in their planning for building infrastructure and servicing. From the perspective of a County government official, there isn't a set rule or regulation for this. A significant amount plans for adapting to climate change exist, but according to an official from an NGO, they are missing important details regarding what has to be done and how it will be assessed and tracked. Furthermore, some interviewees acknowledged the significance of financial accountability assessments, which are nonexistent.

4.7 Inferential Statistics

The inferential statistics helped to derive estimates and draw conclusions on the relationships between variables from the data based on the research questions.

4.7.1 Correlational Analysis

The following variables were correlated; CL- Compliance level; RLE – Role of Environmental diplomacy; FP – challenges and opportunities; ADM – Adaptation measures. The relationship between the independent and dependent variables was examined and verified using the Spearman correlation analysis. The symbol ‘ρ’ stands for an evaluation of the strength of a linear relationship between two items. By identifying the variable that best reflected how environmental diplomacy affects the climate change adaptation in Kenya, it thus assisted in determining the strengths of the connection in the model. The primary objectives of this correlation study, also known as bivariate analysis, are to determine whether a causal connection between the factors in question is available and, if so, the nature and extent of the interaction.

The non-parametrical correlation test (Table 4.9) shows that there is statistically significant correlation between compliance levels and climate change adaptation measures in Kenya ($N = 87$, $\rho = .117$; $p < .05$). Additionally, the correlation coefficient is statistically significant ($p < .05$). However, there is also a statistically significant positive correlation Role of environmental diplomacy (RLE) and compliance level (CL) ($\rho = 0.564$). This implies that Kenya's efforts to adapt to climate change are increasing in tandem with rising compliance levels, or the other way around.

The non-parametrical correlation test (Table 4.9) shows that there is a statistically significant correlation between the Role of environmental diplomacy (RLE) and Climate change adaptation (ADM) ($N = 87$, $\rho = .118$; $p < .05$). This implies that there exists a correlation between the two variables, meaning that alterations or fluctuations in the function of environmental diplomacy are linked to modifications or fluctuations in endeavors aimed at adapting to climate change. The non-parametrical correlation test shows that there is also a statistically significant correlation between challenges and opportunities and climate change adaptation in Kenya ($N = 87$, $\rho = .460$; $p < .05$) with the correlation coefficient statistically significant at 0 .05. This implies that Kenya's efforts and actions for climate change adaptation are connected to the possibilities and difficulties brought about by climate change. In the context of climate change, challenges and opportunities relate to the many obstacles and advantageous situations that result from the effects and ramifications of climate change (Schipper, 2020). These difficulties may stem from a lack of resources, a rise in the frequency of catastrophic weather occurrences, and socioeconomic vulnerabilities. On the other side, opportunities could result from developments in science and technology as well as modifications to laws that might be made to address and prepare for climate change. As a result, the research generally agreed that there was an actual, substantial correlation between the dependent and independent variables.

Table 4.10: Bivariate Spearman Correlation

Correlations						
			ADM	CL	RLE	FP
Spearman's rho	ADM	Correlation Coefficient	1.000			
		Sig. (2-tailed)	.			
		N	87			
	CL	Correlation Coefficient	.117	1.000		
		Sig. (2-tailed)	.022	.		
		N	87	87		
	RLE	Correlation Coefficient	.118	.564**	1.000	
		Sig. (2-tailed)	.016	.000	.	
		N	87	87	87	
	FP	Correlation Coefficient	.460**	.018	-.052	1.000
		Sig. (2-tailed)	.000	.869	.633	.
		N	87	87	87	87

**. Correlation is significant at the 0.05 level (2-tailed).

(Researcher, 2024)

4.8 Ordinal Logistic Regression Analysis

In this study, ordinal logistic regression was chosen to analyze the data using explanatory variables linked to the dependent variable. There are various choices to be made when building an ordinal regression model. In this case, the aspect of identifying the ordinal outcome variable comes first, then making choice on which predictors to include in the model's location component follows. Finally, the choice of the connection function that best suits the study data is made at the end.

Goodness-of-fit statistics (Appendix V) assisted in determining whether the model adequately described the data. Deviance is a useful metric for assessing goodness of fit. The model provides a considerable improvement over the baseline intercept-only model, according to the significant chi-square statistic. In this case, the difference between Intercept Only Model and Final Model was significant $p = 0.0001$, hence the model adequately fitted the data. In essence,

this means that the model provides more accurate predictions than would be possible if we simply made educated guesses based on the outcome categories' marginal probabilities.

Parameter estimates and an overview of each predictor's effect are provided in Table 4.11. The relative values of the coefficients for component levels and the sign of the covariate coefficients provided crucial information about the effects of the model's predictors. Positive (negative) coefficients for variables denoted favorable (inverse) correlations between predictors and result. An increasing value of a covariate with a positive coefficient indicated a larger likelihood of falling into one of the categories with "higher" cumulative outcomes. When it comes to factors, a factor level with a higher coefficient indicated a higher likelihood of falling into one of the groups with "higher" cumulative outcomes. The influence of a factor level in relation to the reference categories affected how a coefficient for that factor level was spelt out.

Table 4.11: Parameter Estimates

Parameter Estimates								
							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	[ADM = 1.00]	3.441	1.108	9.639	1	.002	1.269	5.614
	[ADM = 1.25]	4.022	1.118	12.941	1	.000	1.831	6.213
	[ADM = 1.50]	4.751	1.142	17.301	1	.000	2.512	6.989
	[ADM = 1.75]	5.434	1.175	21.390	1	.000	3.131	7.736
	[ADM = 2.00]	6.205	1.221	25.839	1	.000	3.812	8.597
	[ADM = 2.25]	6.559	1.243	27.829	1	.000	4.122	8.996
	[ADM = 2.50]	6.723	1.254	28.741	1	.000	4.265	9.181
	[ADM = 2.75]	7.014	1.274	30.328	1	.000	4.518	9.511

	[ADM = 3.00]	7.128	1.282	30.942	1	.000	4.617	9.640
	[ADM = 3.25]	7.540	1.311	33.079	1	.000	4.970	10.109
	[ADM = 3.50]	7.710	1.324	33.926	1	.000	5.115	10.304
	[ADM = 3.75]	8.104	1.356	35.743	1	.000	5.448	10.761
	[ADM = 4.00]	10.119	1.696	35.618	1	.000	6.796	13.442
Location	CL	.140	.281	.249	1	.022	.410	.690
	RLE	.059	.265	.050	1	.016	.460	.579
	FP	1.019	.409	24.314	1	.000	1.216	2.821
	InsCap	0.102	.071	.345	1	.000	.260	.545

Link function: Logit.

