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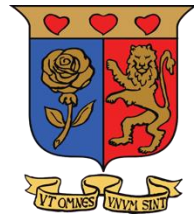
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**EFFECTIVENESS OF THE POLICY FRAMEWORK FOR CLIMATE CHANGE
INTERVENTIONS AT COUNTY GOVERNMENT LEVEL: CASE OF MAKUENI
COUNTY GOVERNMENT, KENYA**

YVONNE NJOKI NDIRANGU.

MPPM 135281

**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF PUBLIC POLICY AND
MANAGEMENT OF STRATHMORE UNIVERSITY BUSINESS SCHOOL.**

2024

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the dissertation contains no material previously published or written by another person except where due reference is made in the dissertation itself.

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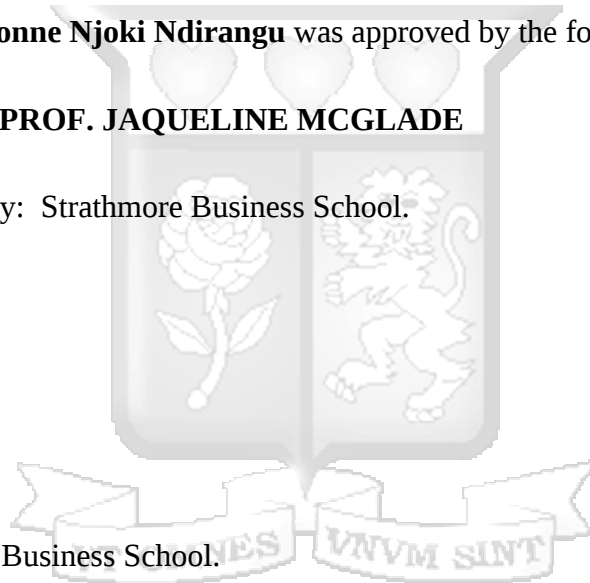
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ABSTRACT

Globally, the glaring and unprecedented effects of climate change and pollution on different environments are of key concern to civil society and regional and state governments worldwide. The devolved units in Kenya face severe capacity and resource gaps, such that climate change continues to rank low on their political agenda. Despite having a recently amended national climate policy, Kenya still struggles to align national strategies with county planning and actions. This study intends to analyze the effectiveness of the policy framework for climate change interventions at the county government level, using the case of the Makueni County government, Kenya. The study objectives are: i) to analyze the extent to which county legal frameworks formulated for climate change interventions have been implemented in Makueni County; ii) to examine the effectiveness of county policy making in implementing climate change interventions in Makueni County; iii) to investigate the level of awareness about climate change interventions among Makueni County residents; and iv) to evaluate differences in funding for climate change interventions in Makueni County. The development of a Theory of Change (ToC) guided the study in designing plausible measures to limit climate change. This research adopted pragmatism as the underpinning philosophy, applying a positivist, quantitative research method approach. The quantitative research method principally assisted in gathering quantitative data to explain the phenomena under study. The target population of the study was the residents of Makueni County. Yamane's (1973) formula was used to reach a sample size of 287 participants consisting of local administrators, county assembly members, county executive, national government representatives, and other environment stakeholders. The data collection tools were structured questionnaires for local administrators, face-to-face interviews with county executive committee members, county assembly members, and other leaders, and focus group discussions with the local administrators. SPSS version 24.0 was used to generate descriptive statistics of the different phenomena and to undertake regression analysis to model the effectiveness of the legal framework on climate change interventions in Makueni County. If effectively implemented, these legal frameworks as formulated should have a strong and positive effect on climate change interventions. The study found that the Makueni County legal framework for climate change interventions had been to a large extent ineffectively implemented. The findings also showed that county policymaking processes have been inadequate although positive strides have begun to be taken. Moreover, while the level of awareness about climate change interventions among local administrators is low to moderate, the level of awareness among county leaders and environmental experts is high in Makueni County. An increased level of awareness about climate change has a significant positive influence on implementation of climate change interventions in Makueni County. Variations in funding towards climate change were most influential in the implementation of climate change interventions in Makueni County. Thus, targeting of increased climate change funding will likely have a significant positive influence on the implementation of climate change interventions in Makueni County. The study concluded that the Financing Locally Led Climate Action (FLLoCA) process at Makueni county government is an effective way to climate action. The study recommends that the County Government of Makueni actively and strategically mainstream its legal frameworks related to climate change and align these with the relevant national and international environmental laws in order to create a seamless implementation that will lead to positive climate change interventions at the local level.

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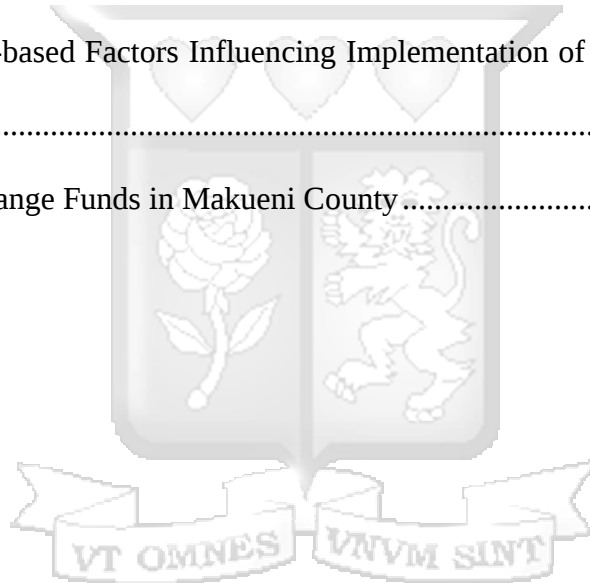


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LIST OF ABBREVIATIONS

CCA: Climate Change Act, 2016

CEC: County Executive Committee Member

COK: Constitution of Kenya, 2010

CCCF: County Climate Change Fund

FDG: Focus Group Discussions

GOK: Government of Kenya

GHC: Greenhouse Gas

IPPC: Intergovernmental Panel on Climate Change.

NCCAP: National Climate Change Action Plan.

NCCFP: National Climate Change Framework Policy.

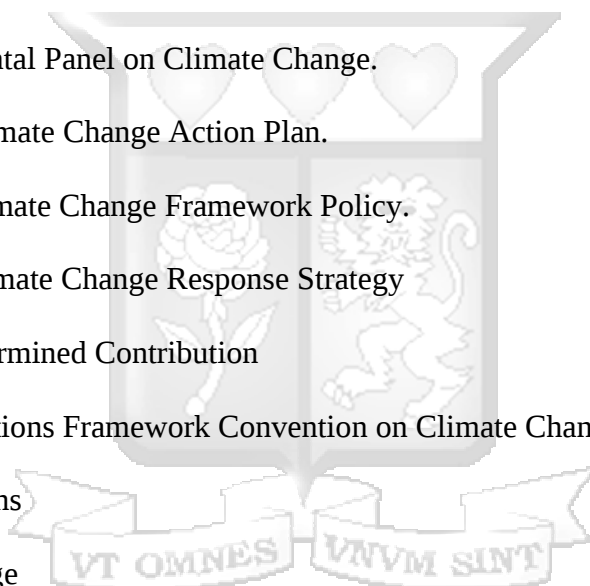
NCCRS: National Climate Change Response Strategy

NDC: Nationally Determined Contribution

UNFCCC: United Nations Framework Convention on Climate Change

UN: The United Nations

ToC: Theory of Change



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Prof Jacqueline McGlade, my supervisor, deserves special gratitude for her guidance and support in preparing the project. Finally, I owe a particular debt of appreciation to my family members, without whom the study project would never have gotten off the ground. God bless them.



DEDICATION

I dedicate this to my spouse, Patrick, and my daughter Alena, who sacrificed so much for this degree.



CHAPTER ONE

INTRODUCTION

1.0 Introduction to the Study

This chapter provides a background to the study, problem statement, objectives, research questions, hypothesis, the scope of the study, and the significance of the thesis.

1.1 Background of the Study

Kenya transitioned into a devolved system of governance in the year 2013. In this system, 47 semi-autonomous county governments were formed. The Constitution of Kenya (COK) devolves authority to Kenya's 47 county governments, and the Climate Change Act (CCA), 2016, mandates counties to implement and monitor Kenya's sustainable development and climate change goals. Whereas there are documented experiences of the success of devolution, the reported benefits cover significant regional disparities, primarily due to a lack of policies, legal frameworks, and funding.

Environmental management is one of the devolved functions; as a consequence, responsibility for managing climate change is shared by the 47 county governments. The administrative units have reacted to this by adopting county-specific interventions, policies and programs. In a recent report, (International Food Policy Research Institute, 2023), the government collated the most recent data to describe levels of climate change impacts and interventions at county level. The report noted that counties had adopted policies with elaborate intervention measures, which had been based entirely on the visual effects of climate change on specific sectors. For instance, the Turkana County Climate Change Policy of 2020 indicates that climate change adversely influences essential industries that are significant to the counties' economy and society, including

environment, water and forestry, agriculture, livestock, and fisheries, trade; extractive industries, energy, physical infrastructure tourism and health (Republic of Kenya, 2020).

Kenya's economy relies heavily on its natural resource base and is therefore highly vulnerable to climate variability and change. As highlighted by the GOK at the Africa Climate Summit 2023 (<https://africaclimatesummit.org/>), changes in temperatures and rainfall patterns result in droughts and flooding, threaten the sustainability of Kenya's development (GOK, 2016; Kibugi, 2018). Climate change is likely to negatively impact Kenya's future development and achievement of the goals of Kenya Vision 2030 . (Republic of Kenya, 2020). The minimal progress achieved through these earlier policies, attributed to various factors including COVID-19 and constrained budgetary allocations (Republic of Kenya, 2022), was recognised by the current government and starting in 2022, new legislative processes have been in motion.

Recognising the susceptibility of Kenya to the adverse impacts of climate change, GOK has prioritized adaptation actions while implementing progressive mitigation actions to achieve a low-carbon climate-resilient development pathway. In the sessional paper GOK (2016), the government enacted the 2016 Climate Change Act (CCA). It adopted Sessional Paper No.5 of 2016 on the National Climate Change Framework Policy, both of which mount the country's agenda for climate change response actions. These are to be implemented through a five-year National Climate Change Action Plan (NCCAP), as required by section 13 of the CCA. An elaborate institutional structure has been established that adopts the operating model to implement climate change through "mainstreaming" and recognizing the critical roles of the various stakeholders (Kibugi, 2018).

One notable area where there remain gaps, relates to the legal basis for the funding of environmental action. For example, despite the Paris Agreement in December 2015 and the establishment of the Adaptation Fund and the Green Climate (GCF) as well as the most recent accreditation of the National Environmental Management Authority (NEMA) to access the GCF Funds that have led to new green funding and climate finances, Kenyan Counties continue to lack legal frameworks attributed to financial constraints to fund climate change programs.

Other financing programs include the Financing Locally-Led Climate Action (FLLoCA) program in Kenya. FLLoCA is a significant initiative aimed at strengthening the country's resilience to climate change. The World Bank Board of Directors approved a US\$150 million financing agreement with the Government of Kenya to support community-identified and locally-led climate resilience projects in all rural wards across the country. This funding is part of the 10-year Government Financing Locally-Led Climate Action (G-FLLoCA) program, which was launched in June 2020 (World Bank, 2021). The program objective is to deliver locally led climate resilience actions and strengthen the capacity of both county and national governments to manage climate risks. It recognizes that climate action has been underfunded in Kenya, and this financing aims to bridge that gap.

The United Nations (UN) (1992), through the United Nations Framework Convention on Climate Change (UNFCCC), defined climate change as a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable periods. The UNFCCC distinguishes between climate change attributable to human activities and climate change attributable to natural occurrences (UN, 1992). Holdren (2006) defined climate change as the earth's weather patterns' glaring alterations due to human activity. Mainstreaming adaptation

refers to incorporating climate change adaptation objectives into sectoral policies. It plans to build resilience from the national to the local level in contrast to creating separate policies or programs to achieve adaptation objectives (Mogelgaard et al., 2018). This forms the basis of the policy making on climate change interventions for the County Governments in Kenya.

Chenet, Ryan-Collins and Van Lerven (2021) studied how climate-related financial risks (CRFR) have become areas of concern for financial organizations. Funding of climate change interventions and programmes is a needful problem as the efficiencies and effectiveness of the funding programmes determine the effectiveness of the interventions. CRFR are considered unique programmes in climate change interventions, but there lack policy frameworks that spell out their applications. As such, they are indeed prone to misuse and failure of the purposes. The programme may be more effective under the circumstances of transparency and disclosure. This points to the need for effective policy framework around funding of climate change interventions not only in the US but also Africa, Kenya included.

Chenet et al., (2021) further argue for alternative financial policy that would address the uncertainties of the funds invested in climate change intentions. The policies need to have both a short-term and long-term focus considering the possible changes that may arise due to unavoidable changes of the climate. The study recommends a precautionary principle for feasibility of the policies developed to control funding of the climate change interventions.

Global concerns and possible intervention measures have been reviewed and resounded in conferences. These are captured in COP 26 and COP 27 adaptations of climate change. For instance, at the Glasgow COP 26 conference, the nations agreed on the need to identify and increase overall awareness and commitment to mitigating climate change. The nations at the

conference held in 2021 avowed to undertake these in various approaches. The most notable was the commitment to secure a global net zero by mid-century and keep 1.5 degrees within reach.

The conference's outcomes emphasized the need for nations to come forward with ambitious climate change strategies and 2030 emissions reduction targets that align with reaching net zero by the middle of the century. To deliver on these stretching targets, nations are required to: accelerate the phasing out of coal, curtail deforestation, speed up the switch to electric vehicles encourage investment in renewables.

The conference observed the need to adapt to protect communities and natural habitats. The observation informed this that the climate is already changing and will continue to change even with the reduction of carbon emissions and devastating effects. COP 26 conference noted a need to work together to enable and encourage countries affected by climate change to protect and restore ecosystems, build defenses, warning systems, and resilient infrastructure and agriculture to avoid loss of homes, livelihoods, and even lives. Apart from these, the conference agreed that realizing the objectives set out in the conference would necessitate the mobilization of funds to implement. The document holds that developed countries must make good on their promise to mobilize at least \$100bn in climate finance per year by 2020 to realize the first and the second goals.

Termeer, Dewulf and Biesbroe. (2017) pointed out how needful transformational change is illustrating the climate change interventions. The concept having been studied for over 30 years in organizational theory, authors argue that the theory can inform effective intervention strategies for climate change.

The COP 27 Conference in Egypt in 2022 highlighted and sought to follow up strategies and measures to mitigate climate change, especially in adversely affected poor economies. The conference concluded that developed economies should help vulnerable countries deal with losses and damages from the impacts of climate change. Fundamental breakthroughs in the conference included establishing a fund to aid countries facing severe damage from climate change. Further, the COP 27 conference emphasized increased adaptation to climate as key in mitigating and managing climate change and its effects. The Constitution of Kenya (COK) (2010) sets out a commitment to ecologically sustainable development, which cannot be achieved in the absence of sustainable national development goals. (GOK, 2012).

Adapting to climate change is a precondition to socioeconomic development, especially in drought-prone regions largely dependent on small-scale agriculture and pastoralism. However, counties face capacity and resource gaps, and climate change remains low on political agendas. In this context, some counties most vulnerable to climate change pioneered the County Climate Change Fund (CCCCF), a governing mechanism that facilitates participatory climate change planning, guarantees a minimum annual budget for climate action and attracts new revenue from national and international sources. The CCCCf's early success led to replication in counties across Kenya and influenced national climate policy.

Countries have increased their commitment to reducing climate change impacts, especially given that the country depends entirely on agriculture. Counties in Arid and Semi-Arid areas have been at the forefront of developing elaborate policy frameworks to guide adaptation to climate change. Makueni County is a notable example of a county adversely affected by climate change. In reaction, the county developed a policy informing the conviction that climate change has social and economic implications. Considering this, the policy identified, set out, and emphasized certain

key priority areas. These are forests, wetlands, arid and semi-arid ecosystems, fresh water, hills, and biodiversity. Overall, the county policy is designed to translate social and economic development by addressing the challenges of climate change. To realize this, the policy aims to ensure the county administration develops and mainstreams appropriate frameworks and ensures that the county initiates sustainable solutions.

Makueni County's climate change policy is designed to enable the county to solve rising costs of water treatment, human treatment, and spiraling food importation into the county. Further, the policy aims to ensure that the county contains its spiraling loss of biological resources (Makueni County Environment and Climate Change Policy 2020). The policy identifies several strategies as essential in its climate change management. These include lobbying for adequate funding in the county budget allocation. In its plans, the county seeks to identify development partners capable of funding different climate change mitigation programs and projects. In addition, the county is investing in recruiting and increasing staff capacity in climate change matters. Another notable strategy is investing in climate change monitoring equipment.

The constitutional framework for governance in Kenya is the national government and the 47 county governments. Article 6(2) of COK provides that the two levels of government are distinct and interdependent and shall conduct their mutual relations based on consultation and cooperation. The emergence of the six regional economic blocs in different regions of the country pegged on a desire to optimize the comparative advantage of counties, their economies of scale, and their ability to attract investments has been characterized by the adoption of different forms of institutional structures by the other blocs (Ruteere, 2018).

In their study, Murphy and Orindi (2017) observed that despite a well-formulated governance structure, Kenya still struggles to implement national climate priorities at the county level. An assessment of the enactment of the first National Climate Change Action Plan (2013-2017) revealed that most activities continued to be unimplemented, specifically by the counties. The main barriers to implementation were the lack of county climate legislation and policy, limited technical capacity in response to newly devolved mandates, and insufficient finance.

While counties and the national government are distinct, these two levels of government are interdependent and expected to function collaboratively for the efficient . The national government is mandated to make policies on climate change. Various functions assigned to county governments are integral to fulfilling actions required to address climate change. In certain instances, the two levels of government may concurrently perform climate change-related functions. It is, therefore, necessary to review the overall legislative and institutional arrangements that govern climate change actions (GOK, 2016).

It is also required for county governments to embark on various core interventions, including the enactment of predominant climate change legislation to provide the framework for coordinated implementation of climate change responses and action plans. It is also necessary to have a county coordination mechanism with high-level organizing power to enhance the inter-sectorial response to climate change and a technical, institutional framework to guide policy and functional implementation of climate change legal obligations of the national and county governments (Republic of Kenya, 2020).

Despite a national climate policy, Kenya has struggled to align national strategies with counties' planning and action. Technical capability of county governments and local officials remains low,

development planning leaves out key community priorities, and funding is limited (Orindi, Wendo, Landesman, Adriázola, & Strauch, 2020). However, there are several policies aiming at climate action in Kenya. At the apex is the national Kenya Vision 2030 and Bottom-up Economic Transformation Agenda (BETA) which specifies on realizing 15 billion trees by 2032 (Journalism Hub, 2023). The sectoral ones major the long-term Low Emission Development Strategy 2022-2050, the Climate Change (Amendment) Act 2023, and the National Climate Change Action Plan III 2023-2027. However, the changes and updates continue to take lead as even the existing laws are reviewed to accommodate the desired outcomes that reflect the global demands. For instance, the COP 18 raised concerns about leadership, partnerships, presidency lead, financing, livelihoods and inclusivity (The United Nations Framework Convention on Climate Change (UNFCCC), 2023).

At the County level, Makueni's 2023-27 County Integrated Development Plan (CIDP) represents the third generation of long-term planning since the inception of devolution in Kenya following the enactment of the 2010 Constitution. This plan coincides with the new government regime that came into power after the general elections in August 2022. The overarching theme of the CIDP is "A resilient economy for sustainable development," with the aim of supporting the creation of a community that can withstand shocks and foster economic growth (Makueni County, 2023).

1.2 Why Makueni County

Kenyan counties are highly vulnerable to climate change, and intensifying climate change impacts present numerous challenges to the country's progress toward achieving development goals. National and county governments in Kenya have recognized the need to have climate change discussions and adaptation into development plans and policies across sectors is essential for

better management of the increasing risks from climate change and for building resilience—as have governments worldwide. (Mogelgaard et al. 2018).

Kenya has made progress on building resilience through its National Adaptation Plan (NAP) and by engaging its Council of Governors (CoG) and county governments in the process of establishing County Climate Change Funds (CCCFs) and mainstreaming climate information (including the risk of climate change and how to adapt) into County Integrated Development Plans (CIDPs). However, as in other locations, decision-makers there find it challenging to move from planning to implementation. (Chaudhury, Summerlin, and Ginoya, 2020).

According to ADA (2017), in mainstreaming climate change into planning, Kenya counties focused on the major lessons that emerged from both county and ward levels of learning processes. An important lesson from Wajir County is the need to engage with The National Treasury to obtain a VAT Tax waiver for community projects to have more money available for community-prioritized investments. The provision of feedback by climate change committees is critical in managing conflict of interest and political interference in awarding contracts for implementing community-prioritised investments.

Makueni County emphasized the importance of having a regulation that can guide the implementation of climate change-related activities, the establishment of climate change structures including WCCPC, CCCPC, County Climate Change Steering Committee (CCCSC), and CCCF Board, and the implementation of community projects across six wards. The county Government directed that a Climate Change Department be created to oversee the establishment of ward committees across the remaining 24 wards and use of a 1% allocation of a total of Kenya Shillings 30 million to the CCCF pot. Makueni County was the first County to pass Regulations on Climate

Change. It has partnered with UKAID, Christian Aid, the Anglican Development Services Eastern (ADSE), and the ADA Consortium. As a result, the County gains seed money for climate change adaptation. The County Government of Makueni has also appropriated 1% of its development budget to climate change and adopted the Climate Change Fund Regulations into the County Integrated Development Plan (CIDP). As early as 2015, the County Government of Makueni established and launched the Makueni Climate Change Fund Regulations, 2015, set up structures on Climate Change, and even conducted capacity building of Members on Governance structures on Climate Change. The county also developed a memorandum of understanding between the County ADSE and Christian Aid, developed a Makueni Climate Information Service Plan, reviewed proposals by the Ward County Climate Change Planning Committee as well as approved proposals by the County Climate Change Planning Committee and Surveyed and designed and proposed sites for implementation of the project. In its CIDP of 2023, Makueni county aims to create a resilient economy, enhance community well-being, and contribute to sustainable development by addressing critical areas across various sectors.