(Researcher, 2024)

Results in table 4.11 showed that compliance levels (CL) was a significant positive predictor of climate change adaptation in Kenya. In this case, for every one unit increase on compliance levels, there is a predicted increase of 0.140 in the log-odds of climate change adaptation measures in Kenya. This is an indication that the government and organizations with high level of compliance was more likely to experience positive results on implementation of climate change adaptation measures.

Role of environment diplomacy (RLE) also revealed a significant positive predictor in the model. In this case, for every unit increase on environmental diplomacy efforts, there is a predicted increase of 0.059 on the implementation of climate change adaptation measures. Challenges and opportunities (FP) also revealed a significant positive prediction on climate change adaptation process in Kenya. For every one unit increase on challenges and opportunities (FP), there is a predicted increase of 1.019 in the log-odds of higher climate change adaptation measures implementation. This suggests that adequate management of various challenges and opportunities was more likely to ensure good performance on climate change adaptation process. The institution capacity is a positively moderates the relationship between environmental diplomacy and climate change adaptation ($p=0.0001<0.05$).

4.9 Establishing the Moderating Effect of Institutional Capacity on the Relationship between environmental diplomacy and Climate Change Adaptation Measures

The goal of the study was to determine if institutional capability affected the relationship between environmental diplomacy and actions taken to adapt to climate change. This target's research question was answered using moderated regression analysis (MRA). The awareness that a good moderator variable could strengthen the relationship between variables served as the driving force for this (Judd et al., 2014). Conflicting study results can also be prevented by using contextual factors as moderator variables, especially when it comes to climate change adaptation strategies. This method made use of hierarchical regression, which necessitates entering environmental diplomacy factors and climate change adaption measures in step 1, and the interaction variable—in this case, institution capacity—in step 2. To reduce worries, the interaction variable's values were standardised. Standardised values were utilised for the interaction variable to lessen concerns of multi-collinearity by lowering the extent of any high correlation of independent and dependent variables with the new interaction (Ondoro, 2014). The summary regression coefficients are shown in Table 4.12.

Table 4.12: Estimated Regression Coefficients for Variables in the Moderating Effect of Institutional Capacity on the Relationship between environmental diplomacy and Climate Change Adaptation

Coefficients[a]								
		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1.680	.136		12.376	.000		
	CL	.049	.042	.095	1.147	.000	.605	1.654
	RLE	.015	.061	.022	.248	.000	.545	1.834
	FP	.109	.065	.135	1.689	.000	.645	1.550
2	(Constant)	1.123	.164		6.866	.000		
	CL	.056	.040	.109	1.401	.000	.604	1.656
	RLE	.034	.057	.049	.601	.001	.543	1.841
	FP	.065	.061	.080	1.058	.000	.633	1.579
	InsCap	.178	.033	.329	5.403	.000	.980	1.021

a. Dependent Variable: ADM

(Author, 2023)

The standardised (β) and unstandardised (B) coefficients for environmental diplomacy and climate change adaptation, with and without the interaction term, are presented in Table 4.12. The un-standardized coefficient should be used when presenting the moderation coefficient since it shows simple effects rather than the primary impacts that the addition regression model reveals (Whisman and McClelland, 2005). Without the interaction factor, B for the environmental diplomacy variables are CL = .049, RLE= .015, FP= .109), which are all significant at ($p<0.05$). The B coefficients after the inclusion of the interaction term for data quality dimensions and interaction term were (CL = .056, RLE= .034, FP= .065 and InsCap = .178). As a result, the moderation model was confirmed to be;

$$Y= 1.123 + .056X_1 + .034X_2 + .065X_3 + .379X_4 + .178Z + \varepsilon \ldots\ldots\ldots(iii)$$

In the model, the intercept and the XY slope is under influence by the Z (moderating variable) intercepts as well as the slopes of line YX. The unstandardized co-efficient of the moderator model is = .178. This denotes that for each unit increase in Z, the slope relating X to Y increases by .178. Further implication is that as environmental diplomacy increases by one unit, the climate change adaptation measures improves by (.178). Notably, the summary statistics for the moderator regression model is shown in table 4.13.

Table 4.13: Model Summary of Effect of Institutional Capacity on the Relationship between environmental diplomacy and Climate Change Adaptation

Model Summary

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.254[a]	.065	.060	.56084	.065	13.865	1	201	.000
2	.428[b]	.183	.175	.52536	.119	29.066	1	200	.000

a. Predictors: (Constant), Environmental diplomacy variables (CL, RLE, FP)
b. Predictors: (Constant), Data quality dimensions (CL, RLE, FP), InsCap

(Author, 2023)

The table 4.13 revealed the full model 2 where environmental diplomacy was the independent variable and Institution capacity as the moderator. The model is significant at (R^2 = .183, Adjusted R^2 = .175, F (1,200) 29.066, p = 0.000). This shows that the relationship between environmental diplomacy and climate change adaptation measures is moderated by institution

capacity. In comparison to the reduced model 1, which only include predictor variables, the addition of the moderator variable in the full model significantly increases the R^2 by = .118; p = 0.000 or 11.8%. Even though the change was small, it was statistically significant. The differences in the two cases of R^2 for each of the model are less than a ceiling of 0.5 (Field, 2005). The noted low shrinkage between R^2 and adjusted R^2 in each of the models depict both models as valid and stable for the prediction of the dependent variable, at 7% and 18.3% variance respectively. The influence to detect moderation effects is often low because of the small effect sizes as observed in social science (Judd et al., 2014).

4.10 Discussion of Findings

This section provides elaborate discussion on the study results. The section provides discussion of the results interpretation under each of the three specific objective embarked by literature review.