Similarly, other counties located in the country's highlands and act as agricultural hubs have equally grappled with climate change. In reaction, many of these counties have adopted a bill creating a fund for climate change management within the regions. The framework is the conviction that with the trends in climate change, the future of the country's agriculture and economic strength is threatened. Most of the acts in design provide for increased funding to climate change programs and projects. The Acts emphasize increased initiation and coordination of climate change mitigation and adaptation activities at community levels. For instance, Murang'a County's climate change act emphasizes the use of knowledge for development as an effective in climate change management. It, therefore, advocates coordination of support for

national government climate change policy and increasing legislative frameworks on climate change. These include coordinating collecting and disseminating information on climate change to the public and increasing overall awareness of climate change (Murang'a County Climate Change Fund Bill, 2021).

Despite Makueni County being a semi-arid area compared to other Counties that are fertile and experience more rainfall, Makueni County has made remarkable strides compared to Counties from regions with no challenges with rainfall. Makueni county lies in the larger Eastern region of Kenya which has resource-based challenges including tree cutting for charcoal burning, sand harvesting and quarries for construction materials, this makes the county very vulnerable to climate change effects through destruction of the soils, the available trees, and even air pollution. This forms the basis of the interest in studying the effectiveness of policy framework for climate change interventions at the county government level using the case of Makueni county government, Kenya.

1.3 Problem Definition

The issues surrounding the globe at large are attributed to one common challenge – climate change. This is evidenced by emerging calamities such as drought, extreme heat waves, heavy storms, and other rising natural disasters. These calamities are also associated with other socio-economic challenges, including food insecurity, unsafe living environments, loss of jobs, and environmental degradation. The UN reports that the globe has experienced the hottest periods in the last four years (UN, 2020), leading to melting mountain glaciers and ice sheets. The report also indicated that climate change is associated with insecurity and terrorism, and migration as extreme weather conditions force people to move and, in some cases, cause human trafficking. It is against

the backdrop of these issues the world over that countries have agreed on working on climate change interventions.

Streams and organs of different stature, including UNEP (incepted in 1972), Earth Summit in Rio in 1992, and the unveiling of the Conference of Parties (COPs) to limit temperature rise to below 2 degrees Celsius have been focusing on global environmental and climate programmes. These efforts have agreed on a legal framework and intervention guidelines. While the applications and approach are at a national level, the country works with a trickle-down framework where each county adopts the national policies. Similarly, all policy making about climate change interventions at the county level are required to use the blueprint of the national policies.

Similarly, the framework for policies, funding, and awareness at the global, regional, and national levels are trickled down to County levels in Kenya. Although some county governments in the country have embraced legislation, policy, and funding for climate change, many continue to face severe capacity and resource gaps. In contrast, climate change continues to rank low on political agendas. Despite the national climate policy, county governments struggle to align national strategies with counties' planning and action. Makueni County is reported to be the first one in Kenya to legislate on Climate Change (Makueni County Climate Change Regulations, 2015 (Makueni County, 2021)). Makueni has partnered with several stakeholders, including Ada Consortium and UKAID, to develop a framework for effective legislation, funding, and raising awareness about climate change interventions.

The Makueni County Climate Change Act, No. 6 of 2022, provides a framework to facilitate effective responses to climate change through appropriate adaptation and mitigation measures. The Act aims to enhance climate resilience by mobilizing resources for development,

management, implementation, regulation, and monitoring of adaptation and mitigation measures. The application of the Act is guided by values and principles such as informed community participation, equitable benefits, protection of the climate system, and a transition toward an environmentally sustainable economy. Despite the legislation, challenges persist - this includes ensuring effective implementation and enforcement of climate actions at the county level (World Resources Institute, 2020). As late as 2023, Makueni county developed a CIDP 2023-2027 which seek to accelerate the climate action steps. Therefore, the current study investigated the viability of county legal frameworks formulated for climate change adaptation and mitigation using the case of Makueni County.

1.4 Research Objectives

1.4.1 General Objective

The general objective of the study was to assess effectiveness of Financing Locally Led Climate Action (FLLoCA) process at the county government level using the case of Makueni county government, Kenya.

1.4.2 Specific Objectives

The specific research objectives were to;

- i. To analyze the extent to which county legal frameworks align to Financing Locally Led Climate Action (FLLoCA) process in Makueni County.
- ii. To examine the effectiveness of county policymaking in implementing climate change interventions in Makueni County.
- iii. To investigate the level of awareness about climate change interventions in Makueni County.

- iv. To establish the variations in funding for climate change interventions in Makueni County.

1.5 Research Questions

- i. To what extent have county legal frameworks align to Financing Locally Led Climate Action (FLLoCA) process in Makueni County?
- ii. What is the effectiveness of county policymaking in implementing climate change interventions in Makueni County?
- iii. What is the level of awareness about climate change interventions among Makueni County residents?
- iv. What are the variations in funding for climate change interventions in Makueni County?

1.6 Scope of the Study

The study examines how county governments have embraced legal frameworks, climate change awareness, and funding for climate change in counties. The researcher focused on Makueni County; the study was confined to the county and sought to assess the effectiveness of the policy framework for climate change interventions at the county government level. The county is rated high in terms of the development sector, climate, culture, and economy attributed to devolution since its inception in 2013. The study relied on primary data from selected county residents and officers involved in climate change programs at the county level. Questionnaires, interview guides, and focus group discussion schedules were formulated to aid in the collection of data.

1.7 Significance of the Study

Understanding climate change awareness is instrumental in research on climate change. Although the Africa is among the regions with the highest vulnerability to climate change, research on climate knowledge and awareness is lacking. Kenya is already grappling with the impacts of climate change, which are projected to increase in a non-linear and non-predictable manner (Haile, Tang, Hosseini-Moghari, et al., 2020). Climate change is likely to negatively impact Kenya's future development. The COK devolves authority to Kenya's 47 county governments, and the CCA mandates that counties implement and monitor Kenya's ambitious sustainable development and climate change goals. Adapting to climate change is a precondition to socioeconomic development, especially in drought-prone regions largely dependent on small-scale agriculture and pastoralism (Ng'ang'a, 2022). Climate change adversely influences essential sectors that are significant to the counties economy, including environment, water, agriculture, livestock and fisheries, trade, tourism, and health (Republic of Kenya, 2020).

The examination of Makueni County may aid the county government in accessing sustainable strategies concerning the level of awareness, adequacy of the legal frameworks, and funding for climate change mitigation programs adaptation. The study aims to analyze the climate change mitigation legal frameworks by Makueni county and suggest policy, legislative and administrative changes that the county government may undertake to enhance it. The data collected may be useful to Makueni County Government and may aid in sourcing more funds from donor agencies and international agencies, such as the United Nations (UN) and the World Bank, in evaluating their funding and partnership on climate change initiatives.

1.8 Organization of the Dissertation

The dissertation is organized into three major parts; Introduction, literature review and research methodology. The introductory part, preceding the introduction is the preliminaries that described and give details about the dissertation ownership, contents of the thesis and the acknowledgments. The dissertation the ends with the references that show the cited works as well as giving the appendices that support the study.



CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section examines the historical and current literature and explores the main theories used in climate change discourse. The current study builds on the theories discussed.

2.2 Theoretical Framework

Theoretical frameworks highlight applicable ideas around climate change, particularly the different challenges around county adaptation to climate change. The theories discussed, therefore, were the Theory of Change (ToC), the sustainable development theory in climate change, and the stakeholder theory.

2.2.1 *The Theory of Change*

According to Grantcraft (2006), the Theory of Change is a methodology for planning, adaptive management, evaluation, and participation often employed by governments, non-profit organizations, and other institutions to influence social change. It seeks to articulate how different programs are intended to realize a particular change. In addition, the author implores that the theory achieves by identifying the problem, the solutions, and the objectives each intervention aims to achieve.

The theory emerged in 1990 following the findings and research on field-centered evaluation, especially following Chen's works (1990). In an evaluation of the theory, Weiss (1995) propagated the term “Theory of Change” to describe a set of assumptions explaining the various mini steps leading to the long-term goal and the connections between program undertakings and the expected results. Proponents of the theory argue that the concept explains the change process by outlining

the causal relationships in a specific change program. These include the short, intermediate, and long-term outcomes. The notable proponents of the school of thought include notable evaluation theorists such as Michael Quinn Patton, Peter Rossi, Huey Chen, and Carol Weiss.

The Theory of Change is premised on five basic guiding principles. According to Reinholz and Andrew (2020), context analysis and evaluating the prevailing change needs are the first principle. Essentially, this entails identifying, describing, and creating existing relationships in a system. Second, the theory holds that effective change management requires the identification of the rationales, outcomes, and preconditions to realize expected outcomes and the various micro steps necessary to realize intended goals. Thirdly, the theory hinges on identifying the key change program indicators. These include measurements and evaluation procedures to monitor and affect the projected outcomes. The fourth premise of the concept is the centrality of interventions which entails the explication of the specific interventions necessary for a desired change (Reinholz and Andrew, 2020). Lastly, the theory works on capitalizing on the principle of assumptions in program interventions. The authors further implore that this tenet embraces implicit knowledge of the context and how the change will occur or work.

The UK PACT (Partnering for Accelerated Climate Transitions) is cited as a high-level Theory of Change in Climate change management. Bours, McGinn, and Pringle (2014) describe the theory of change as a critical thinking program design methodology. They observe that this has increasingly influenced international growth and development. UK PACT functions around the theory and works on programs entirely designed to influence paradigm shifts and adopt new measures to manage climate change. Relating closely to the theory's key tenets, the UK PACT

(2021) aims to achieve systemic change in the policy, regulatory, and institutional environments in the countries it supports to facilitate low-carbon development.

To this end, Kenya's county governments can capitalize on the PACT to enhance their efforts at climate change mitigation. In the Kenyan context, counties are possible recipients of the UK-Kenya partnership on reducing carbon emissions. According to the data from the country, the UK PACT (2021) has set aside \$3.7 million in funding programs to reduce carbon emissions across various counties. Essentially, this calls for county governments to increase their implicit knowledge of the country's climate, especially regarding the carbon emission sources and the index.

The Financing Locally Led Adaptation: The FLLoCA program acknowledges that locally led adaptation can be more effective than top-down approaches. Local communities understand their context, vulnerabilities, and opportunities better. The program applies the constitutional principles of public participation in climate change discussions. It recognizes that involving communities leads to better-informed decisions and more sustainable solutions. By building on Kenya's devolution efforts, FLLoCA empowers county governments and local communities. It ensures that 90% of program funding reaches the county and community levels, benefiting vulnerable groups. FLLoCA supports partnerships between the counties and citizens to assess climate risks and identify socially inclusive solutions. These solutions are alive to local needs, promoting resilience.

2.2.2 Stakeholder Theory

According to Clarkson (2014), the stakeholder theory states that several people are interested in an entity. It is a system of partners that operates within the broader system of the host community and provides the legal and business framework for the firm's operations. Friedman and Miles (2006)

argue that businesses and entities should be seen as stakeholders to manage their desires, wishes, and perspectives. This position is assumed to be played by the firm's executives. Executives must keep the needs of consumers, vendors, staff, societies, and shareholders united and moving in the same direction for prosperity and efficiency.

The paper has adopted this theory in line with climate change adaptation by the different stakeholders. Climate change adaptation encompasses the interests of the communities, the national and county governments, the international community, donors, and climate change advocacy groups and lobbyists. All stakeholders' interests must be aligned while taking cognizance of the realities of the need to adapt to climate change.

The theory points to the bottom of the UNs' Leave No One Behind (LNOB). LNOB is a central promise embedded in the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs). It represents the unwavering commitment of all UN Member States to eradicate poverty, eliminate discrimination, reduce inequalities, and address vulnerabilities that hinder progress. LNOB extends beyond reaching only the poorest; it necessitates combating discrimination and rising inequalities within and among countries. Persistent forms of discrimination, including gender bias, marginalize and exclude individuals, families, and entire communities. The UN's approach to LNOB emphasizes equality and non-discrimination as foundational principles, grounded in international human rights law and the UN Charter. It compels us to focus on discriminatory laws, policies, and social practices that perpetuate exclusion and hinder people's agency as rights holders. The Shared Framework on Leaving No One Behind, endorsed by the Chief Executives Board, places combating inequalities and discrimination at the forefront of UN efforts to implement the 2030 Agenda (UN SDG Group, 2015).

A multi-stakeholder approach recognizes that addressing complex challenges like climate change requires collaboration across sectors and actors. It involves pooling financial resources, knowledge, and expertise from diverse stakeholders. By engaging various actors—governments, civil society, private sector, academia, and communities—we can create integrated solutions. The Decade of Action to Achieve the SDGs provides an opportune moment to forge such alliances. These alliances aim to promote coordinated efforts, leaving no one behind while advancing sustainable development (UN, 2021). In the transition toward a low-carbon economy, a stakeholder approach is crucial. Policies must be comprehensive, inclusive, and based on social dialogue and engagement. Ensuring that no one is left behind requires just transitions and economic diversification. Stakeholders play a pivotal role in shaping climate policies and ensuring equitable outcomes.

2.3 Empirical Literature

Climate change is a complex subject surrounded by a lot of scepticism. This therefore calls for conclusive evidence to support climate change reality. The UN (1992), through the UNFCCC, defined climate change as a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable periods. The UNFCCC distinguishes between climate change attributable to human activities and climate change attributable to natural occurrences (UN, 1992). While the definitions may vary, climate change is argued to have increased with the advent of the industrial revolution of the 1800s. The UN argued that human activity has resulted in increased accumulation of ozone gases trapping heat, thereby causing climate change shifts.

Despite a few sceptical views (Zeng, 2022; Goldberg, van der Linden, Leiserowitz & Maibach, 2020), there is a consensus among scientists, scholars, and researchers that climate change is a well-established reality and is being compelled by the unsustainable practices of human beings, particularly the burning of fossil fuels, industrial pollution, deforestation, and land use changes (Fauville, Queiroz & Bailenson, 2020; Castaño-Rosa, Taylor, Pelsmakers, Gullman & Sukaden, 2022). The sceptics admit that since the industrial revolution, there has been a significant change in various climatic regions and shifts in biodiversity. However, they least link human activity to any evidence of climate change.

Many scholars define climate change as the anthropogenic change of the global climate system through fossil fuel combustion, deforestation, and other related activities that contribute to the increased concentration of greenhouse gases in the atmosphere (Weart, 2010). This definition is in line with the UNFCCC definition. However, the anthropogenic nature of the current climate change is still debatable (Cook, 2013). In this regard, Intergovernmental Panel on Climate Change defines climate change as a change in the state of average weather patterns attributed to both natural and human-induced factors and which, in addition to variability, persists over long periods (IPCC, 2007). Nonetheless, both definitions concentrate on the cause of climate change more than giving a clear impression of what “climate change” really means.

The World Meteorological Organization (WMO) confirms that 2023 was the warmest year on record by a clear margin. The global average near-surface temperature was approximately 1.45°Celsius above the pre-industrial baseline. The past nine years (2015-2023) were the warmest on record. The El Niño event in 2023 further fueled heat, and its impact is likely to continue in 2024. Greenhouse gas levels reached record highs, contributing to the warming trend. Sea level

rise accelerated due to ocean warming and glacier/ice sheet melting. Antarctic sea ice extent hit an all-time low, equivalent to the size of France and Germany combined. Glaciers in North America and Europe experienced extreme melt (WMO, 2024).

Related to current events, heatwaves, floods, droughts, wildfires, and intense tropical cyclones caused misery and economic losses worldwide. Nearly one-third of the global ocean experienced marine heatwaves in 2023. The global set of reference glaciers suffered the largest ice loss since 1950. Swiss glaciers lost about 10% of their remaining volume in the past two years. Extreme weather events are disrupting lives and livelihoods, emphasizing the need for early warning services (BBC News, 2021). As late as 2021, global sea levels rose to a new high, and the 20-year temperature average from 2002 was on course to exceed 1°C above pre-industrial levels. In 2023, extreme events caused more than \$1.5 billion in damage each, affecting communities worldwide (ibid). this led to the issuance of a warning by the UN Secretary-General António Guterres that the world is on a “fast track” to disaster due to harmful carbon emissions. Scientists emphasize that it’s “now or never” to limit global warming to 1.5 degrees (UN News, 2022). These figures underscore the urgency of climate action and the need to address extreme events while leaving no one behind in our efforts to combat climate change.

2.3.1 Legal Frameworks formulated for Climate Change Interventions

The Paris Agreement, adopted in 2015, represents a landmark in global climate action. Starting with the Nationally Determined Contributions (NDCs); these are central to the Paris Agreement’s long-term goals. Each country outlines its post-2020 climate actions in its NDC. These actions aim to reduce national emissions and adapt to climate change impacts. The Paris Agreement requires each Party to: Prepare, communicate, and maintain successive NDCs and pursue domestic

mitigation measures to achieve NDC objectives. NDCs collectively determine whether the world achieves the Paris Agreement's goals, including global peaking of greenhouse gas emissions and rapid reductions thereafter. The balance between emissions and removals by sinks (e.g., forests) is crucial for achieving climate neutrality by mid-century. Developing countries have longer timelines for emission peaking, emphasizing equity and sustainable development (International Transport Forum, 2018).

On the other hand, reporting and progression of the NDCs has seen countries submit NDCs every five years to the UNFCCC secretariat. Successive NDCs should represent progression compared to the previous ones. Parties must submit new or updated NDCs by 2020 and every five years thereafter (e.g., by 2025, 2030). Adjustments to existing NDCs can occur anytime to enhance ambition. The Paris Agreement aims for a ratcheting up of ambition over time (ibid).

Climate change mitigation policies can either expedite or hamper progress toward health equity and can have implications in key sectors of the economy, leading to stagnation. In this regard, each state and community have, in their respective capacities, increasingly adopted innovative approaches and relied on various global policies to encourage awareness and increased commitment to climate change mitigation. Davoudi, Crawford, and Mehmood (2019) observed that stabilizing atmospheric carbon dioxide concentrations necessitates tremendous energy production and use changes. In this regard, it is arguable that effective mitigation is not realizable without individual agencies working together towards ensuring the goals of reducing greenhouse gas (GHC) are realized.

2.3.2 Global Context

The world over, various countries have adopted strategies toward containing spiralling climate change. Most notably, these strategies have been tailored at the various level of intervention creating a host of possible solutions. Lauded for their effectiveness at their respective levels of implementation, the design has been to ensure local communities, governments, and agencies engage actively in mitigating climate change. Tiffany (2018) used explored the various strategies currently in place using systematic literature review approach. It was noted that their application is dependent on the level of awareness created of trends and the available measures for possible containment. At times, utility companies, governments, and others have integrated these strategies into large-scale programs that can reduce GHG emissions. Ordinarily, Carlos (2020) used a survey design to post results that argue that psychology-based strategies are combined with traditional government programs such as increasing community rebates, incentives, and creating effective pricing strategies and policies to increase consumer energy savings. Such strategies create emotional detachment to destructive activities while embracing the environmental conservation practices. Studies have further established that effective programs often deliver personalized feedback to domestic utility customers through household energy reports or real-time feedback devices. Apart from this, reports indicate that effective approaches have been known to engage or employ other engagement tools such as training programs, competitions, energy inspections for homes, businesses, or targeted community programs.

The strategies used across nations have significantly varied, given the level of the country's overall awareness and commitment to climate change mitigation. Among the most notable strategies, different countries and communities emphasize personal-level measures. Individual strategies and activities target local communities and are diverse. According to the IPPC (2009),

there are many actions that people can take to reduce their GCH emissions. Emphasizing the individual role of the global population as elemental, it has been established that many of these activities involve energy conservation and are equally designed to reduce the overall cost of living, especially in money spent on daily activities in production and other utilities.

Rashad (2013) used literature review methods to argue that the global population has constantly and incessantly increased its rates of GHG emissions since 1970. While climate change has been identified since the 80s, methods and strategies for containment have differed, although there have been universally proposed strategies. In most cases, the argument is that while most people are aware of climate change and its causes and that many are concerned about it, the normal trend is that there is little action to accompany these concerns. Alarmed at the growing universal knowledge, increasing scientific evidence of climate change and the inherent impacts on human and plant populations, countries have formulated different policies and designed strategic measures aimed at containing the most known immediate contributors of runaway global warming and reducing the extent of GHG emissions. Across the globe, various countries and communities have adopted different strategies.

The American Geosciences Institute (2021) surveyed the American space that entails exploration using technology (a crucial role in understanding and addressing climate change) and noted that managing the risks of climate change depends on making the best probable use of the information and understanding that the present world already possesses. In addition, there is a need for a universal understanding of scientific evidence on climate causes and drivers, apt expectations for the potential for research advancement, and a shared appreciation for the potential and limits of science in enhancing decision-making and effecting policy.

It is noted that the policies existing at local and international levels are leveraged to create sustainable interventions. The most notable policies, government policies, have included an emphasis on market-based methodologies, which include giving subsidies, initiating carbon taxes, and initiating cap-and-trade programs. While most of the policies have been lauded as having positive implications for reducing climate change, other studies have, and reports have indicated little or negligible impacts. For example, Aska (2010) surveyed how Americans intervened in the climate change issues. The study concluded that cap and trade programs as an intervention had minimal effects. The writer implores that even though climate change mitigation policies lead to important air quality benefits in various contexts, particularly through reduced coal use, targeted air quality policies and associated regulation measures may be more effective for reducing air pollution in less developed communities. In other countries, for example, the United States, the administration has created a tradable carbon permit system. This does not only offer agencies and individual corporations a specific ceiling on the allowed level of emissions distributed or auctioned. Parties with emissions below their allowance can sell their excess permits to other parties that have exceeded their emissions allowance.