4.10.1 Kenya's level of compliance with global environmental treaty obligations

The first objective assessed the government's compliance with global environmental treaties. The respondents identified several agreements and protocols that Kenya has ratified, such as the Paris Agreement, the Kyoto Protocol, and the United Nations Framework Convention on Climate Change (UNFCCC). Moreover, the respondents identified the significant efforts that the government and organizations have undertaken in the last five years to incorporate climate change issues into national plans, policies, measures, projects, and programs that reflect the study results by Francis et al. (2016). These documents include the National Climate Change Response Strategy of 2010, the National Climate Change Framework Policy, the National Policy on Climate Finance, the Green Economy Strategy and Implementation Plan, the Climate Change Act of 2016, and Vision 2030. The government and NGO officials said that these documents offer a set of rules for an improved approach to climate change adaptation as well as challenges and opportunities for measures and tactics for achieving low-carbon, climate-resilient sustainability. They also make it possible to set up systems for tracking, mobilising, and reporting on climate finances. The participants also identified various global and national legal frameworks that are part of the corporate environmental compliance legal framework, as identified in the literature review subsection 2.3.4.

According to Mitchell et al. (2020), organizational effectiveness is defined as adherence, operation, and usefulness. This definition is used in the current assessments of international law devices, and global ecological agreements in specifically. It does not consider the creation, systems of governance, or challenges that these treaties address. Conformity to expectations and state parties' adherence to the agreement's duties are referred to as compliance. Adopting national laws to carry out international obligations is referred to as implementation. Achieving the agreement's objectives and finding a solution to the relevant environmental issue is necessary for effectiveness. Coordination, integration, and systematization of environmental protection and sustainability initiatives depend heavily on the practical implementation of global environmental conventions through goal-setting, metrics development, data collection, and resource mobilisation, especially in light of the growing issues related to the environment.

Although certain researchers restrict implementation to state parties adhering to an agreement's terms, it is essential to consider the enactment and enforcement of policies that alter states' behavior. Even more precisely, Pickering et al. (2020) define national implementation as the development of new initiatives as well as the enactment and upholding of laws and regulations. These strategies share a robust behavioral element beyond compliance with particular legal requirements. One participant said,

> "This study refers to the execution as the extent to which governments translate their international commitments into domestic policies, actions, tactics, and enforcement tools, including laws, appointments to institutional positions, data collection and analysis, technical and financial measures, and nominations." (P7)

Regarding environmental law, opinions on how well international environmental accords are being implemented varied. This is because the results lack a systematic empirical examination that reveals outcomes throughout the entire membership of MEAs and provides similar criteria across the numerous conventions. They also need a uniform definition for measuring standards. Treaties differ in their understanding of what constitutes appropriate state-party behavior, even regarding the same environmental challenges. For instance, within the contamination cluster, signatories to the Stockholm Convention are expected to focus on more complex aspects of controlling the existence of Persistent Organic Pollutants. In contrast, the Basel Convention's

responsibilities are based on reforms at the parliamentary and regulatory levels. The environmental cluster obligations also vary (Pickering et al., 2020).

Determining the extent to which nations are meeting their duties and incorporating them into national policy is made more difficult by issues with the ambiguity of legal requirements and national reporting requirements. Key concepts for evaluating the efficacy of the actions done and their influence on the status of the environment are absent, and there needs to be more consensus regarding nomenclature. Moreover, data shows that states occasionally behave in ways that defy expectations and fail to implement these adjustments. Academic studies undertaken in a particular country, like those by Nukusheva et al. (2021), as well as issue-based research, regulatory reports, and assessments performed by the conventions, like the Global Wetlands Outlook, provide proof that responsibilities are not being carried out effectively to the full extent that the accords intend.

Notably, concerning the environment, there is a notable distinction between the enforcement mechanisms found in national law and international law; nonetheless, the two schemes reinforce one another. International law deals with contracts involving nations and places compliance duties on nations' Parties when they have ratified and implemented the relevant treaties. However, the States Parties' assumed commitments frequently need to be more self-executing and call for additional action through national constitutional frameworks, national legislation, judicial decisions, policy-making, and executive branch administration.

Admittedly, respect for environmental laws, norms, rules, and other requirements is necessary for environmental compliance. The possibility of environmental liability resulting from non-compliance makes environmental compliance imperative. As a result, enterprises and nations must abide by the numerous environmental laws, rules, and guidelines outlined in the international environmental treaties, protocols, and other environmental sectoral laws. The nation-state, the most miniature political unit, is where most human actions that harm the environment always occur (Finger & Princen, 2013). The perspective from the study findings aligns with the fundamental principles of Green theory, which emphasizes the interconnectedness of the government, citizens, and environment to guarantee the effective

implementation of environmental diplomacy. The government's environmental diplomacy ensures that laws, regulations, economics, customs, and politics permit or forbid environmental degradation. Initiatives aimed at preserving or destroying natural resources are specifically carried out in this kind of setting; in this type of environment, greenhouse gases and effluents from industry and other sources are produced, which contaminate water bodies.

The Government Implemented programs that relate to these treaties for the protection of the environment at the national and county levels were identified by the participants to be outlined by the Environmental Management and Coordination Act (EMCA), 1999. These include environmental impact assessments (EIAs), environmental audits, strategic environmental assessments (SEAs), and strategic environmental and social assessments (SESAs), which are only a few of the environmental management instruments.

Further, under Kenya's constitutional arrangement, public participation has become crucial, and the Judiciary has contributed to its reinforcement. It is one of the national ideals and principles that all people, including corporations, must adhere to when implementing policy decisions, and it is codified in the Constitution. Public engagement is a fundamental component of environmental governance and should be applied to all environmental policies, plans, and procedures. For example, the court acknowledged the significance of this principle in the Kenya Association of Manufacturers & 2 others v. Cabinet Secretary - Ministry of Environment and Natural Resources & 3 others [2017] eKLR case. The Judiciary noted that public engagement in the creation of plans, strategies, and procedures for the oversight of the environment and biodiversity is one of the environmental administration elements that the legislative framework emphasizes. .

4.10.2 Examining the Role of Environmental Diplomacy on Climate Change Adaptation in Kenya.

The findings from NEEMA further showed that government policy documents encourage organizations to reduce their emissions, but the encouragement is primarily advisory rather than mandatory.

> "Certain aspects of climate change are taken from the existing documents. The policy does not contain any requirements. Our interpretation is our responsibility." (P1)

The interview findings, especially from NGO and government officials, revealed that the government's actions in Kenya primarily focused on adaptation rather than mitigation.