2.3.3 Regional (African) Context

While there is the global context of legal framework around climate change, African countries have their outlines that focus on adaption. For instance, in an analysis of Nigeria's strategies in managing climate change, the country has convinced its population to opt for fuel-efficient methods and appliances as a major step toward cutting down on its overall GHC emissions (Ladan, 2022). The researcher used a literature review approach through analysing documents themed around climate change. The study revealed that most global change intervention strategies and programs are designed to influence human behavior change.

The global community agrees that there is increasing evidence of climate change. These have been confounded by claims of adverse changes in the world's major climatic regions over the last decades. It is further argued that industrialization and humans' increasing dependence on fossil fuel and excessive emission of carbon gases have had adverse implications on natural climatic conditions and regions. The assertions and assumptions have elicited calls for implementing short- and long-term measures to avert or contain global climate change. Essentially, calls for implementing effective measures to contain the spiralling effects have driven communities, agencies, and governments to develop strategies and mainstream policies to initiate and fast-track climate change mitigation processes.

During the COP28 climate summit, held in Dubai, significant outcomes related to global climate action. During the COP 28, there was a unified call by majority of the counties to “transition away from fossil fuels”. This commitment is part of the first-ever “global stocktake” to accelerate action in line with the goals of the Paris Agreement. However, some countries expressed frustration due to the lack of a clear call for a fossil fuel “phase-out” this decade and perceived loopholes that might allow continued production and consumption of coal, oil, and gas (Carbon brief, 2023). An early breakthrough occurred with the launch of a fund to address “loss and damage” from climate change. However, developing countries were disappointed by the absence of new financial commitments for transitioning away from fossil fuels and adapting to climate impacts (ibid).

COP28 witnessed a wave of new international pledges including commitment to reduce emissions from oil-and-gas company emissions and plans to triple renewable energy capacity. There was also commitment towards efforts to enhance sustainability and integration of climate change and biodiversity loss as a holistic action. However, the conference revealed challenges and

controversies including COP28's president, Dr. Sultan Al Jaber, an oil executive, celebrated the inclusion of "fossil fuels" in a UN climate agreement. There were allegations arose that the UAE intended to use COP28 for oil-and-gas deals. The event experienced protests, surveillance, and harassment as debate arose on who is responsible for what. In summary, COP28 achieved significant milestones but faced challenges. The transition away from fossil fuels remains a critical global priority, and international cooperation is essential to combat climate change.

Another known regional policy intervention for climate change is capitalizing on market-based instruments as key to establishing a cost-effective climate change management system. In adopting such policies and mainstreaming actions hinged on the strategy, administrations, and agencies recognize their potential to reduce greenhouse gas emissions by allowing for flexibility and creativity in the private sector. Arguably, strategies and policies guiding increased climate change exists. However, there are notable challenges which include weaknesses in funding related programs and projects, possible communication, and ineffective mobilization of communities to a common ground in formulating and adopting effective methods to contain the ultimate menacing effects of climate change, as noted Crawford and Mehmood (2009).

Behavioural responses to climate change as a crisis have so far been relatively low in many parts of the world. Despite the perseverance and potential consequences involved, there is still a significant gap between the behavioral and policy changes needed to effectively mitigate climate change, its impact, and the actual action taken (Bjoern, Middel, and Pijawka, 2015). In this report, the authors concluded that varying perceptions of individuals and countries determine the respective intervention espoused in their legal frameworks and policies on managing and mitigating climate change. Intending to gain insight into the implications of public and country

perceptions on initiating and mainstreaming GCC management, the researchers concluded that perceptions significantly influenced the design and adoption of strategic interventions.

From the article, the overall understanding of global climate change (GCC) informs country and regional government and state involvement in designing and implementing effective measures. In their study, the researchers derived their conclusions employing ongoing longitudinal research on public GCC risk perceptions in nine countries focusing on different perceptions key in public policy formulation. In the longitudinal methodology, the researchers sought to understand the variations in national perceptions of climate change and possible mitigation measures.

In an article, “An Overview of Climate Change Adaptation and Mitigation Research in Africa” by Yvette, Ayyoob, Zaheer, Suiven, Najibullah and Ngiamte (2022), the concentration is seen on climate adaptation rather than mitigation. This comprehensive review examines climate change research in Africa from 1990 to late 2021. It highlights key themes such as vulnerability, food security, water security, and energy security. Notably, the University of Cape Town has made significant contributions to this field. While 72% of studies focus on climate change adaptation, only 22% address mitigation.

The emphasis about growing impact of climate change is emphasized by WMO in a UN Economic Commission of Africa (2021) report on “Climate Change Is an Increasing Threat to Africa”. Rising temperatures, sea levels, and extreme weather events pose risks to human health, food security, and socio-economic development. The report underscores the need for accurate data to inform adaptation planning and resilience-building efforts. The UN ECA (2021) in another report “Africa Climate Change Strategy Nearing Completion” states that stakeholders are working on a continental climate change strategy to reduce greenhouse emissions, enhance adaptation, and build

resilience. The strategy aims to address adverse climate impacts, promote sustainable development, and strengthen health systems.

In an article “Stepping up Climate Adaptation and Resilience in Africa”, the World Bank (2021) states that the African Climate Business Plan (ACBP) focuses on scaling up climate action, supporting investments in key sectors (including health and education), harnessing innovation, and mobilizing private sector finance for renewable energies. This is also reflected in the UNCC report that Africa Adaptation Acceleration Program (AAAP) aims to boost climate-resilient actions across the continent by addressing three critical challenges: climate change, COVID-19, and emerging economic issues. Africa, being at the forefront of the climate crisis, faces severe impacts such as droughts, floods, and cyclones. The AAAP was launched in response to African leaders’ urgent call for intensified adaptation efforts. It seeks to galvanize climate-resilient actions through a bold three-pronged approach. This is what notes the UN Secretary-General António Guterres urging international partners to support this initiative, recognizing Africa’s vulnerability and the need for solidarity.

On climate finance and investment-ready projects, Kayawe (2022) mentions that to enhance climate action, there’s a need for a clear pipeline of bankable and investment-ready projects in three critical areas: energy transitions and sustainable infrastructure which is investments in renewable energy and sustainable infrastructure; climate change adaptation and resilience which focus on strengthening adaptive capacity; and restoration of natural capital that focus on agriculture, food, land use practices, and biodiversity. The World Economic Forum (2023) reports how Africa continent is making progress in securing climate finance, establishing carbon markets,

and implementing supportive policies. These efforts contribute to building resilience and mitigating climate impacts.

2.3.4 Local (Kenya) Context

Studies and global conferences on climate change mitigation have established that developing and mainstreaming sound policy frameworks are fundamental for effective mitigation and management of climate change (UNDP-UNEP, 2011; The Intergovernmental Panel on Climate Change (IPCC) report 2018). In this regard, each at every given administration level is evident in Kenya's two-tiered county and national government levels. For instance, Ongugo et al. (2015), in their conclusion of a survey of policy interventions in east African states, observed that policy frameworks are critical determinants of progress or success in informing and mainstreaming climate change mitigation processes and management interventions. In the review, the researchers adopted a policy review framework that evaluated the policy interventions across East African states.

The researchers relied on data from various institutions, including Makerere University, the Kenya Forestry Research Institute (KEFRI), and the World Agroforestry Centre (ICRAF). Apart from these, the research included other stakeholders' approaches and analyzed their intervention measures. To this end, it was evident that evaluating each country's methodologies as espoused in their policy and legal provisions on climate change mitigation is crucial in studies aimed at informing GCC interventions and policy design and implementation.

Policy regulations outline how best national and regional governments and communities engage in climate change management. According to Tiffany (2018), the impacts of man's consistent abuse of the environment are evident in the present and continuing climate change. To this end, actions

and activities aimed at reducing climate change have been key pillars of policy and strategies on environment management approaches. Kenya has a national policy, and its 47 counties have equally designed and adopted climate change management policies. These policies and laws lay out the funding schedule and priorities in programs and activities aimed at overcoming the challenges and reducing the impacts of global warming. Like many other counties, Makueni county has an act to this effect. The act provides a threshold for budgetary allocation to climate change management (Makueni County Environment and Climate Change Policy 2020). Other counties and countries have also increased their funding to programs that support the process. These include recruiting experts in the field, increasing funding for public awareness efforts, and purchasing equipment. It is vital to note that overall, the policies identify increasing financial allocations to climate change management.

While local strategies have been central in the management of the effects of climate change, government, and agency policies have played key roles in steering climate change mitigation progress. These are expected to influence community awareness and reduce the negative implications on various communities. Korir (2021) noted in a study that the lack of awareness and minimal participation of local communities in Africa have seen affected communities in ASAL areas bear the brunt of global climate change. Korir sought to establish in her study the indirect effects of climate change on the quality of education among the Maasai community in Kenya to identify palatable interventions and strategies for mitigating climate change among pastoral communities.

The study adopted a desktop literature review approach and key informant interviews in data collection. In conclusion, Korir (2021) argued that the literature review indicated that increased

poverty levels associated with climate change have principally affected the affordability of quality education. To this end, the review espoused the centrality of increased community education and awareness of the impacts of increasing GHG in county government policies on environmental protection and conservation.

Despite many variances in GCC perceptions, the researchers identified that some variances are negligible among the surveyed national populations. In contrast, others allow the grouping of countries based on different perception factors. Further, the researchers concluded that the data evaluated reveal a high degree of uncertainty concerning climate change dimensions, including knowledge, science, risk, and policy approaches to mitigate global climate change. This is in line with the findings of Abuom et al. (2016). The researchers observed that the general population of the study area, namely the Upper Nyakach Division is aware of the changing global climate and its effects. Nevertheless, note that the researcher's effort is necessary to mitigate climate change in the local settings. Further, the researchers argue that awareness campaigns aimed at growing knowledge of climate change markers among community members are recommended.

The recognition by the GOK of the adverse effects caused by climate change occasioned the current government to recognize its vulnerability to climatic shocks, which pose economic risks. The impact of climate change could disproportionately affect the poor and result in real GDP losses of up to 7% by 2050. Despite being a low emitter of greenhouse gases (GHGs), Kenya's emissions have doubled since 1995. The inaugural Kenya Country Climate and Development Report (CCDR) emphasizes the need for climate action to safeguard poverty reduction gains and reduce inequality. Inaction could lead to an additional 1.1 million people living in poverty by 2050. Key action areas outlined in the CCDR include Improving water, land, and forest

management to boost climate-resilient agriculture and rural economies as well as fostering people and community centered resilience. (World Bank, 2023).

In the same vein, Kenya's President William Ruto, has made climate change a central part of the government's agenda. At the Africa Climate Summit, President Ruto launched several key climate-related initiatives including the National Climate Change Action Plan (NCCAP) 2023-2027, Long-Term Low Emission Development Strategy (LT-LEDS) 2022-2050, Climate Change Act (Amendment 2023) () and updated Nationally Determined Contributions (NDCs). Kenya submitted an updated NDC in December 2020, committing to reduce emissions by 32% below business-as-usual (BAU) levels by 2030, including land use, land-use change, and forestry (LULUCF). Notably, 21% of the mitigation cost is not conditional on international financial support (Climate Action Tracker, 2022). In addition, Kenya has significant renewable energy capacity, with over 90% of electricity generated from renewable sources in 2021. Efforts to halt coal-fired power plant development have been successful, but challenges remain. The country aims to contribute to global decarbonization by maintaining a low-carbon growth path and becoming competitive in green markets and low-carbon supply chains.

In cognizance of the susceptibility to the adverse impacts of climate change, Kenya has prioritized adaptation actions while implementing progressive mitigation actions to achieve a low-carbon climate-resilient development pathway. The GOK in sessional paper (2016) enacted the CCA and adopted the Sessional Paper No.5 of 2016 on NCCF Policy, both of which mount the country's agenda for climate change response actions. These are to be implemented through a five-year NCCAP, as required by section 13 of the CCA.

The COK and CCA mandate that counties implement and monitor Kenya's sustainable development and climate change goals. Adapting to climate change is a precondition to socioeconomic development. However, counties face severe capacity and resource gaps, and climate change remains low on political agendas. In this context, some of the most climate-vulnerable counties pioneered the CCCF, a governing mechanism that facilitates participatory climate change planning, guarantees a minimum annual budget for climate action and attracts new revenue from national and international sources.

Despite strong national climate policy, Kenya has struggled to align national strategies with counties' planning and action. Technical capability of county governments and local officials remains low, development planning leaves out key community priorities, and funding is limited (Orindi, Wendo, Landesman, Adriázola & Strauch, 2020).

The national government is mandated to make policies on climate change. However, the COK has assigned devolved functions to counties that are integral to fulfilling actions required to address climate change. In certain instances, the concurrent performance of climate change-related functions by the two levels of government may occur. (GOK, 2016).

2.4 Counties' Policymaking in Implementation of the Climate Change Interventions

2.4.1 Global level

The US has seen many individual states and local governments legislate and take up actions addressing climate change. In an article by Rosner (2019), the local governments are controlling every bit of climate change actions where the federal government has failed. Legislation on energy use and release of emissions are state-based targeting factories, cars and even buildings. The

concern among the local governments is not to wait for the top-down approach to climate change but actions at local levels.

In 2023 at COP28, majority of the countries agreed to transition away from fossil fuels, recognizing them as the primary driver of climate change. This historic agreement marks the first time such a commitment has been reached in 28 years of international climate negotiations. However, some countries expressed frustration at the lack of a clear call for a fossil-fuel phase-out within this decade (CarbonBrief, 2023). The first-ever global stocktake assessed progress on climate action. It focused on how countries can accelerate efforts to meet the goals of the landmark Paris Agreement. This stocktake will inform new country targets for addressing the climate crisis.

An early breakthrough occurred with the launch of a fund to pay for “loss and damage” resulting from climate change. COP28 witnessed a wave of new international pledges across various domains including Oil-and-Gas Company Emissions, renewable energy, food systems, and climate change and biodiversity integration.

During the COP28 summit, country-specific actions included China who played a significant role at the summit, emphasizing its commitment to climate action. Amid global climate discussions, the ongoing Israel and Gaza crisis drew attention. Other issues that appeared were protests, surveillance, and harassment as well as Oil-and-Gas Influence and Greenwashing. As COP28 concluded, attention shifted to preparations for COP29 and the continued global effort to combat climate change (ibid). In summary, COP28 witnessed significant commitments, debates, and international cooperation as countries grappled with urgent climate challenges.

In the UK, laws and policies around embracing of less driving and more walking are now evident. Local authorities have influenced how people take lifestyles that focus on reducing environmental degradation as a response to climate change. The recommendations for use of electric vehicles are among the legislation that target adaption to climate change. Polies that created low traffic ways for cyclists are some of the approaches used at local levels. In Great Britain, the authorities have demarcated and reserved areas for solar panels that can charge lamps, cars and related gadgets. Use of social housing and legalization have also boosted the adaptation toc climate change in the UK. Fundings of such projects are also included in the legislation at local levels to encourage and give way to embrace of the changes (BBC, 2022).

In Canada, Vogel, Henstra and McBean (2020) analyzed the ways in which the sub-national government used local polices to motivate the communities to build capacities in climate change interventions. Using the case of the provincial government of Nova Scotia, the scope was on existing structures for the municipal climate change adaptations. The study provided the strategies that draw to conduciveness of the implementation of the climate change adaptations for local governments.

In Netherlands, Biesbroek, Klostermann, Termeer and Kabat (2011) used an online survey to collected data on experiences about climate-related and non-climate related barriers to climate change adaptations. The study involved a sample of 264 participants and was conducted in five months (March-July 2010). Using the mixed method data analyses, the dissemination was conducted in seminars where further inputs were incorporated. The study found that major barriers were around governance, conflict of interest as well as funding issues. The governance issues were attributed to unclear legislation processes around climate change in the province.

2.4.2 Regional Level

Leck and Simon (2018) report on how South Africa local governments are making progress in adapting climate change. Through legislations, various local communities and civil societies push for legislation at local levels. Beyond the politico-administrative borders, the local authorities have seen cooperation between urban, peri-urban and rural residents focus and support the climate change initiatives. These are then pushed for legislation through the inter-municipal collaborations. Using the examples of the south coast of KwaZulu-Natal province (KZN), the study showed how cooperation between local authorities have aided in legislating and adapting climate change interventions.

Similar actions targeting climate change interventions are stimulated through institutions of higher learning which push for the policy agenda through symposiums and conferences. In 2011, the University of Nigeria held a seminar Climate Change Adaptation that sought to outline effective policies as well as strategies. The university partnered with the Open Society Foundation (OSF), and the African Technology Policies Studies Network (ATPS) to remember the science revival of climate restoration in Africa (University of Nigeria, 2012).

2.4.3 Local (Kenya) Level

Counties in Kenya have been legislating on climate change programmes, including how they can achieve 10% vegetation cover. Speaking to Standard Group media house (6 December 2023), the then Chair of the Council of Governors (CoG), Prof. Ottichilo, stated that each county was required to form a County Climate Change Planning Committee and the Ward Climate Change Planning Committees. These would be legislation at local level in training and formulation of project proposals aimed at adapting climate change. These coincide with the County Integrated

Development Plans (CIDPs). The CIDP is a plan prepared by all counties to integrate long-term spatial, sectoral, and urban plans (Republic of Kenya, 2017). It draws inputs from various sources, including the Governor's manifesto, national government plans, past county development performance, and public expectations. Essentially, the CIDP sets priorities and guides all county government spending until the next elections.

Guided by the Financing Locally Led Climate Action (FLLoCA) program (World Bank, 2017), county legislation revolves around the resources within their locality and thus majors on what concerns the members of the public at a given locality. For instance, the Kitui county government was closely interested in legislating on sand harvest and charcoal burning as sources of livelihood in the county. This was attributed to the fact that the two were the biggest sources of livelihood for the people of Kitui. However, the massive practices around the two activities were depleting the county resources and leaving behind environmental destruction (Star News, 2018).

The FLLoCA program is guiding county governments to work on legislation about their resources, including land reclamation, rivers and water sources, forest, and valleys. Through the County Climate Change Planning Committees, the legislation entails inclusive decision-making, which consists of the Ministry of the environment at the national level, the COG, the treasury, and other funding partners.

Legislation for climate change has been ongoing with interest in multi-level governance and approach to climate change. During their 7th devolution conference in 2019, governors agreed to lead policies at the county level that address climate change intervention and programming (UNDP, 2021). The conference took place in Makueni County in 2019. This significant event brought together policymakers, county leaders, and development partners to deliberate on critical

issues related to devolution and governance in Kenya. The conference centered around the theme of “Multi-Level Governance for Climate Change.” Participants discussed the effects of climate change and explored interventions needed to address this crisis at both the national and county levels (ibid).

H.E. President Uhuru Kenyatta opened the conference virtually. He emphasized the transformative impact of devolution on Kenya’s development. The President reaffirmed Kenya’s commitment to global climate action, including efforts to prevent global temperatures from rising above 1.5 degrees Celsius. Kenya had recently joined the Adaptation Action Coalition and responded to the UN’s call for action on adaptation and resilience (UNDP, 2021). On his side, Mr. Keriako Tobiko, the Cabinet Secretary of Environment and Forestry, highlighted the urgency of addressing climate change. He emphasized that climate change affects everyone, and joint responsibility is essential. Instead of blame, collaboration is crucial in tackling this global challenge. This reflects the argument and philosophy of the late Nobel Prize winner, Elinor Ostrom through her support for diverse range of actors in climate change efforts (Ostrom, 2012). The governors agreed and acknowledged the impact of COVID-19 on climate change as a cause and effect.

Climate change parameters that affect human and social life were mentioned as key areas of focus in county climate change legislation. A focus on infrastructure and agricultural practices were notable concerns in the respective counties' climate change areas. This led to the adoption of legal policies around climate change in the County Integrated Development Plans (ibid).

Legislation has contacted the resources allocated for climate change as they are intertwined. The governors also synonymously agreed to work with the county assemblies to align their climate change policies to the SDGs' needs and stipulations, especially SDGs 1-7 (UN, 2025). More

important is the noting of SGD 14 and 15, which the counties need to work with other parties to ensure successful implementation of their desires in climate change at county levels. They noted that SDG 3 on health is essentially the concern about how climate change has caused more diseases and dangers around health. For instance, high temperatures have become breeding zones for some mosquitos which cause malaria (Centre for Disease Control and Prevention (CDC), 2020).

Counties have also been keen on realizing the key indicators of climate change interventions in line with the existing national policies. The formulated National Climate Change Response Strategy (2009) at the national level was key in guiding counties on how to programme climate change. Similar legislation at the national level, including the National Climate Change Act (2016), the National Green Economy Strategy and National Strategy on Climate Financing, and the National Climate Change Implementation Plan (2012 -2018, 2018 – 2022) are some of the guidelines for county level legislation on climate change interventions.

The counties, especially in the NEP region of Kenya, have worked on policies that guide how they get more water pans and boreholes (Sessional Paper No. 01 of 2021 on National Water Policy). Similar programmes and plans around feeding their livestock and selling the resources are also legislated at the county levels. Other counties are synonymously signing into policies that guide how to attain the 10% vegetation cover by 2022 but surpassed by 2021 (Nation Africa epaper, n.d). For instance, Vihiga has worked on a policy to restore Maragoli Hills through tree planting, and Kakamega is doing the same in the Kakamega forest. During the COG conference, the chair confirmed that most counties had legislated and signed the 10% forest cover Act into law. Reporting on progress, Nyandarua was found to have over 20% forest cover within its jurisdiction.

The counties had also shown interest in legislating on climate change addressing gender mainstreaming. UN Women (2016) used a case study in Kisumu, Kenya, and explored gender approaches within the People's Plans into Practice (PPP) project. Key findings indicated that gender influences livelihoods and vulnerability to climate change. Women often face greater risks due to existing inequalities. The PPP project integrated gender-sensitive approaches into climate-compatible development initiatives in Kisumu. While opportunities exist, challenges remain in fully integrating gender considerations into climate action.

2.5 Climate Change Interventions through Awareness and Mobilization

2.5.1 Global Context

The effects of climate change have and continue to bear direct implications on not only human species but also plant and animal species and the immediate ecosystems which support these species. To this end, the world's major agencies have declared climate change and global warming as global threats. Consequently, this has increased calls for collective responsibility, given that most reports attribute global changes in climatic patterns to human activity since the industrial revolution.

According to Saroar and Routray (2020) study, there is a positive correlation between age and familiarity with climate change or extreme weather events. The import of this is that older people should be more aware of climate change than younger people. The study followed a mixed-method of research design. The researchers employed structured and semi-structured

questionnaires to collect respondents' quantitative and qualitative data. The necessary empirical data for the study were collected through personal interviews with the target respondents. The sample size surveyed was 80. In the study, the researchers were intent on exploring the role and the impact of the emergence of non-governmental organizations (NGOs) as the organized response by civil society, especially in those areas where the state and local administrations is inadequate. The researchers argued that NGOs have been central in increasing climate change mitigation efforts. According to the researchers, these are evident in various enumerable steps in promoting climate change discussion and debate about climate change issues. The study was conducted to determine the role of a coastal NGO called Speed Trust in attaining resilience in response to climate change in the Kalapara sub-district coastal regions under the Patuakhali district in Bangladesh. It concluded that the key to non-state agencies' success in climate change mitigation and management efforts is increased participation, training, and organizational participation.

2.5.2 Regional Context

To effectively initiate and positively influence climate change mitigation programs and activities, the mobilization of respective communities, businesses, local and global non-profit agencies, and governments remains a fundamental element. Gravy (2010) argued that the mobilization of resources, including capital and human, should inform the basis of climate change mitigation endeavors. According to the writer, containing global climate change requires that communities' commitment to different regions be emphasized. In this regard, there is an overarching need for governments and global environment conservation agencies to emphasize creating effective mobilization strategies.

Ford (2019) observes that mobilizing communities, businesses, and global agencies toward a common course requires strategic communication and investment in effective resource mobilization tools. To this end, mass communication strategies have been central in the calls for fast response to climate change and its inherent threats and have been central in the calls for fast response to climate change and its inherent threats.

Howard (2019) found that mobilization strategies vary significantly from one region to another and are further dependent on several factors, including the level of advancement of the target community, the economy, and overall literacy, especially regarding their knowledge of global climate change and its present and possible future impacts. Essentially, countries and counties must initiate strategies and methods designed at the various levels of the target community.

Social mobilization has been a crucial strategy employed in increasing the mobilization of communities for enhanced participation in climate change mitigation. According to Sussman, Giford, and Abrahane (2016), social mobilization strategies have been central in increasing overall action on climate change. Behavioral and psychology-based strategies have been preferred in social mobilization. Among these, theory-based strategies have been significant. According to Sussman et al. (2016), these strategies encompass implementing informational and structural plans as elemental to effectively reduce climate change. Information dissemination as well as awareness are taking new shapes and dimensions like the case of the teen environmentalist Greta Thunberg who started a twitter #FridaysforFuture.

2.5.3 Local Context

In a related study on the effects of climate change on local communities and determinants of adaptation decisions among local communities, especially on effective local interventions, Korir

and Ngenoh (2019) identified several factors. Singling out the Maasai community in Kenya, for instance, they concluded that to enhance the resilience of pastoral communities to impacts of climate change, policies that promote community-led adaptation, incorporate indigenous knowledge, and increase effective and suitable propagation of climate change-related information at the local level, in addition to those that provide access to relevant institutions should be formulated. The researchers used unique household-level data from 415 pastoral households from three sub-counties of Narok County in Kenya to identify the major determinants of their decision to select different community-based adaptation strategies to contain and mitigate the impacts of climate change. Relying on a logit model, the results showed that the household head characteristics, namely gender, marital status, respondents' level of education notably (secondary and tertiary level), and occupation, were leading influencers to the effectiveness of adaptation strategies. The study further considered the various socio-economic and institutional factors, which included access to credit, access to water, and access to climate-related information, as key determinants in enhancing the adoption of climate change adaptation strategies and mitigation interventions.

Away from this, another strategy has been adopting social influence approach tools to create awareness in communities toward behavior change. According to Berth (2016), social influence refers to how human behavior is affected by what other people do. Several studies have reported that the awareness of climate change in Africa, particularly among Kenyans, is considerably low (Mutimba et al. 2018 and Pelham 2019). A review of various studies has shown that people's level of awareness of climate change is subjective by factors that can be characterized into three, namely: demographic factors, including age, gender, and level of education; personal experience,

including experience of extreme weather events; and access to information including media coverage of the issue and advocacy.

The African continent is continues to grapple with high vulnerability to climate change, however, research on climate knowledge and awareness is lacking. Kenya is already grappling with the impacts of climate change, which are projected to increase in a non-linear and non-predictable manner (Chadwick, Abuom, Bosire, Dida, & Douglas, 2016). The study sought to establish the level of awareness of communities to climate change mitigation as a factor influencing policy formulation and mainstreaming of effective interventions. The study adopted a cross-sectional survey design in which 384 household heads were selected as respondents from 11 sub-locations, all located within Upper Nyakach Division. The researchers used questionnaires to collect data. To gain insight into the variables which had the most significant determinant of climate change awareness in the study area, the team employed a Generalized Linear Model (GLM) with Poisson error distribution. They concluded that there is a need for disseminating information on climate change, through formal and informal means, to help the public adapt to the new climatic conditions both in rural and urban arrears.

Ogallo (2010) noted that a host of factors determine the prevailing low level of awareness among most communities in Kenya about climate change issues, the existence of the United Nations Framework Convention on Climate Change (UNFCCC), and the opportunities it provides for mitigation and adaptation to climate change. Similarly, a survey undertaken during the development of NCCRS in 2010 confirmed that public awareness about climate change in Kenya is still very low.

NCCAP corroborates this position by stating that although Kenyan institutions and individuals currently generate significant climate change knowledge, including government, research and academic institutions, civil society organizations (CSOs), and private sector companies, there is still limited sharing of climate change information and knowledge. (KCCWG, 2013).

2.6 Variations in Funding for Climate Change Interventions

2.6.1 Global Context

As early as 2009, the developed countries agreed to mobilize funds that target climate change interventions across the globe. The fund was targeting climate change resilience and adaptation as well as prevention of environmental degradation. Apparently, the poorest nations are the worst hit by climate change and thus need more funding (UN, 2021).

Globally, there are gaps in funding of climate change initiatives. Trillions of dollars are required in funding these activities and projects. This calls for international cooperation. The world bank put this figure at \$100 billion per year by 2020. While these figures look expansive, they are greater than the amounts spent on COVID-19 pandemic globally. The UN Secretary-General indicated that about \$100bn is required but has not been met as of 2018. However, other leaders like Mark Carney who is the UN special envoy on Climate Action says that the need for the fund presents an opportunity rather than a risk. Investment in projects such as clean energy, innovative power plants and avoiding fossil fuel would pay off in climate change interventions.

The question that arises is where the funds come from. The public and private funding of the climate change interventions would go a long way to ensure success. Various countries across the world signed up the Paris agreement on funding of the climate change initiatives. This led to

establishment of various bodies that collect such funds to disburse for the purposes of climate change interventions.

The Climate Investment Funds (CIFs) has realized accumulation of over \$8 billion to support climate change resilience and adaptation. The Green Climate Fund (GCF) was founded in 2010 to support the climate change adaptation initiatives. The adaptation Fund (AF) of 2010 has played a role in ensuring that over \$830m is disbursed to vulnerable communities. The Global Environment Facility (GEF) has realized transformations that prevent environmental degradation. Other funds include UN-REDD and Clean Technology Fund (CTF) that support global initiatives for climate change (United Nations, 2021)

2.6.2 Regional Context

The Africa Climate Change Fund (ACCF or Fund) was founded as a resource to support the initiatives for climate change in Africa. Through the African Development Bank (AfDB), the focus is on remaining resilient in climate change interventions across Africa. The initial funding of the bank was in 2014 when about € 4.725 million was received from the government of German. The aims were to help curb the use of high carbon energy in the continent. Later, other governments across the globe contributed towards the fund with Belgium, Quebec, and Canada pumping in more funds. In 2022, the bank amended the funds policies following the signing of the Glasgow Climate Pact in combating desertification. The fund is given through grants by private sectors that show exemplary projects towards environmental conversion. Since 2014, the bank has so far awarded 26 grants of about USD \$15.89 million (African Development Bank, 2022).

The Organisation for Economic Co-operation and Development (OECD) data shows that most funding of climate change interventions in Africa comes from wealthy nations. Since 2014, the

call on who pollutes most should pay most has been emerging in every climate change forum. The latest was in the COP27 where African countries emphasized that the most polluters pay most.

The Conversation (2021) point out that about climate change adaptation in Africa between 2014 and 2018 stood at US\$5.5 billion per year. This showed gaps in funding for climate change interventions in Africa with a whopping US\$7.4 billion per year. This indicates the poorest countries may be the most sufferers of climate change as they lack self-funding towards climate change interventions. World Bank also estimates that sub-Saharan Africa may cost the most in terms of climate change adaptation.

2.6.3 Local Context

Funding for climate change mitigation activities and programs is an element of concern to conservationists, agencies, and governments. In addition, there are varying commitments, and in some cases, indifference, and total non-commitment by some state and regional governments to funding climate change mitigation programs. County legal frameworks formulated for climate change interventions have been implemented in Makueni County.

In 2015, Kenya submitted its nationally determined contribution (NDC) to the Paris Agreement, a landmark agreement to combat climate change. Kenya pledged to reduce its GHG emissions by 30% by 2030 relative to the business-as-usual scenario. The Government of Kenya estimated that KES 4,040 billion (USD 40 billion) would be needed by 2030 to meet its NDC target. In 2018, these numbers were revised upwards in its National Climate Change Action plan (NCCAP) to KES 1,848 billion (USD 18.3 billion) for the 2018-2022 period only, equivalent to nearly KES 465 billion a year (USD 4.6 billion). In December 2020, the Government submitted an updated NDC, further increasing the need. The estimated cost of implementing Kenya's mitigation and

adaptation actions stands at KES 6,775 billion (USD 65 billion) for 2020-2030 (Mazza, Balm, and Van Caenegem, 2021).

In 2018, KES 243.3 billion (USD 2.4 billion) of public and private capital was invested in climate-related activities. This is approximately one-third of the financing that Kenya needs annually to meet the targets set in its NDC. Overall, public investment (from domestic and international providers) totalled KES 144.3 billion (59.4%), while investment from the private sector totalled KES 98.9 billion (40.7%).

Slightly more than 79% of climate finance in Kenya was directed to implementing climate mitigation measures which is in stark contrast to the need given that Kenya has an adaptation focused NDC. This presents an economic risk due to the cost of climate events such as drought and flooding. Climate finance disproportionately targets the renewable energy sector within the mitigation sector, while other key sectors, like agriculture, forestry and land use, transport, and water management, are underfunded. In 2018, Kenya received approximately \$2.4 billion of public and private capital invested in climate-related activities. However, this amount represents only a third of the annual funding needed to meet Kenya's Nationally Determined Contribution (NDC) targets under the Paris Agreement. Mobilizing additional public and private finance remains an urgent priority (USAID, 2018).

In the same 2018, the World Bank approved a \$200 million International Development Association (IDA) credit to assist Kenya in managing climate and disaster risks. This funding aimed to enhance Kenya's resilience to climate impacts (World Bank 2018). Progressively, in 2021, Kenya launched a 5-year, \$34 million project under the Green Climate Fund (GCF) to

reduce the cost of climate change-induced drought on the national economy. This project focuses on building resilience and adaptive capacity (IUCN, 2021).

2.7 Research Gap and Purpose

Climate change presents additional stress for Kenyans already struggling with the challenges posed by environmental degradation and widespread poverty (World Vision, 2022). Globally, state and regional administrations, civil society, and non-profit organizations have endeavoured to contain climate change, given the evidence across the world's major climate regions. These efforts have emphasized the adoption and mainstreaming of various approaches which are deemed effective. The role of regional and local governments is robust. Further, they determine the path and influence the success rates of climate change mitigation and management to a greater degree. To this end, Kenya's counties have a significant role in mainstreaming and ensuring effective grassroots management and mitigation of climate change.

The county legal frameworks preferred policies on climate change mitigation and management, and approaches ought to inform best practices and define the best methodologies adaptable and appropriate for local and state agencies on climate change. While it is acknowledged that the county level of government is best placed to implement strategies and actions to mitigate climate change, research on the adaptation of policy and legal frameworks and their moderating effect to inform the process is scant. This constitutes the research gap and the study's main driving objective. To this end, this study aims to examine how the county governments have embraced legal frameworks, climate change awareness, mitigation, and funding and their moderating effect on climate change and the benefits to the citizens.

2.8 Conceptual Framework

A conceptual framework is a structure that explains possible connections between variables under study. The study conceptualized the problem of climate change interventions through a breakdown into four specific variables: legal framework, county legislation, climate change awareness, and variations in funding. This is presented in Figure 2.1.

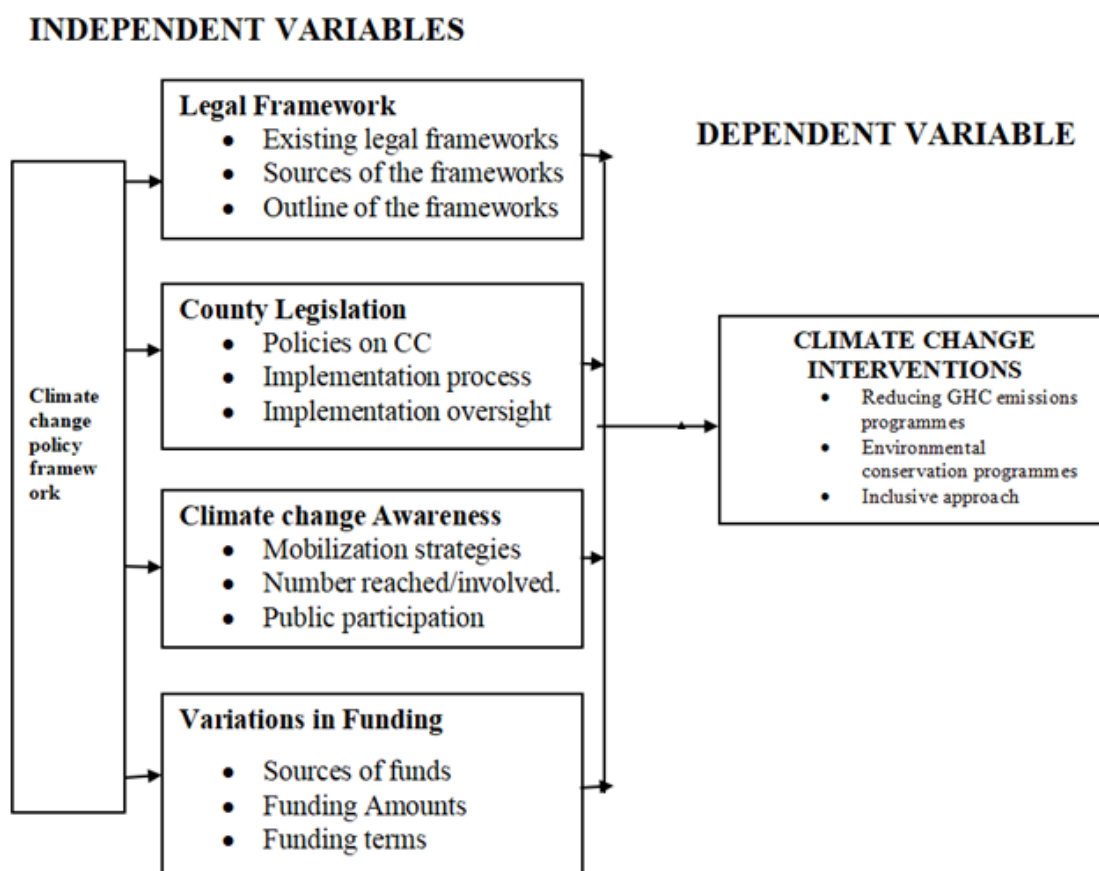


Figure 2.1 Conceptual Framework

From Figure 2.1 above, the study's dependent variable is climate change interventions that various constructs, including reduction of GHC emissions programmes, environmental conservation

programmes, and inclusive approach to interventions can measure. The independent variables consist of legal frameworks, County legislation on climate change, climate change awareness, and mobilization and funding of climate change intervention programmes. The constructs of the Legal Framework were the existing legal frameworks, the originator and sources of the frameworks as well as the outline and content of the frameworks. County Legislation was measured through the assessment of county policies on climate change, the implementation process of these policies, and oversight which is mandated to the county assemblies. Climate change awareness and mobilization was measured by the mobilization strategies used, the number reached/involved, and the concept of public participation in the programs. On the other hand, variations in funding was measured by constructs including sources of funds, the funding amounts, and the funding terms and conditions. These were in the context of intervening variables that include UNEP climate change programmes, climate change international efforts as well as national government efforts.

2.9 Operationalization of Variables

The variables were operationalized and measured using the scales and indicators presented in Table 2.1.

Table 2.1 Operationalization of Variables

	Variables	Measurement	Source
Dependent Variable	Climate change interventions • Reduction of GHC emissions programmes • Environmental conservation programmes • Inclusive approach to interventions	Likert-scale Appraisal checklist	Grantcraft (2006) from the Theory of Change
Independent Variables	County Legislation • Policies on CC • Implementation process • Implementation oversight	Likert scale Appraisal checklist	Intergovernmental Panel on Climate Change (IPCC), 2018
	Climate change Awareness	Likert scale	Ford (2019)

	• Mobilization strategies • Number reached/involved. • Public participation	Appraisal checklist	
	Variations in Funding • Sources of funds • Funding Amounts • Funding terms	Likert scale Appraisal checklist	The UK PACT (Partnering for Accelerated Climate Transitions), 2021

2.10 Chapter Summary

The chapter reviewed literature with a scope around the legal framework, policymaking, awareness and funding of climate change interventions. The reviews also included alignment to two theories that guided the study (Theory of change and stakeholders' theory). The conceptualization of the variables and how they were measured has been presented. The chapter showed that the IPPC (2009) showed many actions that people can take to reduce their GCH emissions including policy framework and legislation. Ongugo et al. (2015) recommend a policy review framework that evaluates the policy interventions across East African states. Wearn (2015) recommended a host of policies and strategies at community level. The reviewed showed existence of a county environment act which provides a threshold for budgetary allocation to climate change management (Makueni County Environment and Climate Change Policy 2020). The literature also reported a significant gap between the behavioral and policy changes (Bjoern, Middel, and Pijawka, 2015).

The chapter also showed that counties in Kenya, especially in the NEP region of Kenya, have worked on policies that guide how they get more water pans and boreholes. According Korir and Ngenoh (2019) there is a need to enhance the resilience of pastoral communities to impacts of climate change, policies that promote community-led adaptation. Ford (2019) observes that

mobilizing communities requires strategic communication and investment in effective resource mobilization tools. The literature showed that slightly more than 79% of climate finance in Kenya was directed to implementing climate mitigation measures.



CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter focuses on the methods adopted in data collection and how they were analyzed and subsequently applied to examine how county governments have embraced legal frameworks, climate change awareness, and mobilization and funding for climate change. The chapter is divided into sub-sections: the research philosophy, research design, survey research design, population and sampling, sample size and sampling techniques, data collection tools, data analysis, and ethical issues.

3.2 Research Philosophy

This research adopted pragmatism as the underpinning philosophy, applying a quantitative research method approach. Creswell (2013) notes that if the problem is analyzing issues that influence an outcome, the efficacy of an intervention, or understanding the best predictors of outcomes, then a quantitative approach is best. The quantitative research method involves gathering numerical data to explain a certain phenomenon. Particular questions seem immediately suited to being answered using a quantitative approach. The problem of climate change has a wide influence and several determinants. Pragmatism was applied to investigate how four dimensions of climate change interventions, legal framework, county-level legislation, awareness, and funding, determine climate change interventions within Makueni County, Kenya. These are interpreted as the issues that influence climate change intervention outcomes, including soil conservation farming methods and tree planting practices.

3.3 Research Design

Various researchers have defined research design to be the organized structure and plan that a research investigation adopts to help solve research questions and objectives. This study was

guided by a mixed-method research design encompassing quantitative and qualitative methods. In contrast, the pragmatism philosophy advocates for quantitative methods, Creswell (2013) posits that the approach has limitations, including failure to consider perceptual and in-depth findings about a phenomenon. Thus, adding the qualitative approach complemented the limitation by enhancing the data. The quantitative approach informed the use of questionnaires to collect data while the qualitative informs the use of interviews. This formed a basis for triangulating the findings between the two approaches hence succinct and conclusive findings.

The design also incorporates the procedures of survey style to collect data about people and their preferences, thoughts, attitudes, opinions, behaviors, or characteristics of the population in a systematic manner. The survey played a key role in collecting data among a sample whose results can be generalized to conclude the whole population. the survey is considered affordable and offer a speedier way of collecting reliable data and thus examining what respondents think, do and need (Creswell, 2018; Babbie, 1990).

3.4 Population and Sampling

3.4.1 Target Population

The target population is the number of subjects that are interested in a given research problem (Wolf, 2008). This may be as diverse as the geographical location of the subjects or even the physical features attached to the subjects. However, the characteristic is key in identifying the target population. In the current study, the target population was defined by the characteristic of administrative boundary as a gazette by the IEBC that states the stretch and coverage. Thus, the study's target population was the local administrator, county executive board members, the national government staff in the department of environmental management and the MCAs in the Environment committee of Makueni County.

Makueni County is one of the 47 counties of Kenya. It lies next to the larger Nairobi Metropolitan. Makueni county has its headquarters in Wote town, located 144 km from Nairobi, Kenya's capital. Makueni county is one of the larger Eastern Economic blocs formed together with Machakos and Kitui Counties. The region lies in the ASAL area where low rainfalls and sometimes run failures are recorded. The region has been on the national radar and global for socioeconomic challenges related to climate change. The region is known for its low rainfalls and thus agriculture failure, food insecurity, and other climate change-related calamities. Makueni County's population is based on the 2019 national housing and population census (KNBS, 2019). The selected study population sums to upto 1023 distributed as shown in Table 3.1.