> "Kenya is investing in key initiatives like afforestation and reforestation, geothermal energy generation, and other renewable energy projects to fulfill international goals and follow its climate change strategy." (P4)

This finding is consistent with previous research (Berry et al., 2015) that reports climate change actions in different parts of the world primarily focus on adaptation or mitigation actions. However, some recent studies strongly suggest that the government, including local NGOs, should include and integrate both climate change adaptation and mitigation works (IPCC, 2022). This approach was strongly supported by some of the UNEP and NGO officials interviewed. Thus;

> "To combat climate change, we must restructure our economy by incorporating climate change into growth and development plans and initiatives in several sectors. In addition to reducing greenhouse gas emissions, this will lessen our susceptibility to climate shocks and help to reduce poverty. It is in our national interest to act to adapt to and minimise the climate change." (P1)

On the role of environmental diplomacy as pertains to collaboration between Environmental organizations and the government, one of the experts stated;

> “The Global Environment Facility (GEF) and the United Nations Environment Programme (UNEP) are assisting the National Environment Management Authority (NEMA) in putting into practice The Enhanced Regulatory and Information Management Systems for Integrated Implementation of Multilateral Environment Agreements. The project's principal aim is to augment the nation's capacity to tackle worldwide environmental concerns pertaining to land degradation, climate change, biodiversity preservation, and chemical management by means of efficient, synchronised, and comprehensive execution of corresponding multilateral environmental accords. By creating and implementing an integrated multi-convention information and reporting system, the initiative seeks to increase efficiency and effectiveness in fulfilling the duties and responsibilities of closely associated MEAs (P10).

In Kenya, the government and NGOs were identified to be in the lead when it comes to the organizing and carrying out of global warming adaptation, and it is now their duty to create strategic plans that are adequate, workable, and mutually beneficial to the surrounding community.

> "I know the administration is conscious of the threats associated with climate change. Policies and standards mention it, but I am not sure how successful the adaptation process has been. It is not helpful if not executed properly." (P7)

Notably, because the goals and duties change at different levels of administration, Kenyan government policies cannot be applied universally to local organizations. This outcome is consistent with earlier studies conducted by Lesnikowski et al. (2021). According to this study, local NGOs carry out the real work on climate change mitigation while national governments create high-level policies and make vows to address the issue. High-level policy directives are currently provided by the government, while local and international NGOs are in charge of a number of crucial tasks related to adapting to climate change, such as disaster preparedness and oversight, facilities asset administration and planning, and the development of land use plans and oversight. Similar to this, because the effects of climate change are frequently context-specific, governments are the main actors in climate change adaptation, according to a research by Marigi (2017) that evaluated the literature. Usually, how we respond to these effects needs to come at the local level (Mfitumukiza et al., 2020).

Although some professionals from the research institute perceived that studies on the obstacles to global warming adaptation indicates that grassroots efforts are anticipated to be more effective than centralized approaches, which implies that state agencies should take the lead in addressing climate change (Aguiar et al., 2018). Some studies criticize this strategy, despite the fact that the participants stated that county governments are believed to be in an advantageous position to lead the process of adaptation since they are viewed as being closer to their populations. This is due to their incapacity to rule and make choices on their own. Their operations are frequently limited by complexity in the areas of finance, rules and laws, and institutional frameworks (Nalau et al., 2015).

4.10.3 The Challenges and Opportunities in Leveraging Kenya's Diplomatic Efforts for Climate Change Adaptation

The findings pointed to a number of obstacles, such as a lack of funding and personnel, a lack of managerial behavior, and conflicting agendas, that prevent the creation of a strong strategy for deployment, inspection, and assessment. The studies of Berry et al. (2015) and Francis et al. (2016) also point out that although many organizations have included plans for adapting to climate change in their policy documents, it is still unknown how these policies are resulting in a successful adaptation. These findings are consistent with the recent IPCC (2022) report, which said that given the increasing relevance of adaption strategies globally, more research on how they are used and development is anticipated.

Participants emphasized that in order to adapt to the effects of global warming, adaptive land use policy and development or design standards must be taken into account. Government cooperation is crucial in these areas because these measures are necessary for limiting pollution. The government officials who were interviewed felt that the danger of climate change ought to be seen as a single entity that is subject to the development and implementation of policies for adaptation and mitigation. According to one of the interviewees,

> "It is necessary to undertake measures such as encouraging the 3Rs (reduce, reuse, recycle), the ecological sector, agriculture, fishery, and cattle farming, as well as sustainable food production and responsible consumption towards climate change adaptation." (P6)

More extensive research on how to incorporate initiatives to adapt to climate change locally is necessary because there are doubts regarding the plans' ability to be implemented. This relates to existing research (Marigi, 2017; Li et al., 2020), which shows the limitations on how this can be done at a government and organization level. Although it is one of the essential findings of this research, further in-depth analysis is required for this purpose.

The climate change adaptation process was identified as having significant resource constraints, whereby support from external bodies was lower than required. This gives professionals the impression that, absent responsibility sharing and the adoption of suitable cost-sharing arrangements, the government can better oversee the actualization of plans for

adapting to global warming. In addition, the government is heavily involved in the design and management of metropolitan communities' public facilities as well as local projects. Counties have limited financial opportunities for non-governmental organizations to evaluate climate risks and create high-level plans for adapting to climate change.

> "What we can accomplish requires millions of dollars, and I do not think our planning is up to par. We continue to permit development in susceptible regions, a complicated problem we usually want to avoid." (P9)

Admittedly, climate change adaptation practices' implications and economic consequences have yet to be addressed. Due to their increased funding alternatives and assets from many external agencies, global groups are better equipped to address climate change, as Marigi (2017) echoed in his study. Local NGOs dealing directly with climate change need more resources. The interviewees perceived that International NGOs are getting significant financial and technical support from agencies. In contrast, County governments are typically ignored when it comes to adaptation to climate change risks.

The development of policies, in most cases, happens at the international level, which results in many of these policies needing to be more applicable to regional areas. Although it is an exciting point and deserves proper acknowledgment, it also needs to be noted that support from government agencies is evident in many cases. For example, when a prolonged drought hit the country, resulting in a food crisis, the national government formed a security task force to identify long-term solutions. It allocated funding for these (Wachira & Cumiskey, 2022).

Respondents expressed that funding for catastrophic climate events is allocated spontaneously. For county and municipality agencies, managing and gaining access to financing for climate change adaptation is a major concern. Everyone involved, particularly local residents, enterprises, and business sectors, must work together to fully engage with regional and municipal officials in order to implement plans for adapting to climate change. Success also depends on collaboratively working with regional, national, and international organizations. A crucial discovery of this research was the requirement for increased governmental backing and readiness to acknowledge climate change and implement adaption strategies.