Table 3.1 Target Population

#	Stratum	Frequency	Percentage in Population
1	Local Administrators (Ass County Commissioners, Ward administrators, Chiefs and Ass. Chiefs.)	980	95.80
2	County Executive board	17	1.66
3	State Department of Environmental management staff	14	1.37
4	County Assembly Environmental management board	12	1.17
	Total	1023	100.00

3.4.2 Sampling Design and Techniques

Sampling is the scientific process of selecting a representative portion of subjects from an accessible population for the study whose results are generalized to the parent population (Kothari, 2009). This study utilized probability sampling which is appropriate especially for surveys because an individual possesses an equal chance of being selected when random sampling is used. Further, the representative aspect that the survey offers, increases the study capability for

generalization especially of the population of the study (Babbie, 1990; Creswell, 2012). Specifically, clustered (locations) and stratified (stratum) random sampling was used as the most appropriate sampling technique since the population is a heterogeneous group (Kothari, 2009; Creswell, 2012). The population is divided into six sub-counties (to be clustered) and 30 wards of Makueni County, while the categorization based on leadership, expert roles, and administrative roles made strata. The sub-counties are Kilome, Kibwezi East, Kibwezi West, Kaiti, Makueni, and Mbooni. The sample was selected proportionally from each sub-county and stratum.

Moreover, purposive sampling methods were used to select specific persons (from the county executive board) that are key in climate change across legal frameworks, county legislation, awareness, and funding. Purposive sampling is a non-probability sampling technique known for selecting specific items of interest to the researcher with justifications. It adds the value of precise information as the reliable source of the phenomenon is targeted (Rubin and Babbie, 2008).

3.4.3 Sample Size Determination

All six sub-counties of Makueni County were involved in the study. The study participants were drawn from the target population (1023). In order to generate a sample size drawn from the population, the Yamane's simplified formula was used because it offers both an easy and reliable way to calculate the appropriate sample size relevant to the study (Yamane, 1973). According to Yamane, the sample size formula is used when taking statistical samples; a lot is known about a population, a little and nothing at all, or they have no idea how a population is generated. In this case, the formula used was random sampling technique used to delineate the appropriate sample size by calculating the sample size (n) drawn from the study population size (N) plus accounting for the margin of error (ϵ) (Israel, 2013). Israel continues to state that for a sample to be taken

from a population, a formula must be used while considering confidence levels, variability, and margins of error.

$$n = N / (1 + Ne^2)$$

Where;

n – is the sample size

N – is the population size

e = 0.05 (margin error)

$$n = 1023 / (1 + 1023 (.05)^2)$$

$$n = 287$$

This implies that the sample size was 287 research participants distributed between leaders and environmental management experts. As a figure used in most pilot stages, the participants were (n=29)10% of the sample size (Taherdoost, 2016). Thus, the population and sampling design was in Table 3.2.

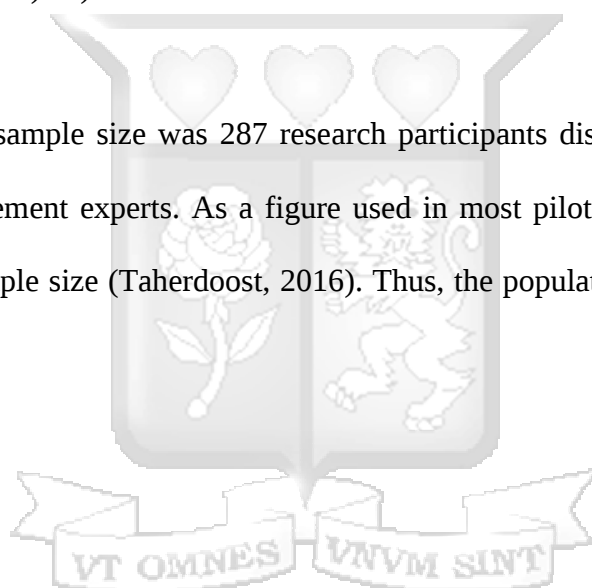


Table 3.2 Sampling Design

Stratum	Population	Proportion %	Sample
Local Administrators (Ass County Commissioners, Ward administrators, Chiefs and Ass. Chiefs)	980	28.06	275

County Executive board	17	29.41	5
State Department of Environmental management staff	14	28.57	4
County Assembly Environmental management board	12	25.00	3
Total	1023	28.05	287

Simple random sampling was used in each group to select the specific respondents.

3.5 Data Collection Methods and Tools

The main data collection tools were structured questionnaires to the local administrators. The structured questionnaires were closed and properly formatted with questions adopting a five-point Likert scale to acquire uniform information. A questionnaire is a form used in a survey design that participants in a study complete without the researchers' intervention collecting the data and returning to the researcher (Wolf, 2008; Creswell, 2012; Rubin and Babbie, 2008).

Face-to-face interviews were conducted with county executive committee members, County Executive board, State Department of Environmental management staff and the County Assembly Environmental management board. The interviews helped in acquiring in-depth data through the probe-answer method which is also known for enhancing rapport between the interviewer and interviewee. This in turn increased the response rates in data collection. FGDs were also conducted among the local administrators to collect additional qualitative data.

3.5.1 Structured Questionnaires

Questionnaires are suited to collecting quantitative data. They also fit the data collection from a large sample that depicts quick response and ease of distribution. Through questionnaires, the researcher can collect a large amount of data in an extensive coverage within the shortest time possible (Copper and Schindler, 2003). With the largest number of local administrators from the sample (287), questionnaires are recommendable. The administrators also make that part of Makueni county that highly determines the implementation of programmes for climate change interventions. They are allowed and required to participate in all county government processes through mobilization of the public for participation (Public Participation Act of 2012). The questionnaires were made up of size sections. The first section sought data on the participant's demographics; the second asked for information on the legal frameworks used in climate change interventions in the county; the third entailed information on county legislation on climate change. The fourth part contained items collecting data on awareness and mobilization of the public in climate change interventions. The fifth art entailed the funding section, while the last and sixth parts collected data on the level of climate change interventions that have taken place in the county. The questionnaires contained open-ended items and the appraisal checklists items to enhance comprehensiveness of the data. These are provided in **Appendix II**.

3.5.2 Interview Guide

The interviews were conducted with County Executive board members, the State Department of Environmental management staff and the County Assembly Environmental management board members. These are the core and main drivers of the legislation at the county level, implementors of the laws, monitors, and representatives of the people. The county assembly is also mandated to oversight project implementation in the county and report appropriately through formulation and passing of the laws. Interviews are known for their provision of room to provide wide feedback that culminates into in-depth data. They are also more reliable than questionnaires as one-on-one interaction boosts rapport, influencing the information's reliability (Taherdoost, 2016). The interview guides contained information on when the interview is conducted, the location of the interview, and the purpose of the interview. The content was then arranged thematically with less than ten (10) question items for probing the respondents. The items were themed on climate change interventions, legal framework, legislation at the county assembly, the raising of awareness among the members of the public, and funding. This is illustrated in **Appendix II**.

3.5.3 Focus Group Discussions (FGDs)

FGDs were conducted with the Ass County Commissioners, Ward administrators, Chiefs and Ass. Chiefs. Based on the governance structures in Kenya, the local administrators are considered the first-hand persons close to the members of the public. They are also key in delivering government services as they hold barazas and address social issues with the people at the grassroots. This makes them so vital information related to policies related to climate change. FGDs allow group members to share ideas and set a forum for discussions. This encourages the brainstorming of the

stated information to seek clarity and agreement among the group members. As such, they form a powerful tool for qualitative data that is more trustworthy as it is shared among people with diverse views (Griethuijsen, 2014). The used FGD guide is shown in *Appendix III*.

3.6 Pilot Test

To ensure the validity and reliability of the instruments, the researcher randomly selected a sample of 40(10% of the actual sample size) of the respondents drawn specifically from the selected cluster and strata in order to increase the equal chance that the selected respondents will form part of the pilot study. The consequent pilot study was instrumental in ascertaining the construct and content validity of the instruments so as to counteract high costs and time used (Creswell, 2012).

3.6.1 Validity

Cooper and Schindler (2003) defined validity as the extent to which the differences between the items reflected on an instrument and that of the tested respondents match. Thus, the validity was done to ascertain the level to which the items that formed the instruments measured the constructs that were intended. Thus, the study used SGR experts who examined the questionnaire and gave appropriate feedback and agreement to the items. Further, the items in the questionnaire were matched with the measurable indicators located in the theoretical and conceptual frameworks. The questionnaire was generalized to test external validity (Taherdoost, 2016).

3.6.2 Reliability

Reliability refers to the accuracy and precision of a measurement procedure, Copper and Schindler (2003). Reliability ensure that the similar tests when repeated, should generate similar results.. Cronbach alpha which calculates the level of internal consistency was utilized to determine the level of instrument reliability (Mugenda & Mugenda, 2003). Scholars have noted that reliability for instruments using Likert Scale, like the one used in the present study, is best when the score is 0.60 and above (Taherdoost, 2016) or 0.70 and above in other cases (Taber, 2017; Griethuijsen, 2014). The results shown in Table 3.3 shows reliability scores that are 0.7 and above and thus indicative of acceptable internal consistency of the research variables.

Table 3.3 Reliability Statistics for Questionnaire Pilot

Variables	Cronbach Alpha Score	No. of items	No. of cases
Legal frameworks for climate change	0.757	5	15
County legislation on climate change			
Awareness of climate change interventions	0.789	5	15
Funding of climate change interventions	0.855	7	15

Source: Researcher (2022)

3.7 Data Processing and Analysis

The study entailed both qualitative and quantitative data. The use of questionnaires yielded quantitative data with the use of interviews, and FGDs yielded qualitative data. Quantitative data was in filled forms and expected to be as many as the sample size of the local administrators (275). Thus, the use of statistics was key in analysing quantitative data.

Quantitative data was processed and analysed statistically using SPSS software version 24.0. Descriptive statistics was used to find out the nature of the phenomena the study covered, as well as infer a description of the extent to which the respondents point out their views. Descriptive statistics entailed frequencies, percentages, means, and standard deviations.

The study also used quantitative data to formulate a multiple regression model. Multiple regression models seek to study the effects and the magnitude of more than one independent variable and one dependent variable (Kerlinger & Lee, 2000). In this study, therefore, multiple regression analysis was used to test and model the influence of the independent variables (legal framework, county legislation, climate change awareness, and mobilization and funding) on the dependent variable (climate change interventions).

Regression analysis was employed in this study first as a means of developing a self-weighting estimating equation that differentiates the criterion values against the predictor values. The regression was also used to derive the independent variables as coefficients against the dependent variable. Consequently, the regression model was used to ascertain the level to which the dependent variable was influenced by the coefficients represented by the independent variables (Field, 2000).

$$Y=B_0+B_1*X_1+B_2*X_2+B_3*X_3+B_4*X_4$$

Where;

Y – effectiveness in climate change interventions

Y – effectiveness in climate change interventions

X1 - County Legal Framework

X2 - County Policy Making

X3 - Level of Awareness

X4 - Variations In funding

On the other hand, the qualitative data was analysed thematically. The recordings were transcribed into written information and organized based on themes. These then complemented the quantitative findings under each theme with the verbatim presentations. This allowed for triangulation of the findings to conclusively make conclusions about the legal framework and climate change interventions in Makueni county.

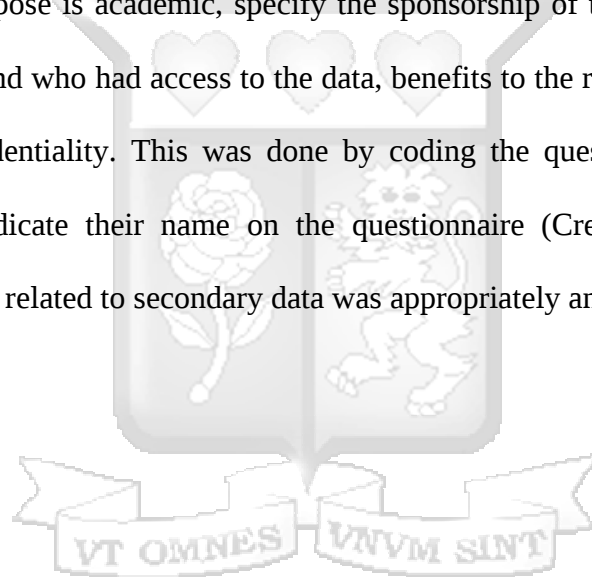
3.8 Research Quality

Kirk and Miller (1986) categorized three reliability formats often used in quantitative studies and all of which seek to measure the extent an instrument or study can be repeatable, remains similar or stabilizes within a specified period of time. Treharne & Riggs (2020) set out four criteria to appraise the trustworthiness of qualitative research: credibility, dependability, confirmability, transferability, and authenticity. Validity determines whether the research truly measures what it intended to measure or how truthful the research results are. To this end, research assistants were engaged.

3.9 Ethical Considerations

The researcher endeavoured to ensure the participation of respondents of legal age engaged in the study respected the tenets of voluntariness and vulnerability. Further, an informed consent was used to access agreement from the respondents and from the appropriate institutions that gave a letter of authority after an introductory letter from the university was given. The study also got necessary permissions from the National Council for Science and Technology (Creswell, 2012).

The researcher, through a university introductory cover letter, provided information about the study, which sole purpose is academic, specify the sponsorship of the study, how the results are intended to be used, and who had access to the data, benefits to the respondent and guarantee their anonymity and confidentiality. This was done by coding the questionnaire and requesting the respondent not to indicate their name on the questionnaire (Creswell, 2012). To avoid any plagiarism, all sources related to secondary data was appropriately and adequately acknowledged.



CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents the data analysis and the interpretation thereof related to the assessment of the effectiveness of policy framework for climate change interventions at the county government level using the case of Makueni county government, Kenya. The study presents these results based on the following categorization: Response rate, demographic characteristics, climate change interventions; extent to which county legal frameworks formulated for climate change interventions have been implemented; effectiveness of county policymaking in implementing climate change interventions; level of awareness about climate change interventions in Makueni County; the variations in funding for climate change interventions in Makueni County. Both descriptive and inferential statistical results underscore the results of the present study. Further, considering that this study was a mixed method study, an explanatory sequential design is used where the quantitative results are presented first and then the qualitative results from the interviews and FGDs are presented to augment or criticize the quantitative results.

4.2 Response Rate

The quantitative results gathered from the questionnaires were accessed from 269 research participants distributed between the local administrators (Ass County Commissioners, Ward administrators, Chiefs and Ass. Chiefs). The 269 respondents were 6 less than the 275 sampled. This means that the response and return rate was 97.8% which is an acceptable rate needed to access reliable and valid results. Further, the study interviewed 2 County Executive board, 3 State Department of Environmental management staff and 3 County Assembly Environmental management board.

4.3 Demographic Characteristics

The demographic characteristics of the local administrators (Ass County Commissioners, Ward administrators, Chiefs and Ass. Chiefs), were gathered and are presented in the succeeding Tables. The demographic characteristics gathered were related to Gender, Age, Level of Education, Marital Status and position in the County plus the location of the sub counties.

4.3.1 Gender of the Respondents

The results for the gender of the local administrators are shown in **Figure 4.1**.

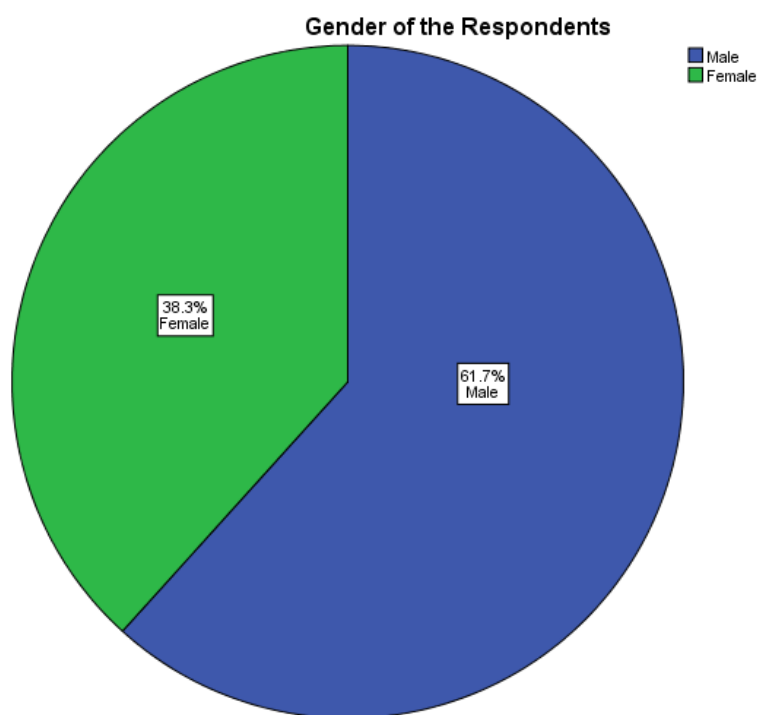


Figure 4.1 Gender Ratio of the Respondents

Results from Figure 4.1 show that majority of the local administrators (Ass County Commissioners, Ward administrators, Chiefs and Ass. Chiefs), were male (61.7%) while only 38.3% were female. This implies a male dominated local administration pool in Makueni County. Of course, the sizeable number of females implies that the current study gathered data on policy

and climate change interventions from a cross-section of genders which improves that capacity of the results to be unbiased and thus valid.

4.3.2 Age of the Respondents

The results for the age of the local administrators are shown in Figure 4.2.

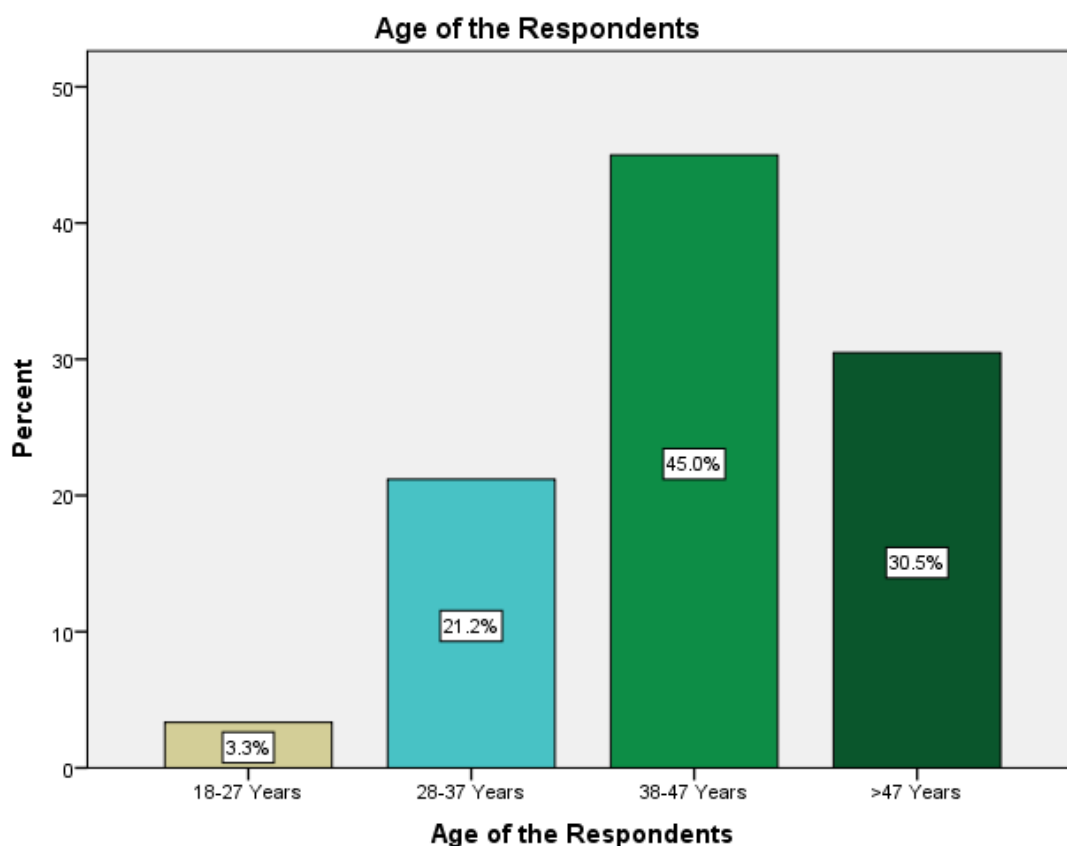


Figure 4.2 Age of the Respondents

The results from Figure 4.2 show that majority of the local administrators (66.2%) were aged between 28 and 47 years. This was followed by those aged over 47 years (30.5%) and only 3.3% were aged between 18 and 27 years. This suggests that majority of local administrators (Ass County Commissioners, Ward administrators, Chiefs and Ass. Chiefs) were middle aged. This implies that to some extent, they were experienced in their work and that experience could possibly make them exposed to the effectiveness of policy framework for climate change

interventions at the county government level. Such an exposure would permit the access of valuable data.

4.3.3 Education Level of the Respondents

The results for the education level of the local administrators are shown in **Figure 4.3**.

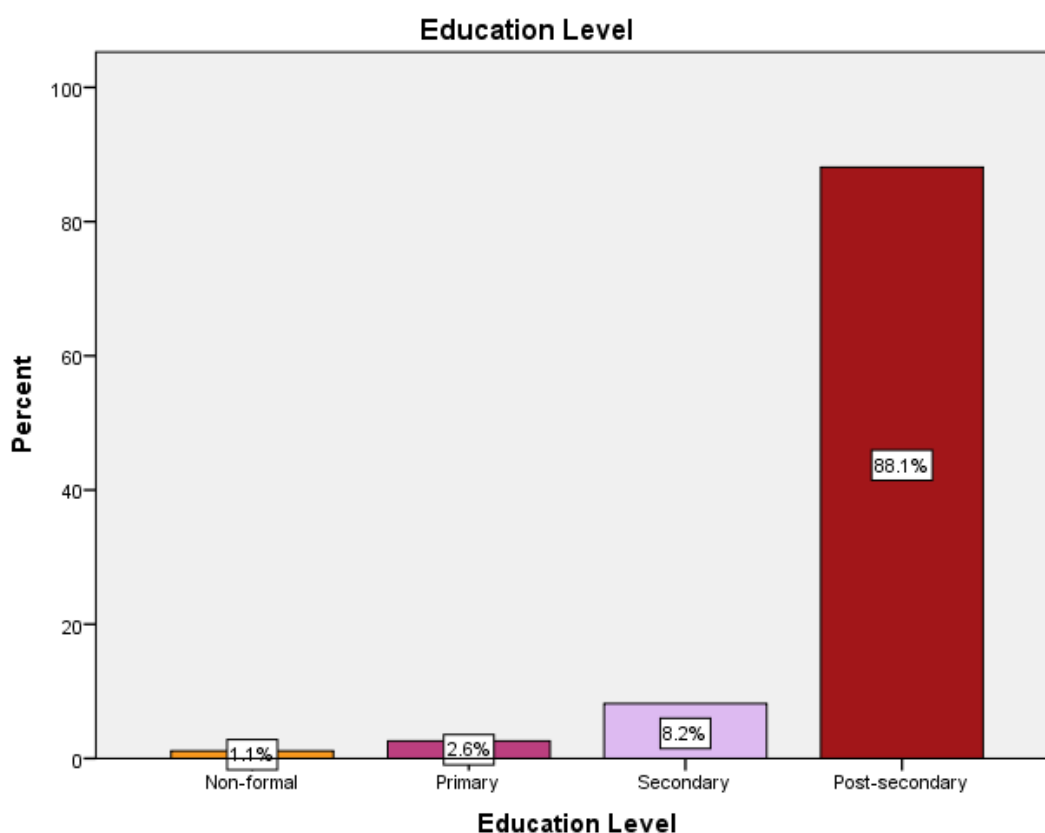


Figure 4.3 Education Level of the Respondents

Evidenced by Figure 4.3, majority of the local administrators in Makueni County had post-secondary qualifications (diploma, Degrees and Post-graduate) (93.7%). The remaining (6.3%) had secondary and primary qualifications. The result here implies that the local administrators were adequately educated first to comprehend the issues related to the effectiveness of policy framework for climate change interventions at the county government level and secondly to offer valuable insights about the issues involved.

4.3.4 Marital Status of the Respondents

The results for the marital status of the local administrators are shown in Figure 4.4.

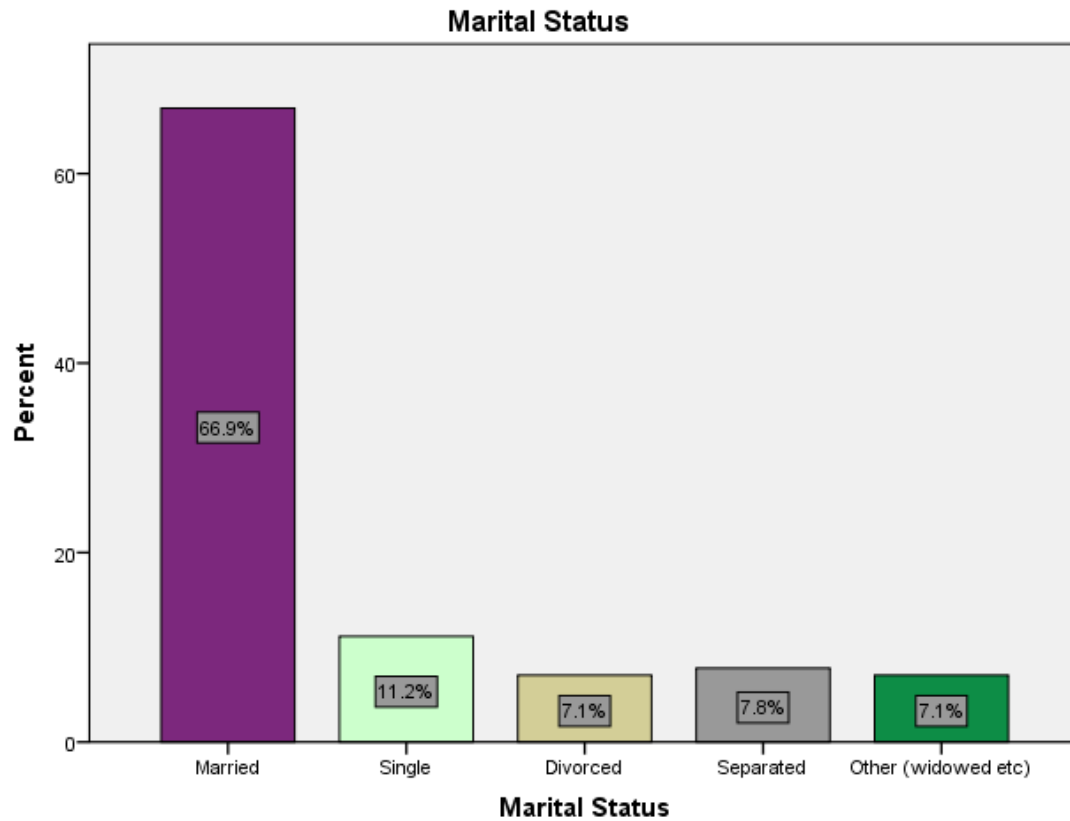


Figure 4.4 Marital Status of the Respondents

From Figure 4.4, majority of the local administrators were married (66.9%). They were followed by those who were single (11.2%). Cumulatively, 22.0% of the local administrators were divorced, separated or widowed. This implies that the local administrators in terms of the marital demographic were located within the broad spectrum of family dynamics from married to single to divorced, separated and widowed. The access of data from respondents from such a broad spectrum helps to access valuable data that helps to better underscore the issue under investigation.

4.3.5 Position-Held by the Respondents

The results for the current position held by the local administrators are shown in Table 4.1.

Table 4.1 Position-Held by the Local Administrators

		Frequency	Percent
Valid	Ass. County Commissioner 1	6	2.2
	Ass. County Commissioner 2	6	2.2
	Ward Administrator	138	51.3
	Chief	46	17.1
	Ass. Chief	73	27.1
	Total	269	100.0

Results from Table 4.1 show that the local administrators held various positions at the time of the survey. There were the majority ward administrators (51.3%), the Assistant Chief (27.1%), the Chief (17.1%) and the Assistant County Commissioner 1 and 2 (4.4%). This implies that the study was able to access data from all the cadres of local administration which helps to show higher capacity for valuables, reliable and valid results. The access of data from this pool of local administrators also implies that there was no bias, a factor that is important to build the reliability of quantitative results.

4.3.6 Sub-County Characteristics

The results for the Sub County characteristics are shown in Table 4.2.

Table 4.2 Sub County Characteristics

		Frequency	Percent
Valid	Kilome	48	17.8
	Kibwezi East	50	18.6
	Kibwezi West	53	19.7
	Kaiti	48	17.8
	Makueni	36	13.4
	Mbooni	34	12.6
	Total	269	100.0

Results from Table 4.2 show that the local administrators were accessed from all the 6 sub counties that form Makueni County. Local administrators were from Kibwezi West (19.7%), Kibwezi East (18.6%), Kilome (17.8%), Kaiti (17.8%) and the other sub counties of Makueni and Mbooni (13.4% and 12.6% respectively). This implies that the study was able to access data from all the sub counties where the effectiveness of policy framework for climate change interventions at the county government level applies. Thus, the data generate is potentially highly reliable and valid and speaks to the issues under investigation in a complete and unbiased manner.

4.4 Descriptive Statistical Results and Thematic Analysis Results

This section presents the descriptive results coupled with the thematic analysis especially from the interviews related to the variables of the study.

4.4.1 Climate Change Interventions

The descriptive results for the dependent variable (climate change interventions) are shown in Table 4.3. Table 4.3 presents the perception of the local administrators regarding the county government's effort in climate change interventions.

Table 4.3 Climate Change Interventions

Statements	N	Minimu m	Maximu m	Mean	Std. Deviation
Reducing GHC emissions programmes	269	1	5	2.11	1.066
Soil erosion prevention agriculture	269	1	5	2.14	1.084
Reduced use of inorganic fertilizers	269	1	5	2.31	1.092
Enhanced Tree planting	269	1	5	2.17	1.108
Reduced tree cutting	269	1	5	2.05	1.001
Inclusive approach	269	1	5	2.09	1.056
Average Score	269	1	5	2.14	1.021

The results from Table 4.3 shows that the local administrators were only slightly satisfied with the county government's effort in reducing GHC emissions ($M=2.11$; $SD=1.06$); soil erosion prevention ($M=2.14$; $SD=1.08$), reduced use of inorganic fertilizers ($M=2.31$; $SD=1.09$), and enhanced tree planting ($M=2.17$; $SD=1.10$). More poignantly, the local administrators were less satisfied with the Makueni county government's effort in reducing tree cutting ($M=2.05$; $SD=1.00$) and engaging in inclusive approach in climate change intervention ($M=2.09$; $SD=1.05$). Generally, the local administrators were slightly satisfied with the county government's effort in climate change interventions ($M=2.14$; $SD=1.02$). This result implies that in the eyes of the local administrators, Makueni County was not effective in its effort in climate change interventions.

The results above have agreement from the environmental experts from Makueni County. Many of the staff interviewed at both the State Department of Environmental Management and the County Assembly Environmental Management Board noted that Makueni County despite the initiation and subsequent implementation of the Makueni County Environment and Climate Change Policy

of 2022 still struggles with its climate change intervention efforts. In fact, one of the key staff at the State Department of Environmental Management (here referred to as *SDEM Officer 2, 2023*) noted that:

Makueni is still facing notable climate change and variability problems. This is more pronounced in the agricultural sector where as recent as 2022, major crops like green grams, cowpea and Maize have experienced a 79%, 74% and 42% decline in general productivity. A survey of predictive data shows that the decline is bound to progress beyond 2022. All these decline data indicates that Makueni County has not been keen in its mitigation strategies for Climate change (SDEM Officer 2, 2023).

Here, *SDEM Officer 2, (2023)* points out the agricultural sector as one of the key areas whose decline points to lack of effective climate change interventions by the stakeholders in Makueni County. One other relatable interview result is from a staff at the County Assembly Environmental Management Board (here referred to as *CAEMB Officer 3, 2023*). Related to climate change intervention in Makueni County, *CAEMB Officer 3, (2023)* asserted that:

Moisture stress, drought, increased temperature, heat stress and increased precipitation are integral elements in Makueni County. Analysis of any reliable climate-based data shows that these challenges are bound to upsurge in the coming years. Yet, the County is still grappling with other developmental and infrastructural projects at the expense of climate change interventions. They still do not know that once the county is environmentally dilapidated, no developmental project will make sense! (SDEM Officer 2, 2023).

From the two interviews (*SDEM Officer 2, 2023; CAEMB Officer 3, 2023*), it is clear that Makueni County's efforts in climate change interventions is not effective. They cite available climate-based data from Makueni to support their points. From both the quantitative and qualitative analysis, it is clear that Makueni County is not effective in its effort in climate change interventions.

4.4.2 Implementation of the County Legal Frameworks Formulated

The first objective sought to assess the extent to which county legal frameworks formulated for climate change interventions have been implemented in Makueni County. The results are shown in Table 4.4.

Table 4.4 Implementation of the County Legal Frameworks Formulated

	N	Minimum	Maximum	Mean	Std. Deviation
The county legal frameworks for climate change interventions are in use	269	1	5	2.62	1.010
The county formulates legal frameworks guide roll out of climate change projects	269	1	5	2.60	1.009
The formulated legal frameworks address the needs of the public	269	1	5	2.55	1.001
The legal frameworks for climate change are aligned to national and international laws to avoid inconsistencies	269	1	5	2.67	1.036
The county legal frameworks spell the extent of application	269	1	5	2.57	1.003
The county legal frameworks for climate change have helped mitigate environmental degradation	269	1	5	2.68	1.038
The county legal frameworks for climate change state the implementers of the policies from an inclusive approach	269	1	5	2.65	1.025
Average	269	1	5	2.61	1.008

The results shown on Table 4.4 show that the local administrators disagreed with all the implementation of the county legal frameworks on climate change efforts by the County Government of Makueni. Thus, according to the local administrators, the county legal frameworks for climate change interventions were not in use (M=2.62; SD=1.01); they do not effectively guide the roll-out of climate change projects (M=2.60; SD=1.00); they do not address the needs of the

public (M=2.55; SD=1.03); are not aligned to national and international laws to avoid inconsistencies (M=2.67; SD=1.03); do not spell-out the extent of application (M=2.57; SD=1.00); have not helped mitigate environmental degradation (M=2.68; SD=1.04); and do not state the implementers of the policies from an inclusive approach (M=2.65; SD=1.02). This implies that to a great extent, the implementation of the CGM formulated legal frameworks for climate change interventions was not effective according to the local administrators (M=2.61; SD=1.00).

There is, however, conflicting input from the interviews with members of the State Department of Environmental Management and the County Assembly Environmental Management Board. There were some who felt that the legal frameworks formulated for climate change interventions have been implemented in Makueni County to a great extent, while some felt that it had not. One of those who felt that the legal frameworks had been implemented effectively (here referred to as CAEMB Officer 1, 2023) noted that:

Makueni County in all fairness has since 2022 embarked on serious mainstreaming of the climate change tenets into both its Vision 2025 and its County Integrated Development Plan (CIDP). Also, the County has created the Environment and Climate Change Directorate which now has expert and qualified staff whose mandate is to implement the Makueni County Environment and Climate Change Policy of 2022 plus all the associated climate change legislation both nationally and internationally. Further, it should be noted that Makueni County even prior to the Makueni County Environment and Climate Change Policy of 2022, was implementing the national legislation and policies especially the Green Economy Strategy and Implementation Plan (2016-2030), The National Climate Change Response Strategy (2010), The National Climate Change Act of 2016, the National Adaptation Plan that goes up to 2030 and the National Climate Change Action Plan (2013-2017) all of which form environmental legislation (CAEMB Officer 1, 2023).

While CAEMB Officer 1, (2023) mentions aspects of the current Makueni County legal frameworks formulated for climate change interventions like mainstreaming and creation of the Environment and Climate Change Directorate, he found it difficult to describe the extent to which

the legal frameworks formulated for climate change interventions have been implemented. The areas of implementation that CAEMB Officer 1, (2023) mentions like mainstreaming and creation of an office is to this researcher just the tip of the Iceberg as implementation carries more aspects than those mentioned.

One of the other interviewees (here referred to as *SDEM Officer 3, 2023*), agreeing with the opinions of the local administrators, had this to say about the extent to which the current Makueni County legal frameworks formulated for climate change interventions have been implemented:

Granted, Makueni County has certain legal frameworks that underscore climate change interventions. However, the ongoing and exacerbating climate change challenges in Makueni and the predictive analysis that nothing will change on this front and that things are actually expected to get worse means that the implementation of the legal frameworks is not effective and far reaching. Two, the legal objectives are not clear. For instance, at what percentage does Makueni County envision to reduce GHC emissions in the next 5 years for instance. This information is not clear meaning that there are no achievable and measurable goals. Further, the legislation envisions the setting up of institutional structures. However, the extent to which these structures have been set up in terms of human, technological and financial resources is still scanty. Finally, a key pillar of the current Makueni County legal frameworks formulated for climate change interventions is stakeholder mapping, engagement and awareness coupled with partnerships and collaboration. I am yet to see robust public participation to show an inkling of these issues being implemented. Needless to say, the current Makueni County legal frameworks formulated for climate change interventions is more on paper than it is in practice (SDEM Officer 3, 2023).

A key driving force found in the assertions of SDEM Officer 3, (2023) is that the current Makueni County legal frameworks formulated for climate change interventions is mainly on paper but not reflected on the ground through effective implementation. From the analysis above, it is largely implied that the current Makueni County legal frameworks formulated for climate change interventions is to a great extent not effectively implemented.

The local administrators thus presented results based on the legal-based factors affecting implementation of climate change interventions in Makueni County. Figure 4.5 shows those results.

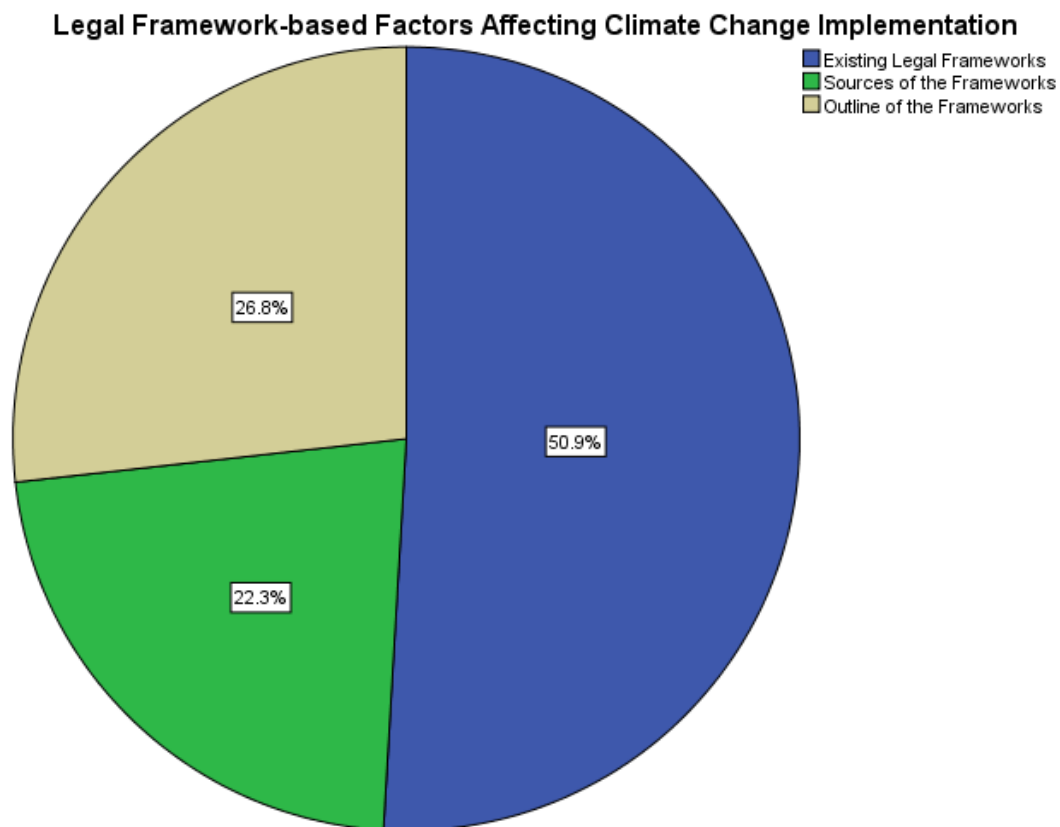


Figure 4.5 Legal Framework-based Factors Affecting Climate Change Implementation

From Figure 4.5, the local administrators felt that the existing legal frameworks (50.9%) were more influential on implementation of climate change interventions in Makueni County. This was followed by the outline of the frameworks (26.8%) and finally the sources of the frameworks (22.3%). This implies that the existing legal frameworks in terms of whether they are enforceable is key in determining the extent to which climate change interventions can be or are implemented. Of course, the outline and sources of the legal frameworks are also important in determining the implementation of climate change interventions in Makueni County as attested to by the results.

4.4.3 Effectiveness of County Policy-making in Implementing Climate Change Interventions

The second objective sought to establish the effectiveness of county policymaking in implementing climate change interventions. The associated results are shown in Table 4.5

Table 4.5 County Policy-making and Climate Change Interventions

	N	Min	Max	Mean	Std. Deviation
The climate change policies state stakeholders for implementation	269	1	5	3.09	1.139
The climate change policies state the oversight roles in the implementation of the policies	269	1	5	3.06	1.141
The climate change policies are guided by what the abilities of the locals	269	1	5	2.68	.947
The implementation of the climate change intervention policies states the locals as the key persons	269	1	5	2.72	.918
The climate change policies are imperative in convincing the locals to participate in implementation of projects	269	1	5	2.70	.962
The county assembly legislates on climate change with consideration on taking oversight of project implementation	269	1	5	2.72	.984
Average	269	1	5	2.82	1.02

The results from Table 4.5 show that the local administrators were ambivalent about whether the climate change policies state stakeholders for implementation ($M=3.09$; $SD=1.13$); and whether the climate change policies state the oversight roles in the implementation of the policies ($M=3.06$; $SD=1.14$). However, they thought that to a minor effect, climate change policies are guided by the abilities of the locals ($M=2.68$; $SD=0.94$); the implementation of the climate change intervention policies states the locals as the key persons ($M=2.72$; $SD=0.91$); the climate change policies are imperative in convincing the locals to participate in implementation of projects ($M=2.70$;

SD=0.96); and the county assembly legislates on climate change with consideration on taking oversight of project implementation (M=2.72; SD=0.98). Generally, according to the local administrators, there is a minor effectiveness of county policymaking in implementing climate change interventions in Makueni County.

There is coherence with the aforementioned result from staff at both the State Department of Environmental Management and the County Assembly Environmental Management Board. One of the interviewees (here referred to as *SDEM Officer 1, 2023*) had this to say regarding the effectiveness of policymaking in implementing climate change interventions.

The policymaking process that is meant to reduce the ills of climate change in Makueni is wrong, ineffective and weak. One of the key reasons is its lack of proper public participation. The public are not aware of policies meant to help reduce climate change challenges. It is my view working with people at the County level that the staff there has this wrong attitude that they are brilliant more than the citizens and there is thus no need to include them (SDEM Officer 1, 2023).