The interviewees concur that adapting to climate change needs to be given far more attention and are aware of the hazards associated with it. On who should take the initiative and how to work together to produce the most, however, viewpoints differ. Adequate information on climate change is needed for standards and guidelines on infrastructure design and planning, mostly because it is unclear who is doing what and to what extent.

The national government and local governments do not have a readily navigable framework for planning environmentally friendly adaptation. The procedure might be more exact, and distinct policy phrases are interpreted differently, resulting in diverse ways of making decisions at various tiers of governance without a comprehensive strategy being established (Marigi, 2017). Because expansion limits imposed as a result of climate change have a significant negative influence on the value of properties, the area's population seeks to avoid them.

> "I believe that many existing documentation and design standards fall short when addressing climate change adaptation. Insufficient research evidence and findings have been provided to support the planning tools and policies. Consequently, more study must be conducted." (P4)

Rather than adopting a long-term strategy, political activists usually promote community opinions in order to obtain quick advantage in regional elections. Politicians and other stakeholders support immediate emergency action, but ongoing climate change adaptation is disregarded because of the enormous budgetary and political ramifications. Thus, the response;

> "There is an economic impact, which is difficult to implement, and implementation is difficult. There is a knowledge gap. Political influence exists... It is challenging to adjust to the process." (P6)

It was suggested that strategic and legislative tools were essential for adapting to climate change. Success depends on putting this approach into practice; else, it will just exist in documents. Completing the adaptation planning cycle requires putting adaptation plans into action as well as tracking and assessing them. It assists in determining which adaptation strategy is effective and under what circumstances, assisting the authorities in defining optimal adaptation.

The interviewees perceive more research and a better understanding of how local government authorities can implement, measure, track, and manage the climate adaptation concept. Additional study is needed on the execution, assessment, and surveillance of policies, even though an extensive variety of studies has focused on adaptation-planning procedures (Mathew et al., 2016).

Additionally, according to the respondents, Kenyan efforts to adapt to climate change are carried out piecemeal and lack a comprehensive framework. As a result, additional policy assessment and tracking strategies are required. This is consistent with Parry's (2016) findings, which showed that it can be difficult for local government organizations to define and oversee the monitoring and assessment of adaptation efforts.

As indicated, Kenya faces numerous challenges that impede the environmental diplomacy process. First is environmental pollution, which results from the quickening pace of economic growth to accommodate the growing human population. In Kenya, the issue of pollution, particularly from manufacturing enterprises, is widely known. The Nairobi and Ngong Rivers are heavily contaminated due to the untreated wastewater that several manufacturing industries release into the waterways. The Water Quality Regulations of 2006 have been broken by numerous national factories, according to the National Environment Management Authority (NEMA), by releasing untreated waste into an open sewer or into the ecosystem without acquiring a discharge license. Since the media has recently brought attention to these pollution incidents, the National Environment Management Authority (NEMA) has started cracking down on the offenders. As a result of the raid, NEMA claims to have shut down several businesses, including Synresins, Apex Coating East Africa, Thorlite Kenya, Kamongo Waste Recycling, Associated Battery Manufacturers (ABM), Sameer Agriculture and Livestock Limited (Daima), and Modern Lithography (NEEMA Report, 2020).

There have also been reports of additional environmental damage by firms in Kenya, aside from water pollution caused by wastewater discharge. Owino Ohuru slums in Mombasa County have seen reports of lead poisoning because of a nearby lead battery-recycling factory. According to reports, there is a considerable increase in lead concentration in the slum's

surroundings due to factory leaks, which puts the health of the local children at risk. This resonates with research by Caravanos (2019), which revealed the incidence as potentially exacerbating the region's soil contamination.

The results showed that the country had yet to experience frequent cases of the public exercising their right to prevent the state from ratifying the treaties. Further, cases between the county and central governments regarding environmental issues and concerns over environmental treaty ratification and compliance have yet to be prevalent.

However, respondents showed that each environmental protection remedy's intended purpose— natural restitution, compensatory, reparatory, or preventive—will determine how it is categorised. The Constitution of Kenya establishes the right to a clean and healthy environment and lays forth obligations regarding the environment. According to the government official, if these duties are not fulfilled, the Constitution could be used. The provisions grants the Environment and Land Court the power to grant legal relief like compensation to those harmed or orders of restriction on any conduct that is detrimental to the ecosystem.

As this study has already shown, the state of the law in the case of the environment may be somewhat hazy, but a decision needs to be made. Based on the researcher's comprehension of the law and their experience with judicial decision-making, the Court must recognise the pertinent principles that should be reflected in the law once it has established the facts in cases where the issue at hand pertains to the environment and the legislature's guidance is by no means exhaustive. As previously said, the study demonstrated the capital character of the environment and its wealth of assets in the maintenance of everyday social and economic activities that directly express the legal rights and obligations that are routinely the subject of civil litigation.

The results indicate that adaptation strategies support a healthy environment which meets present requirements without jeopardizing the ability of subsequent generations to meet their own. The concepts of public engagement, international cooperation, inter- and intra-generational equity, polluter pays, and precautionary principle are all included in sustainable

development, which is also covered by the EMCA (IPCC, 2022). Before implementation, the opinions of people impacted by environmental policies, plans, and procedures are considered according to the principle of public involvement.

The Rio Declaration includes the preventive principle, which states that in situations where there is a risk of significant and permanent environmental harm, preventive measures must be implemented to protect the environment (Poorhashemi, 2023). The idea aims to offer direction for management and governance choices while dealing with environmental uncertainty. When implementing environmental measures and regulations, corporations should adhere to this guideline and err on the side of caution. This can be achieved by technical solutions, laws, and other policies that lessen the effects of human activity on the environment. The right to development must be realised in a way that reasonably satisfies the ecological and growth requirements of both current as well as future generations, according to the Principle of Intra- and Interrelated Equity.

This is a fundamental tenet of sustainable development because it protects against situations like the depletion of natural resources. A corporation must consider the effects of how it operates on the ecosystem and the surrounding community while pursuing its business interests under the Companies Act. Therefore, businesses should abide by the fundamentals of environmental sustainability to ensure that their financial endeavors satisfy the demands of the current and upcoming generations.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

The main objective of the study was to investigate the role of environmental diplomacy in advancing climate change and adaptation in Kenya.The specific objectives were to assess Kenya's level of compliance with environmental treaty obligations, examine the role of environmental diplomacy in climate change adaptation in Kenya; discuss challenges and opportunities in leveraging Kenya's diplomatic efforts for climate change adaptation. A small-scale survey involving 89 respondents was used to collect quantitative data while the qualitative data was gathered by use of KIIs. This section presents the summary, conclusion and recommendations subsections for this study.