SDEM Officer 1, (2023) mentions the lack of public participation as a key feature that denounces the effectiveness of policymaking in implementing climate change interventions in Makueni County. Another interviewee from the County Executive board (here referred to as *CEB, 5, 2023*) had this to say:

Makueni County has crafted the Makueni County Environment and Climate Change Policy of 2022. The policy has so many good aspects from policy directions that seek to be collaborative and engaging and aspects that relate to institutional structures that once in place will ensure climate change is better mitigated. However, the place of the locals in formulating, processing, implementing and even evaluating is not clear. Every effort on this front is often cosmetic; always trying to appear as if locals have been involved and yet the involvement is not purposeful and meaningful. Clearly, the county is trying to implement a policy that the public is not aware off or even endorsing (CEB, 5, 2023).

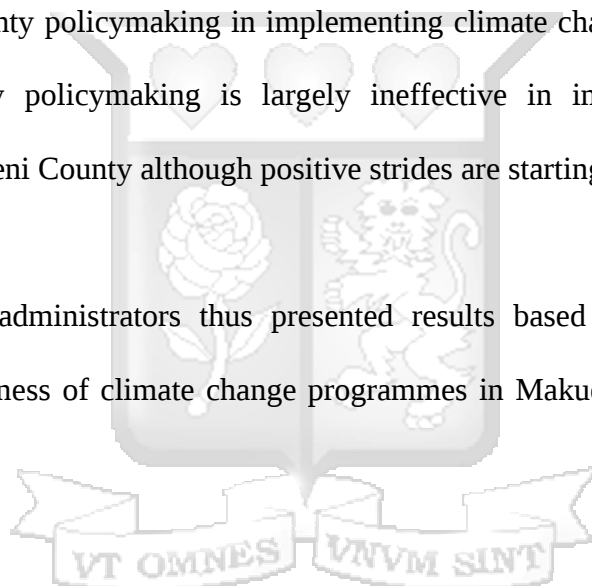
However, one of the county leaders from the County Executive Board (here referred to as *CEB, 4, 2023*) observed a positive trend towards implementing policy for better and effective climate

change intervention. Referring to new strides in forming coalitions based on policy, the CEB, 4 (2023) noted that:

Recently, Makueni County through the Department of Lands, Urban Planning & Development, Environment, and Climate Change, formed a Climate Change Stakeholders Coalition, which brings together stakeholders from academia, environmental experts and advocates, government players, non-governmental organizations (NGOs) and most importantly community-based organizations (CBOs) to try and catalyze effectiveness in climate change interventions. While still at its nascent stages, it is bound to succeed as it is very expert and collaborative oriented (CEB, 4, 2023).

From the assertions by the environmental and county leaders, there is almost unanimity as to the ineffectiveness of county policymaking in implementing climate change interventions. Thus, it is clear that the county policymaking is largely ineffective in implementing climate change interventions in Makueni County although positive strides are starting to be witnessed.

Moreover, the local administrators thus presented results based on the policy-based factors affecting the effectiveness of climate change programmes in Makueni County. Figure 4.6 shows those results.



Policy-based Factors Influencing Climate Change Programmes Effectiveness

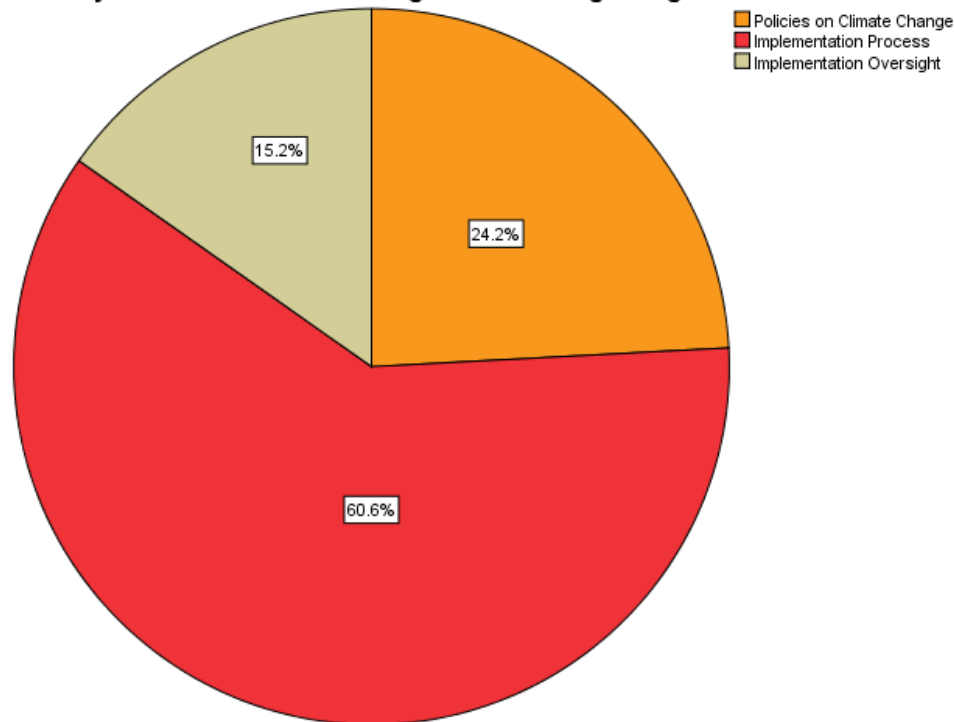


Figure 4.6 Policy-based Factors Influencing Climate Change Programmes Effectiveness

A majority of the respondents (60.6%) were of the opinion that the implementation process of the policies is more inclined to affecting effectiveness of climate change programmes in Makueni County. The results from the interviewees show that the formulation and involvement of the public are more inclined to affect effectiveness of climate change programmes in Makueni County. What is thus clear is that both the policy formulation and implementations stages are largely influential in the effectiveness of climate change programmes in Makueni County.

4.4.4 Level of Awareness about Climate Change Interventions

The third objective sought to determine the level of awareness about climate change interventions in Makueni County. Table 4.6 shows the results.

Table 4.6 Level of Awareness about Climate Change Interventions

	N	Min	Max	Mean	Std. Deviation
The county government mobilizes the public for climate change projects	269	1	5	2.22	1.219
County government is having strategies for public participation in climate change interventions	269	1	5	3.07	1.155
The county government has reached many people to participate in climate change projects	269	1	5	2.23	1.189
The MCAs are at the forefront to mobilize for public participation	269	1	5	2.28	1.225
We have a right to participate in climate change interventions at the county level	269	1	5	3.17	1.139
The CGM has put up notices for public participation in climate change projects	269	1	5	2.29	1.229
The CGM has taken steps towards climate change	269	1	5	2.94	.946
Average	269	1	5	2.60	1.111

The results from Table 4.6 show that the local administrators were somewhat aware that the County government was having strategies for public participation in climate change interventions ($M=3.07$; $SD=1.15$); and also somewhat aware that they had a right to participate in climate change interventions at the county level ($M=3.17$; $SD=1.13$). However, the local administrators were slightly aware that the county government mobilizes the public for climate change projects ($M=2.22$; $SD=1.21$); the county government has reached many people to participate in climate change projects ($M=2.23$; $SD=1.18$); the MCAs are at the forefront to mobilize for public participation ($M=2.28$; $SD=1.22$); the CGM has put up notices for public participation in climate change projects ($M=2.29$; $SD=1.22$) and the CGM has taken steps towards climate change ($M=2.94$; $SD=0.94$). Generally, the local administrators were slightly aware about climate change

interventions in Makueni County ($M=2.60$; $SD=1.11$). Thus, it is clear that the local administrators as proxies of the public were slightly and, in some cases, only somewhat aware about climate change interventions in Makueni County.

Of course, on the other hand, the environmental and county leaders like the County Executive Board, the State Department of Environmental management staff and the County Assembly Environmental Management Board were extremely aware about climate change intervention. Many of them attested as much. One of them from the County Executive Board noted that:

Of course, my awareness levels about climate change interventions within this county (Makueni) are extremely high. I am involved in the formulation and supervision of certain environmental frameworks and policies in the county (CEB, 1, 2023).

Another from the County Assembly Environmental Management Board asserted more succinctly that:

Every environmental legislation and policy pass directly through my hands. Every climate change intervention is known to me (CAEMB Officer 3, 2023).

Still another from the State Department of Environmental management observed that:

As far as the management of the county and especially those in the environmental sace is concerned, the awareness levels about climate change interventions are very high. However, I was the first to admit that the awareness levels about climate change interventions among the public, I dare add the most important demographic, is not pleasing (SDEM Officer 2, 2023).

So while the level of awareness about climate change interventions among local administrators is low to moderate, the level of awareness about climate change interventions among county leaders and environmental experts is high in Makueni County.

Furthermore, the local administrators thus presented results based on the awareness-based factors affecting the implementation of climate change programmes in Makueni County. Figure 4.7 shows those results.

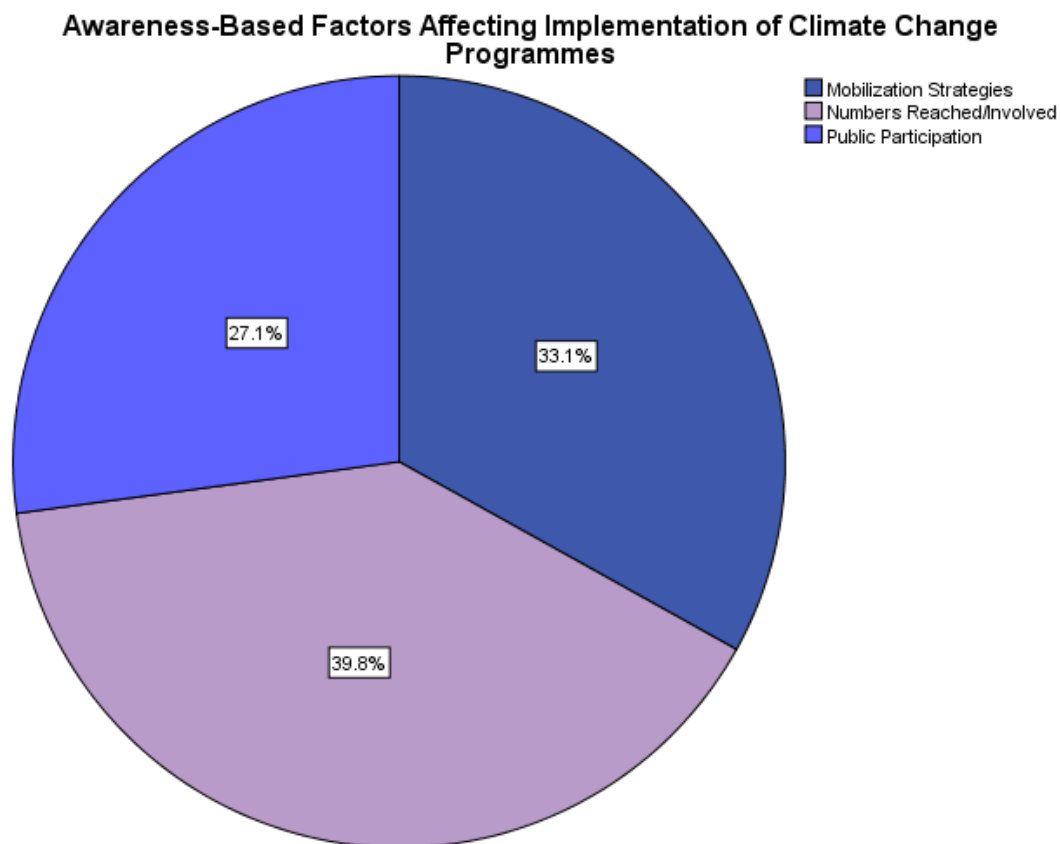


Figure 4.7 Awareness-based Factors Influencing Implementation of Climate Change Programmes

From the results, it is clear that as far as the local administrators are concerned, numbers reached and involved (39.8%), mobilization strategies (33.1%) and public participation (27.2%) in that order are mostly influential on the implementation of climate change programmes in Makueni County. From the results, it is clear that the locals must be involved, engaged and empowered if the implementation of climate change programmes in Makueni County is to be effective and successful.

4.4.5 Variations in Funding For Climate Change Interventions

The fourth objective sought to assess the variations in funding for climate change interventions in Makueni County. Table 4.7 shows the associated results.

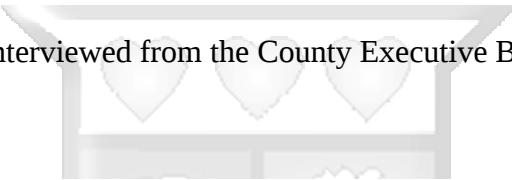
Table 4.7 Variations in Funding For Climate Change Interventions

	N	Min	Max	Mean	Std. Deviation
The funding by the MCG more likely to influence project effectiveness	269	1	5	3.36	1.034
The funding by the national government more likely to influence project effectiveness	269	1	5	3.35	1.039
The funding by the international organs more likely to influence project effectiveness	269	1	5	3.28	1.058
The amounts given for a project on climate change more likely to influence effectiveness	269	1	5	3.35	1.057
The funding terms of the sources is more important in projects' success	269	1	5	3.39	1.018
Funding directed to the community directly is more effective than ones directed at the county administration	269	1	5	3.42	1.014
Community based resource mobilization can be more effective in climate change interventions	269	1	5	3.46	1.024
Average	269	1	5	3.39	1.134

From Table 4.7, all the funding aspects were influential for climate change interventions in Makueni County ($M=3.39$; $SD=1.13$). Thus, more specifically, the funding by the MCG more likely to influence project effectiveness ($M=3.36$; $SD=1.03$); the funding by the national government more likely to influence project effectiveness ($M=3.35$; $SD=1.03$); the funding by the international organs more likely to influence project effectiveness ($M=3.28$; $SD=1.05$); the amounts given for a project on climate change more likely to influence effectiveness ($M=3.35$; $SD=1.05$); the funding terms of the sources is more important in projects' success ($M=3.39$;

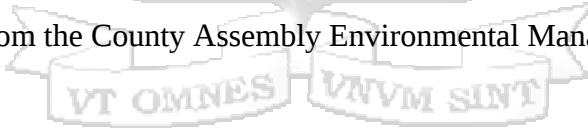
SD=1.01); funding directed to the community directly is more effective than ones directed at the county administration (M=3.42; SD=1.01); and finally, community based resource mobilization can be more effective in climate change interventions (M=3.46; SD=1.02). So, clearly, variations in funding had an influence on climate change interventions in Makueni County.

From the interview and FGD with staff from the County Executive Board, the State Department of Environmental management staff and the County Assembly Environmental Management Board, there seems to be consensus that yes the county has received and is receiving substantial funds for climate change interventions but that a test to assess its effectiveness is not readily available. For instance, one of the staff interviewed from the County Executive Board had this to say:



There is a County Climate Fund Management Board in Makueni County set up in 2021 which controls the climate change funds. The policy is that the fund receives 2% of the annual development fund budget. However, how the monies have been used to improve climate change intervention is not easily available. The fact that the climate change challenges continue unabated means that the funds are not effective or the county needs more than what it is getting (CEB, 1, 2023).

Another interviewee from the County Assembly Environmental Management Board, says:



The County as early as 2017 through collaboration with partners like the Ada Consortium, UKAID, Anglican Development Services Eastern (ADSE) and Christian Aid received 50 million Kenya shillings as seed money to jumpstart its climate change fund. However, so far, there is not tangible, quantifiable and verifiable data as to the extent to which this fund has impacted on climate change interventions (CAEMB, 2, 2023).

Records seen from Makueni County show the following figures as the total annual amounts allocated and spent for Climate Change Interventions. See Table 4.8 and Figure 4.8.

Table 4.8 Climate Change Funds in Makueni County

Financial Year	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024
Amounts (Kshs)	57,000,000	59,000,000	61,000,000	54,000,000	66,000,000

Source: Makueni County, 2023

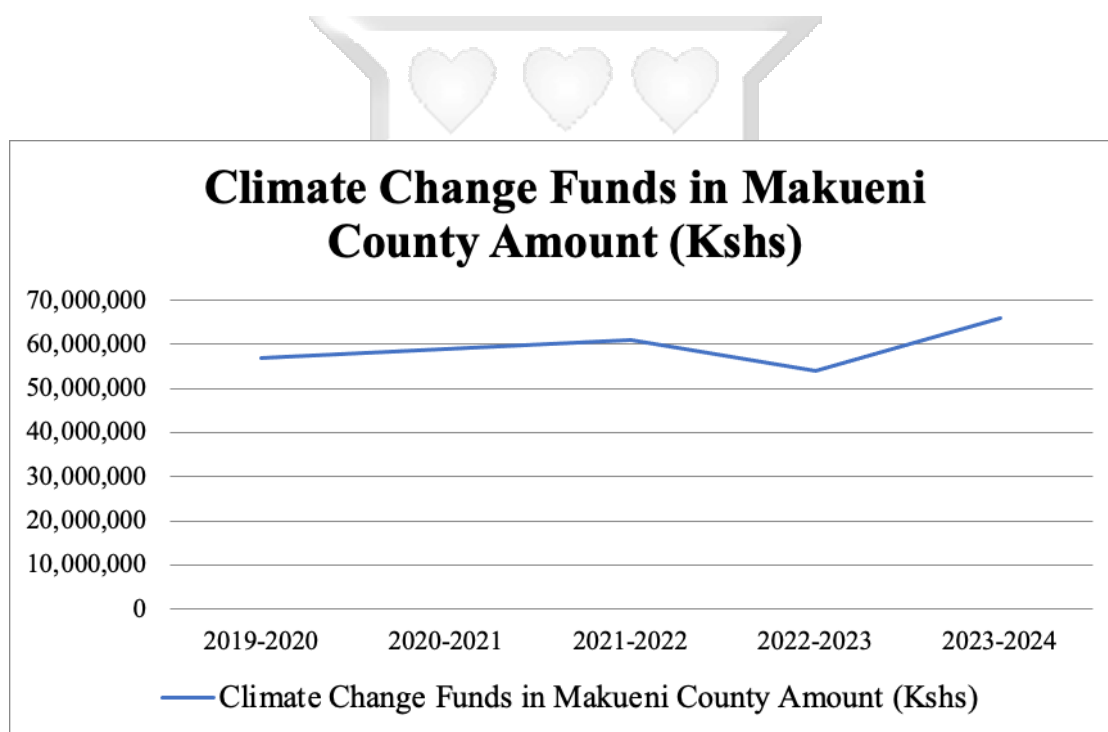


Figure 4.8 Climate Change Funds in Makueni County

Based on the results shown in Table 4.15 and Figure 4.8, it is clear that Makueni County uses an average of 50 million Kshs each year for Climate change intervention. This money does not include the money received from donors. Nonetheless, from this result, the money variably

changes depending on the decision by the Governor and as such even the policy to spend 2% of the development fund does not always obtain.

4.5 Inferential Statistical Results

This section presents the correlations analysis to test for association between variables and the regression analysis to test for predictive influence of the independent variables on the dependent variable.

4.5.1 Correlations Analysis

The Pearson's Correlations Analysis was used to test the relationship between the variables. Table 4.9 shows the results.

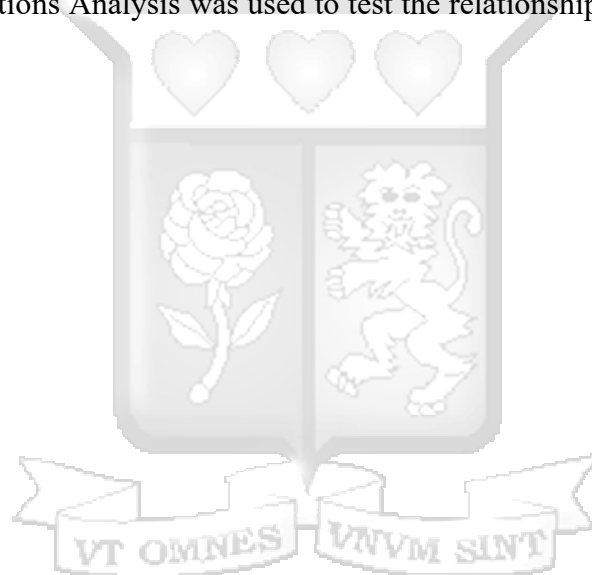


Table 4.9 Correlations Analysis

		Climate Change Interventions	County Legal Framework	County Policy Making	Level of Awareness	Variations In funding
Climate Change Interventions	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	269				
County Legal Framework	Pearson Correlation	.522**	1			
	Sig. (2-tailed)	.000				
	N	269	269			
County Policy Making	Pearson Correlation	-.068	.123*	1		
	Sig. (2-tailed)	.266	.044			
	N	269	269	269		
Level of Awareness	Pearson Correlation	.590**	-.176**	.049	1	
	Sig. (2-tailed)	.000	.004	.427		
	N	269	269	269	269	
Variations In funding	Pearson Correlation	.661**	.027	.047	-.137*	1
	Sig. (2-tailed)	.000	.662	.446	.025	
	N	269	269	269	269	269
**. Correlation is significant at the 0.01 level (2-tailed).						
*. Correlation is significant at the 0.05 level (2-tailed).						

Hong and Hiew (2005) had mentioned that any R-value between **below 0.4 is weak and any value above 0.5 is strong**. From the results, it is clear that the county legal framework related to climate change was strongly and positively associated with climate change intervention in Makueni County ($R=0.522$; $p\text{-value} < 0.01$). The level of awareness about climate change was also strongly

and positively associated with climate change intervention in Makueni County ($R=0.590$; $p\text{-value}=\leq 0.01$). Variations in Funding was the most strongly and positively associated with climate change intervention in Makueni County ($R=0.661$; $p\text{-value}=\leq 0.01$). Only county policy making was not significantly linked to climate change intervention in Makueni County ($R=-0.068$; $p\text{-value}=\geq 0.01$). Therefore, the county legal framework, the level of awareness about climate change and variations in funding are strongly and positively related to climate change intervention in Makueni County while county policymaking is not.

4.5.2 Regression Analysis

The regression analysis is presented in Tables 4.10 and 4.11.