5.1 The Summary

The first objective focused on assessing Kenya's level of compliance with environmental treaty obligations. Quantitative data was used to compliment with qualitative data from interviews. The results showed that the government have issues as pertains compliance level with environmental treaties and protocols. This is since the variable revealed a significant positive prediction.

The second specific objective examined the role of environmental diplomacy in climate change adaptation in Kenya. The study revealed some of the roles that environmental diplomacy plays such as galvanizing negotiating coalitions and ensuring collaborations between governments and organizations. The role of environment diplomacy (RLE) revealed a significant positive prediction in the model.

Third objective was to discuss challenges and opportunities in leveraging Kenya's diplomatic efforts for climate change adaptation. In this case, some of the challenges highlighted from the interviews included political influence and financial constraints. There is also challenge pertaining to collaboration between government and locals. The challenges and opportunities (FP) also revealed a significant positive prediction on climate change adaptation process in Kenya.

5.2 Conclusion

The main objective of the study was to investigate the role of environmental diplomacy in advancing climate change adaptation in Kenya. The key role that environmental diplomacy plays focuses on encouraging governments, communities and organizations to act jointly to combat climate change through adaptation measures. This resonates with the notion of green theory, which propagates the importance of interacting and working together to lessen the effects of climate change on the environmental. The conclusion in this case is that government compliance levels to the international environmental treaties and protocols plays a significant role in climate change adaptation. Further, such opportunities as ratification of treaties and protocols play a significant role in setting pace for the implementation of adaptation measures. However, there is insufficient research and inadequate comprehension about the local implementation, measurement, tracking, and management of the climate adaptation concept by local NGOs and the government.

The findings provided a comprehensive overview of the current state of Kenya's environmental diplomacy and its effectiveness in addressing climate change challenges. The quantitative data revealed significant concerns among participants regarding the government's compliance with environmental treaties, majority indicating that the ratification of these treaties has not led to meaningful advancements in tackling environmental issues. This sentiment was echoed in qualitative interviews, where respondents highlighted systemic barriers, such as inadequate financial, technological, and human resources, that hinder the government's ability to fulfill its environmental obligations. The overwhelming disagreement regarding the capacity of national and county governments to manage environmental functions further underscores the perception of a resource gap that limits effective climate change adaptation.

Moreover, respondents acknowledged that political will is crucial for implementing climate change measures, the qualitative insights suggest that political commitment often does not translate into actionable policies or adequate funding. The data also indicated that financial capacity is perceived as a strong determinant of successful treaty implementation. This aligns

with the qualitative findings that emphasize the need for enhanced resource mobilization and strategic planning to address climate risks effectively.

Additionally, the study highlighted the importance of environmental diplomacy, with majority of respondents recognizing its role in shaping climate change agendas in Kenya. However, the qualitative data revealed a lack of confidence in the government's negotiators and inadequate collaboration between environmental organizations and government entities. This disconnect suggests that while international accords are influential, the effectiveness of these diplomatic efforts is undermined by insufficient local engagement and support.

The Green theory as the theoretical framework provided useful insights and perspectives when analysing research results on environmental diplomacy and climate adaptation measures. In the study the mutual dependence of the political, social, and environmental systems was highlighted as per the green theory. Including Green theory helped highlight the necessity of strong international governance frameworks to handle environmental issues at national level. Analysed research results showed that international organisations, treaties, and agreements play a crucial role in advancing environmental sustainability and forming international environmental policy. Green theory highlights the significance of transnational networks of players in shaping international and national environmental politics, including environmental NGOs.

In conclusion, the findings clearly inform the conclusion that Kenya's environmental diplomacy faces significant challenges in translating treaty ratification into effective climate action. The data indicates a need for improved governance frameworks, enhanced resource allocation, and stronger collaboration between government and environmental organizations. Addressing these issues is essential for fostering a more resilient and effective approach to climate change adaptation in Kenya, ensuring that the commitments made at international forums are reflected in meaningful local actions.

5.3 Recommendations

This section presents useful and actionable suggestions based on the study's findings to direct upcoming initiatives, policies, or actions in the field of environmental diplomacy on climate change adaptation in Kenya. The recommendations provided in this study are directly linked to the research problem of effectively addressing climate change in Kenya through environmental diplomacy.

5.3.1 Implications for Policy

The findings highlight significant gaps between the commitments made on the global stage and their translation into actionable outcomes on the ground. With respondents expressing skepticism about the effectiveness of treaty ratification in addressing environmental challenges, it is clear that simply signing agreements is insufficient without robust implementation mechanisms. The recommendations emphasize the need for inclusive and participatory decision-making processes, which can ensure that diverse stakeholder perspectives are integrated into policy formulation. This approach aligns with the identified need for stronger collaboration between national and county governments, as well as between governmental and non-governmental organizations, to enhance the effectiveness of climate action.

Moreover, the study underscores the importance of political will and financial capacity in driving successful climate change adaptation measures. The recommendation for policymakers to actively engage in international forums and strengthen partnerships is crucial, given that significant number of respondents recognized political will as a key determinant of implementation success. By fostering international cooperation and securing funding and technical assistance, Kenya can better mobilize the resources necessary for effective climate adaptation initiatives.

Through the integration of the Green theory framework, policymakers in Kenya may also create evidence-based and contextually appropriate measures to climate change adaptation. Such policies can support sustainable development, environmental preservation, and

community resilience to the effects of climate change. In addition, the many parties involved in climate change adaptation should be identified and mapped out by policymakers. This include public and private sector organisations, academic institutions, local communities, indigenous groups, and other pertinent actors. Policymakers will be better able to create focused engagement measures if they have a thorough understanding of the stakeholders.

The call for evidence-based policies that incorporate the Green theory framework is also significant, as it addresses the need for contextually relevant strategies that promote sustainable development and community resilience. This recommendation directly responds to the identified shortcomings in the current policy landscape, where many participants felt that existing frameworks do not adequately support the integration of adaptation and mitigation efforts.

5.3.2 Implications to Management and Practice

For fostering stronger alliances and international cooperation, policymakers ought to participate actively in international fora, such as climate change conferences and discussions. This can help with information exchange, financing accessibility, and exchange of technology for efficient adaptation to climate change. Policymakers may strengthen Kenya's voice and involvement in formulating international climate change policies by actively engaging in both bilateral and multilateral interactions.

The emphasis on mapping out stakeholders involved in climate change adaptation is vital for creating targeted engagement strategies. Understanding the roles and capacities of various actors will enable more effective collaboration and resource allocation, ultimately leading to improved outcomes in environmental governance.

The recommendations are intricately linked to the research problem, providing actionable strategies to bridge the gap between rhetoric and action in Kenya's environmental diplomacy. By addressing the systemic issues identified in the study, these recommendations aim to enhance the effectiveness of climate change adaptation efforts, ensuring that Kenya is better equipped to tackle the pressing challenges posed by climate change

5.4 Suggestion for Further Research

i. Further research should explore how international climate change initiatives can be tailored to fit local contexts across different regions. This includes understanding how best practices from global frameworks can be adapted to meet the specific needs and realities of local populations in Kenya and other African nations.

ii. Conduct comparative studies in other African countries to assess how environmental diplomacy measures can be aligned with local adaptations and modifications. This research could identify successful strategies and approaches that can be shared across borders to enhance climate change adaptation efforts.

iii. Investigate the dynamics of stakeholder engagement in climate change policy formulation and implementation. Understanding the roles and influences of various stakeholders, including government agencies, NGOs, and local communities, can provide insights into improving collaboration and effectiveness in climate action.

iv. Examine the effectiveness of resource allocation for climate change initiatives at both national and county levels. This research could focus on identifying gaps in funding, technology, and human resources that hinder the implementation of climate policies.

v. Implement longitudinal studies to assess the long-term impacts of climate change policies and diplomatic initiatives on local communities. This could help in understanding the sustainability of current practices and the effectiveness of adaptation measures over time.

vi. Research the effectiveness of public awareness campaigns aimed at promoting compliance with environmental laws and treaties. This could provide valuable insights into how education and outreach efforts can be improved to foster a culture of environmental stewardship.

vii. Investigate the legal frameworks governing environmental diplomacy and treaty compliance in Kenya. Understanding the strengths and weaknesses of existing laws can inform recommendations for legal reforms that enhance compliance and accountability.

viii. Explore how Kenya can better integrate mitigation and adaptation strategies in its climate policies. Researching successful models of integrated approaches in other countries could provide valuable lessons for Kenya's climate action framework

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Appendix I: Questionnaire

Part A: Demography of Respondents

1. Gender:

   Male [] Female [] Others []

2. Period of Service in the Organization
   1-5 years [ ]

   6-10 years [ ]
   Above 11 years [ ]

3. Highest Level of Education
   Degree [ ]
   Master's [ ]
   PhD [ ]
   Others [ ]

4. Which organization do you work for?

Part B: Compliance levels of Environmental Treaty Obligations

5. Indicate your level of agreement on the following statements on Compliance levels of Environmental Treaty Obligations in Kenya. 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5 =Strongly Agree.

Measures	**1**	**2**	**3**	**4**	**5**
The government complies with a number of environment treaties on environment and climate change					
Kenya's environmental policies and legislations are properly aligned to the global Environmental Treaties and Protocols					
The global environment treaties and policies are effectively implemented in Kenya					
Kenya's governance system influences her compliance efforts to global environment policies/treaties					
The Kenyan Legislature has a role to play in the compliance to the global environmental treaties and protocol process					
The Kenyan Judiciary executes its mandate in aiding the state to fulfil its International Environmental Laws obligations					

6. Indicate some of the key environmental treaties and conventions ratified by Kenya
……
……
……
…….

7. Indicate the activities/programs that government has implemented that relates to these treaties for the protection of environment at the national and county

levels……
……
……
……

8. What measures can you recommend to aid Kenya attain effective compliance of the international environmental treaties?.....
……
……
……

Part C: The Role of Environmental Diplomacy

9. Indicate your level of agreement on the following statements on the role of environmental diplomacy on climate change in Kenya.1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5 = Strongly Agree.

Measures	**1**	**2**	**3**	**4**	**5**
Kenya plays an active role in the multilateral environmental negotiations					
Kenya has effectively galvanized negotiating coalitions like Africa Group in advancing climate action at global negotiation forum					
Kenya deploys skilled and seasoned negotiators at the global multilateral negotiation forum					
Environmental organizations in Kenya directly collaborate with National and County governments to address environmental concerns					
Environmental diplomacy plays a key role when it comes to setting climate change agendas in Kenya					

10. Indicate the various roles (If any) that Kenya play in the multilateral environmental negotiations
……
……
……
……
.....
.....

Part D: Future Prospects of Kenya's Environmental Diplomacy

11. Indicate your level of agreement on the following statements on the Future Prospects of Kenya's Environmental Diplomacy (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5 = Strongly Agree).

Measures	**1**	**2**	**3**	**4**	**5**
Ratification of the treaties have aided Kenya to address the environmental challenges					
National and County governments have the capacity to handle the environmental functions in climate change adaptation					
Political will influences the extent of implementation of climate change adaptation measures					

The level of Financial capacity determines the success of implementation process of environmental program/treaties at national and county levels					
The cases based on violation of domestic environmental laws enacted as part of the treaties' compliance are prevalent in Kenya					
Cases on environmental treaty interpretation and the public exercising their right to prevent the state from ratifying the treaties are prevalent in Kenya					
Cases between the county governments and the central government with regard to environmental issues and concerns over environmental treaties ratification and compliance are prevalent					

12. Indicate some of the environmental challenges Kenya faces as pertains ratification of the environmental treaties
    ……
    ……...……
    ……
13. Indicate some of the key challenges affecting environmental diplomatic efforts towards addressing climate change in Kenya…….
……
……..
14. Indicate the various environmental conservation efforts between and among different government agencies in Kenya…….
……
……
……
……
15. In what ways does domestic and MNC firms participate in environmental policy formulation, implementation and compliance in Kenya……..
……
……
……
……

Part E: Adaptation Measures

16. Indicate your level of agreement on the following statements on the Climate change adaptation measures (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5 = Strongly Agree).

Measures	**1**	**2**	**3**	**4**	**5**
The Kenyan government has adequate responsible consumption measures (reuse, reduce, recycle)					
Kenya promotes the use of green energy in public transport and sustainable mobility to a greater extent					
The government has implemented effective/sustainable agricultural and water management practices					

The government developed building designs and technologies that are more resilient to the effects of climate change					

17. Indicate the adaptation measures in addressing environmental issues that the Kenyan government prioritizes

……
…
……
……..

18. Indicate the different agricultural and water management practices implemented by Kenya government as adaptation measures towards climate change……..

……
……

19. Indicate the priorities in the Kenya's National Adaptation Plan…….

Appendix II: Consent Form
Statement of Consent for Participating in a Research Project

Identification of Investigators & Purpose of Study

Participation in a research project is requested from you by Mr. Guyo Wario, a Master's student at National Defense College in Kenya. The aim of this research is to examine how diplomatic engagement with the environment may help Kenya cope with the effects of global warming. As part of the criteria for the student's master's degree in international relations, this study will help him finish his thesis..

Procedures: In order to help the investigator comprehend more fully how environmental diplomacy advances climate change adaptation in Kenya, if you consent to being involved, you will be requested to take part in a comprehensive interview and assessment.

Privacy: To the degree permitted by law, your answers and any data gathered for this study will be kept private. We promise to keep your personal data private. All details will be anonymised and kept in a safe location. No publications or research findings will be linked to your name.

Voluntary Participation: You voluntarily choose to take part in this study. You are free to decline participation in the study at any time or to leave at any point, with no repercussions.
However, once your responses have been submitted and anonymously recorded you will not be able to withdraw from the study.

You will not receive any compensation for participation in this study.

Questions and Concerns:

If you have any questions about the research, you can contact the researcher, at guyowario484@gmail.com. If you have any concerns about the study or your rights as a participant, you can also contact the NATIONAL DEFENCE COLLEGE Institutional Review Board IRB.

Giving of Consent

I am aware of the requirements for participating in this study, having read this cover letter. I voluntarily agree to take part. My inquiries have received adequate responses. I attest that I am eighteen years of age or older.

_____
Name of Respondent

_____ _____
Signature Date

Appendix III: Introduction Letter

Telephone: 051- 851141
Fax: 051-851046
Email: ndu-kenya@mod.go.ke
When Replying Please Quote:
Ref: NDU - K/AA & R/02

National Defence University-Kenya
P O Box 3812 – 20100
Nakuru, Kenya

23 November 2023

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORISATION

Mr. Wario Kuduba Guyo of National Defence College, a College of National Defence University-Kenya, successfully defended his Master of Arts research proposal and has been allowed to proceed to the field to collect data for his thesis.

The research's topic is, **"Environmental Diplomacy and Climate Change Adaptation: Case Study of Kenya.".** The Candidate will be conducting the field work with effect from December 2023.

The purpose of this letter, therefore, is to request you to accord him any necessary assistance to successfully conduct the research.

Your continued assistance is highly appreciated.

Yours faithfully,

Prof Anne W T Muigai
Deputy Vice-Chancellor
National Defence University-Kenya

Appendix IV: NACOSTI Licence

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **673966**

Date of Issue: **08/January/2024**

RESEARCH LICENSE

This is to Certify that Mr.. Wario Kuduba Guyo of National Defence University-Kenya, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: Environmental Diplomacy and Climate Change Adaptation: Case Study of Kenya for the period ending : 08/January/2025.

License No: **NACOSTI/P/24/32313**

673966

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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See overleaf for conditions

Appendix V: Ordinal Regression Analysis

Table Va: Model-Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	393.640			
Final	265.561	128.080	49	.000

Link function: Logit.

The Goodness of Fit statistic indicates a poor fit if the significance value is less than 0.05. In this case, the model adequately fitted the data (P>0.05) (Table Vb). For the model to adequately fit the data the model fitting information (Table Va) should be significant (<0.05) while the goodness-of-fit insignificant (>0.05) (Vb). Generally, the goodness-of-fit test refers to measuring how well the observed data correspond to the fitted (assumed) model.

Table Vb: Goodness-of-Fit

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	4963.002	1030	1.000
Deviance	264.175	1030	1.000

Link function: Logit.

The model summary reveals the Pseudo R-Square (Table Vc), which means that it is not technically explaining the variation. But they can be applicable as approximate variation in the criterion variable. These approximations are produced because it is not possible to compute a single statistic that embodies all the features of the linear regression model for regression models with a categorical dependent variable. The coefficient of determination is calculated using the subsequent techniques. The R-square formula developed by Cox and Snell (1989) is based on the comparison of the model's log likelihood to that of a baseline model.

Even with a "perfect" model, it has a theoretical maximum value of less than 1 for categorical outcomes. An altered version of the Cox & Snell (R-square) was developed by Nagelkerke (1991), who changed the scale of the statistic to include the entire range from 0 to 1. Another variation is McFadden (1974), which is based on the log-likelihood kernels for the intercept-only model and the entire estimated model. By this metric, the model with the highest statistic

is considered to be the "best". The numbers in Table Vc show that, by these standards, the fitting model is satisfactory. In the case of Ordinal Regression, McFadden value of R-Square is applicable, whereby, the R-Square value was (1.0). R-Square is a measurement of the proportion of total variance in the dependent variable that the independent variable can account for. The data had a perfect fit to the linear model, as shown by an R-square of 1.0 in table 4.9.

Table Vc: Pseudo R-Square

Cox and Snell	.771
Nagelkerke	.779
McFadden	1.000
Link function: Logit.	

The assumption of Ordinal Logistic Regression (OLR) was that the various Odds falling into the higher (vs. Lower) category on the dependent variable were the same across categories. In other words, the effects of the predictors were the same across the levels of the dependent variable. In this case, the Odds of the predictor falling into the categories on the dependent variable were the same across the response categories.

The test of parallel lines for the models in this study aids in determining whether the presumption that the parameters are the same for all categories is reasonable. In this test, a model with a single set of coefficients for all categories is put up against a model with a different set of coefficients for every category. Table Vc demonstrates that, in this case, when the measured significant level is high, the assumption is reasonable. The p-value is expected to be insignificant ($p=1 > 0.05$). The significant Test of Parallel lines would mean that probability of falling to a higher category does not vary across categories on the dependent variable for the predictors.

Table Vd: Test of Parallel Lines

Test of Parallel Lines[a]

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	956.240			
General	.000[b]	956.240	1140	1.000

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.
a. Link function: Logit.

Appendix VI: Turnitin Plagiarism Report

GUYO WARIO RESEARCH PROJECT -11082024 Revised Final Draft 2 (2x).docx

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