Table 4.10 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.340 ^a	.358	.343	1.083
a. Predictors: (Constant), County Legal Framework, County Policymaking, level of awareness, variations in funding				
b. Dependent Variable: Climate Change Interventions				

Based on Table 4.10, it is clear that the analysis assumes a positive direction based on the R score of 0.340. Most importantly, the adjusted R square score of .343 implies that the County Legal Framework, County Policymaking, level of awareness and variations in funding predicted the implementation and effectiveness of climate change interventions at 34.3%. Consequently, the county legal framework, county policymaking, level of awareness and variations in funding have a significant positive influence on the implementation and effectiveness of climate change interventions.

Table 4.11 Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.796	.373		4.820	.000
	County Legal Framework	.274	.065	.269	1.138	.000
	County Policy Making	.255	.072	.246	1.766	.001
	Level of Awareness	.192	.056	.206	3.406	.001
	Variations In funding	.388	.066	.380	1.338	.000
a. Dependent Variable: Climate Change Interventions						

From the results in Table 4.11, it is clear that the county legal frameworks formulated had a significant influence on implementation and effectiveness of climate change interventions in Makueni County ($\beta=0.269$: P-Value= <0.05). Further, it is also clear that the effectiveness of county policymaking has a significant influence on implementation of climate change interventions in Makueni County ($\beta=0.246$: P-Value= <0.05). Moreover, it is also clear that the level of awareness about climate change has a significant influence on implementation of climate change interventions in Makueni County ($\beta=0.206$: P-Value= <0.05). Finally, it is also clear that the variation of funding has a significant influence on implementation of climate change interventions in Makueni County ($\beta=0.380$: P-Value= <0.05). Thus, the county legal framework, county policymaking, level of awareness and variations in funding have a significant positive influence on the implementation and effectiveness of climate change interventions. A statistical model relating to effective climate change

$$Y=1.796+.269X_1+.246X_2+.206X_3+.380X_4 + .373$$

Where;

Y – effectiveness in climate change interventions

X1 - County Legal Framework

X2 - County Policy Making

X3 - Level of Awareness

X4 - Variations In funding



CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of findings, followed by a discussion of those findings to the extent that they either agree or disagree with literature reviewed, the conclusions and the recommendations. Also, suggestions for further studies are presented.

5.2 Summary of Findings

Based on the results of the dependent variable, the local administrators disagreed with all the implementation of the county legal frameworks on climate change efforts by the County Government of Makueni. Thus, according to the local administrators, the county legal frameworks for climate change interventions were not in use ($M=2.62$; $SD=1.01$); they do not effectively guide the roll-out of climate change projects ($M=2.60$; $SD=1.00$); they do not address the needs of the public ($M=2.55$; $SD=1.03$); are not aligned to national and international laws to avoid inconsistencies ($M=2.67$; $SD=1.03$); do not spell-out the extent of application ($M=2.57$; $SD=1.00$); have not helped mitigate environmental degradation ($M=2.68$; $SD=1.04$); and do not state the implementers of the policies from an inclusive approach ($M=2.65$; $SD=1.02$). This implies that to a great extent, the implementation of the CGM formulated legal frameworks for climate change interventions was not effective according to the local administrators ($M=2.61$; $SD=1.00$). On the qualitative front, there were some of the county leaders and environmental players who felt that the legal frameworks formulated for climate change interventions have been implemented in Makueni County to a great extent, while some felt that it had not.

Based on the first objective, the local administrators were ambivalent about whether the climate change policies state stakeholders for implementation ($M=3.09$; $SD=1.13$); and whether the climate change policies state the oversight roles in the implementation of the policies ($M=3.06$; $SD=1.14$). However, they thought that to a minor effect, climate change policies are guided by the abilities of the locals ($M=2.68$; $SD=0.94$); the implementation of the climate change intervention policies states the locals as the key persons ($M=2.72$; $SD=0.91$); the climate change policies are imperative in convincing the locals to participate in implementation of projects ($M=2.70$; $SD=0.96$); and the county assembly legislates on climate change with consideration on taking oversight of project implementation ($M=2.72$; $SD=0.98$). Generally, according to the local administrators, there is a minor effectiveness of county policymaking in implementing climate change interventions in Makueni County. From the assertions by the environmental and county leaders, there is almost unanimity as to the ineffectiveness of county policymaking in implementing climate change interventions.

Based on the second objective, the local administrators were ambivalent about whether the climate change policies state stakeholders for implementation ($M=3.09$; $SD=1.13$); and whether the climate change policies state the oversight roles in the implementation of the policies ($M=3.06$; $SD=1.14$). However, they thought that to a minor effect, climate change policies are guided by the abilities of the locals ($M=2.68$; $SD=0.94$); the implementation of the climate change intervention policies states the locals as the key persons ($M=2.72$; $SD=0.91$); the climate change policies are imperative in convincing the locals to participate in implementation of projects ($M=2.70$; $SD=0.96$); and the county assembly legislates on climate change with consideration on taking oversight of project implementation ($M=2.72$; $SD=0.98$). Generally, according to the local

administrators, there is a minor effectiveness of county policymaking in implementing climate change interventions in Makueni County. From the assertions by the environmental and county leaders, there is almost unanimity as to the ineffectiveness of county policymaking in implementing climate change interventions.

Based on the third objective, the local administrators were somewhat aware that the County government was having strategies for public participation in climate change interventions ($M=3.07$; $SD=1.15$); and also somewhat aware that they had a right to participate in climate change interventions at the county level ($M=3.17$; $SD=1.13$). However, the local administrators were slightly aware that the county government mobilizes the public for climate change projects ($M=2.22$; $SD=1.21$); the county government has reached many people to participate in climate change projects ($M=2.23$; $SD=1.18$); the MCAs are at the forefront to mobilize for public participation ($M=2.28$; $SD=1.22$); the CGM has put up notices for public participation in climate change projects ($M=2.29$; $SD=1.22$) and the CGM has taken steps towards climate change ($M=2.94$; $SD=0.94$). Generally, the local administrators were slightly aware about climate change interventions in Makueni County ($M=2.60$; $SD=1.11$). Thus, it is clear that the local administrators as proxies of the public were slightly and, in some cases, only somewhat aware about climate change interventions in Makueni County. Of course on the other hand, the environmental and county leaders like the County Executive Board, the State Department of Environmental management staff and the County Assembly Environmental Management Board were extremely aware about climate change intervention.

Based on the fourth objective, all the funding aspects were influential for climate change interventions in Makueni County ($M=3.39$; $SD=1.13$). Thus, more specifically, the funding by the MCG more likely to influence project effectiveness ($M=3.36$; $SD=1.03$); the funding by the

national government more likely to influence project effectiveness ($M=3.35$; $SD=1.03$); the funding by the international organs more likely to influence project effectiveness ($M=3.28$; $SD=1.05$); the amounts given for a project on climate change more likely to influence effectiveness ($M=3.35$; $SD=1.05$); the funding terms of the sources is more important in projects' success ($M=3.39$; $SD=1.01$); funding directed to the community directly is more effective than ones directed at the county administration ($M=3.42$; $SD=1.01$); and finally, community based resource mobilization can be more effective in climate change interventions ($M=3.46$; $SD=1.02$). So, clearly, variations in funding have has an influence on climate change interventions in Makueni County. From the interview and FGD with staff from the County Executive Board, the State Department of Environmental management staff and the County Assembly Environmental Management Board, there seems to be consensus that yes the county has received and is receiving substantial funds for climate change interventions but that a test to assess its effectiveness is not readily available.

5.2 Discussions of the Findings

The results from the study show that the current Makueni County legal frameworks formulated for climate change interventions and the policy making processes are to a great extent not effectively implemented. Global studies show that when effectively implemented, legal and policy frameworks related to climate change could improve implementation and effectiveness of climate change interventions. For instance, Tiffany (2018) noted that the application of legal and policy strategies is dependent on the level of awareness created of trends and the available measures for possible containment. At times, utility companies, governments, and others have integrated these strategies into large-scale programs that can reduce GHG emissions. Further, Carlos (2020) argued that psychology-based strategies are combined with traditional government programs such as

increasing community rebates, incentives, and creating effective pricing strategies and policies to increase consumer energy savings and advance environmental conservation practices.

The results also agree with African-based studies. African countries have their outlines that focus on adaption. For instance, in an analysis of Nigeria's strategies in managing climate change, the country has convinced its population to opt for fuel-efficient methods and appliances as a major step toward cutting down on its overall GHG emissions (Ladan, 2022); the same case applies to Makueni County though the activities are ineffectively utilized based on the results. Wearn (2015) writes that while there has been a steady rise in the overall greenhouse gas emissions and the existence of glaring evidence of climate change in Africa, there exists a host of policies and strategies recommended at community, state, regional and international levels as most effective in effecting and augmenting climate change mitigation endeavors but these policies, laws and strategies are often not used effectively which negatively affects climate change interventions. It should be noted that policies and laws of climate change that focuses on people and their level of participation as this study does aligns with the tenets of stakeholder theory which is part of the key theories applicable to this study. According to Clarkson (2014), the stakeholder theory states that several people are interested in an entity. It is a system of partners that operates within the broader system of the host community and provides the legal and business framework for the firm's operations. The results from Makueni show that people and locals are interested in climate change although the county does not robustly engage them. The stakeholder theory posits that if the county were to engage the interested, positive outcomes may inevitably accrue.

Further, the study found that while the level of awareness about climate change interventions among local administrators is low to moderate, the level of awareness about climate change interventions among county leaders and environmental experts is high in Makueni County. This

result agrees with local literature especially the one by Korir (2021) who noted in a study that the lack of awareness and minimal participation of local communities in Africa have seen affected communities in ASAL areas bear the brunt of global climate change. Korir and Ngenoh (2019) identified several factors for climate change intervention success. Singling out the Maasai community in Kenya, for instance, they concluded that to enhance the resilience of pastoral communities to impacts of climate change, policies that promote community-led adaptation, incorporate indigenous knowledge, and increase effective and suitable propagation of climate change-related information at the local level, in addition to those that provide access to relevant institutions should be formulated. It also agrees with global literature like the one by Gravy (2010) who argued that the increased awareness, mobilization of resources, including capital and human, should inform the basis of climate change mitigation endeavors. According to the writer, containing global climate change requires that communities' commitment to different regions be emphasized but in most cases the level of awareness among a certain cadre of people is always low especially when it comes to climate change issues. Ford (2019) observes that mass communication strategies have been central in the calls for fast response to climate change and its inherent threats and have been central in the calls for fast response to climate change and its inherent threats.

The study also found that the variation of funding towards climate change was influential for the implementation of climate change interventions in Makueni County. Thus, increased climate change funding has a significant positive influence on implementation of climate change interventions in Makueni County. Global studies cohere with the value of funding as attested to in this study. UN and global climate entities say that trillions of dollars are required in funding climate activities and projects which call for international cooperation. The UN Secretary-General

indicated that about \$100bn is required but has not been met as of 2018. However, other leaders like Mark Carney who is the UN special envoy on Climate Action says that the need for the fund presents an opportunity rather than a risk. Investment in projects such as clean energy, innovative power plants and avoiding fossil fuel would pay off in climate change interventions. Within the local contexts, Mazza et al. (2021) notes that funding for climate change mitigation activities and programs is an element of concern to conservationists, agencies, and governments because of high variability which affects climate change interventions.

From the analysis, variations in funding were the most strongly and positively associated with climate change intervention in Makueni County ($R=0.661$; $p\text{-value} < 0.01$). Further, variations of funding have a significant influence on implementation of climate change interventions in Makueni County ($\beta=0.380$; $P\text{-Value} < 0.05$). this was followed by Level of awareness. While there is no literature that specifically support the finding that variations in funding is the most strongly and positively associated with climate change intervention, studies done by scholars like Mazza et al. (2021) show that funding is highly influential in climate change intervention because most interventions require monetary commitments to effectively succeed.

5.3 Conclusion

Based on the first objective, the current Makueni County legal framework formulated for climate change interventions is to a great extent not effectively implemented. If effectively implemented, the current Makueni County legal frameworks formulated had a strong and positive effect on climate change interventions in Makueni County. Based on the second objective, the county policymaking is largely ineffective in implementing climate change interventions in Makueni County although positive strides are starting to be witnessed. If effectively implemented, the

Makueni County policymaking initiatives would have a strong and positive effect on climate change interventions in Makueni County.

Further, based on the third objective, while the level of awareness about climate change interventions among local administrators is low to moderate, the level of awareness about climate change interventions among county leaders and environmental experts is high in Makueni County. An increased level of awareness about climate change has a significant positive influence on implementation of climate change interventions in Makueni County. Based on the fourth objective, the variation of funding towards climate change was **most** influential for the implementation of climate change interventions in Makueni County. Thus, increased climate change funding has a significant positive influence on implementation of climate change interventions in Makueni County.

5.4 Recommendations

The County Government of Makueni should actively and strategically mainstream the existing county legal frameworks related to climate change and integrate these with all national and international environmental laws in order to create a seamless implementation that will lead to positive climate change interventions. They should also review environment-related laws that are unenforceable and craft new ones that makes it easy to adapt the laws to the needs of the people of Makueni.

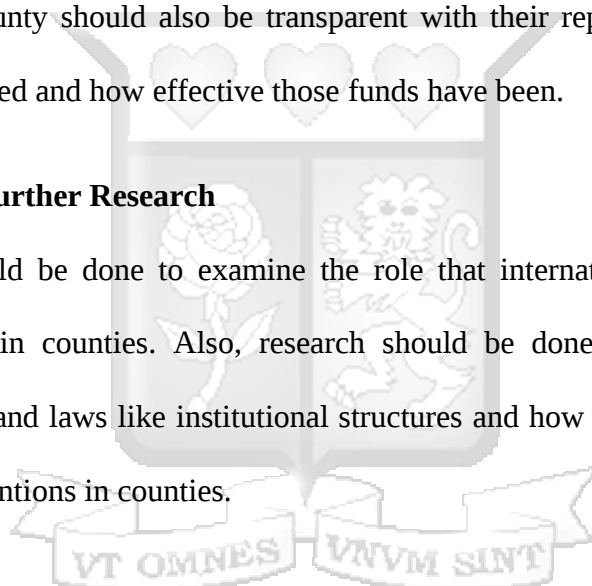
The County Government of Makueni should actively and strategically engage, involve and empower the community in the policymaking process of policies related to climate change. Such participation helped drive meaningful and purposeful policymaking that led to enhanced implementation of climate change interventions.

The County Government of Makueni should robustly make every stakeholder aware about climate change issues. All media platforms from traditional to new media should be employed actively to make these stakeholders, especially the community, adequately aware about climate change and their roles in it.

The County Government of Makueni should be active in resource mobilization, especially financial resources, to enable effective implementation of climate change interventions. Thus, all available donors should be brought on board to augment what the county contributes to the climate change fund. The County should also be transparent with their reporting of the climate change funds they have received and how effective those funds have been.

5.5 Suggestions for Further Research

Further research should be done to examine the role that international donors play in climate change interventions in counties. Also, research should be done to examine certain specific stipulations of policy and laws like institutional structures and how they affect implementation of climate change interventions in counties.



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APPENDICES

Appendix I: Research Participation Consent Form

PARTICIPANT INFORMATION AND CONSENT FROM

STUDY TITLE: EFFECTIVENESS OF POLICY FRAMEWORK FOR CLIMATE CHANGE INTERVENTIONS AT COUNTY GOVERNMENT LEVEL: CASE OF MAKUENI COUNTY GOVERNMENT, KENYA

SECTION 1: INFORMATION SHEET–

Investigator: YVONNE NJOKI NDIRANGU

Institutional affiliation: Strathmore Business School (SBS)

SECTION 2: INFORMATION SHEET–THE STUDY

2.1: Why is this study being carried out?

The purpose of this study is to analyze the effectiveness of policy framework for climate change interventions at county government level using the case of Makueni county government, Kenya.

2.2: Do I have to take part?

No. Taking part in this study is entirely optional and the decision rests only with you. If you decide to take part, you were interviewed (or required to fill out a questionnaire) to get information pertaining to the study topic.

2.3: Who is eligible to take part in this study?

- Formal sector participants

2.4: Who is not eligible to take part in this study?

- Any person who will not formally consent to take part in the study
- Any person who is not a local administrator, county executive board member, a national government staff in the department of environmental management and an MCAs in the Environment committee of Makueni County.

2.5: What will taking part in this study involve for me?

You were approached and requested to take part in the study. If you are satisfied that you fully understand the goals behind this study, you were asked to sign the informed consent form (this form) and then taken through an interview or requested to fill out a questionnaire.

2.6: Are there any risks or dangers in taking part in this study?

There are no risks in taking part in this study. All the information you provide was treated as confidential and will not be used in any way without your express permission.

2.7: Are there any benefits of taking part in this study?

The information was used to assess the factors affecting intent to uptake pension and provident funds in Kenya.

2.8: What will happen to me if I refuse to take part in this study?

Participation in this study is entirely voluntary. Even if you decide to take part at first but later change your mind, you are free to withdraw at any time without explanation.

2.9: Who will have access to my information during this research?

All research records were stored in securely locked cabinets. That information may be transcribed into a database, but this was sufficiently encrypted, and password protected. Only the people who are closely concerned with this study will have access to your information. All your information was kept confidential.

2.10: Who can I contact in case I have further questions?

You can contact me, YVONNE NJOKI, at SBS or my supervisor Strathmore faculty.

I, _____, have had the study explained to me. I have understood all that I have read and have had explained to me and had my questions answered satisfactorily. I understand that I can change my mind at any stage.

Please tick the boxes that apply to you,

Participation in the research study

☐

I AGREE to take part in this research.

☐

I DO NOT AGREE to take part in this research.

Storage of information on the completed questionnaire

☐

I AGREE to have my completed interview stored for future data analysis.

☐

I DO NOT AGREE to have my completed interview stored for future data analysis

Participant's

Signature:

Date: / / _

DD / MM / YEAR

Participant's

Name:

Time: /

(Please print name)

HR / MN

I,(Name of person taking consent) certify that I have followed the SOP for this study and have explained the study information to the study participant named above, and that she has understood the nature and the purpose of the study and consents to the participation in the study. She has been given opportunity to ask questions which have been answered satisfactorily.

Investigator's

Signature:

Date: / / _

DD / MM / YEAR

Investigator's

Name:

Time:

/(Please print name)

Appendix II: Structured Questionnaires

1. Purpose of the Survey

The purpose of this face-to-face survey is to collect information from the residents of the selected counties.

The data collected was for purposes of partial fulfilment of the requirements for the award of a degree of Masters in Public Policy Management, Strathmore Business School, Strathmore University. The survey is aimed at evaluating the extent of climate change adaptation by the relevant county government.

2. Confidentiality

Information provided in the questionnaire by willing county residents was treated as confidential and used strictly for purposes indicated above. The student and research assistants involved are under oath not to disclose any information to a third party. If you wish to remain anonymous, please indicate in the text box below:

3. Duration and Modalities of the Interview

This face-to-face interview will take approximately 15-20 minutes. We will complete the survey form for you and leave you with a counterpart copy. Upon completion of the survey, we shall allow you five minutes to raise any questions which we shall respond to.

4. Queries

Queries or assistance regarding the completion of this questionnaire should be addressed by the interviewers whose contact details are below.

MPPM-2020

Graduate student

Strathmore University

Please answer all the questions to ensure accuracy of the data.

SECTION 1: BACKGROUND INFORMATION

1. Kindly indicate the value (in the last row) that denote your demographic description below.

Sex	Age bracket	Highest educational level	Marital Status	Subcounty

1- Male 2- Female	1 -18-27 years 2- 28-37years 3- 38-47 years 4- Above 47 years	1- Non formal education 2- Primary 3- Secondary 4 - Post secondary	1- Married 2- Single 3- Divorced 4- Separated 5- Other	1 - Kilome 2 - Kibwezi East 3 - Kibwezi West 4 - Kaiti 5 - Makueni 6 - Mbooni

Section 2: County Legal Frameworks for Climate Change Interventions

2. What is your current position in administration?

- ☐ Assistant county commissioner 1
- ☐ Assistant county commissioner 2
- ☐ Ward administrator
- ☐ Chief
- ☐ Assistant chief

3. To what extent do you agree with the following statements regarding the CGM formulated legal frameworks for climate change interventions? (1 – Strongly disagree, 2 – Disagree, 3 – Neither agree or disagree, 4 – Agree and 5 – Strongly agree).

#	Item	1	2	3	4	5
1.	The county legal frameworks for climate change interventions are in use					
2.	The county formulates legal frameworks guide role out of climate change projects					
3.	The formulated legal frameworks address the needs of the public					
4.	The legal frameworks for climate change are aligned to national and international laws to avoid inconsistencies					
5.	The county legal frameworks spell the extent of application					

6.	The county legal frameworks for climate change have helped mitigate environmental degradation					
7.	The county legal frameworks for climate change state the implementors of the policies from an inclusive approach					

Which of the following do you think affect the implementation of climate change programmes in your count? Mention the specific items (select all that apply)

- ☐ Existing legal frameworks; Name them.....
- ☐ Sources of the frameworks; Name them.....
- ☐ Outline of the frameworks; Name them.....

Section 3: County Policy Making in Implementation of the Climate Change Interventions

4. How do you rate the level of effect of the following statements in implementation of the climate change interventions in your county? (1 – No effect, 2 – Minor effect, 3 – Neutral, 4 – Moderate effect, 5 – Major effect)

#	Item	1	2	3	4	5
1.	The climate change policies state stakeholders for implementation					
2.	The climate change policies state the oversight roles in the implementation of the policies					
3.	The climate change policies are guided by what the abilities of the locals					
4.	The implementation of the climate change intervention policies states the locals as the key persons					
5.	The climate change policies are imperative in convincing the locals to participate in implementation of projects					
6.	The county assembly legislates on climate change with consideration on taking oversight of project implementation					

Which of the following items do you think influences the effectiveness of the climate change programmes in the county?

- ☐ Policies on CC
- ☐ Implementation process
- ☐ Implementation oversight

Section 4: Level of Awareness About Climate Change Interventions

5. Rate your level of awareness on each of the following (1 – not at all aware 2 – Slightly aware 3 – Somewhat aware 4 – Moderately aware 5 – Extremely aware)

#	Item	1	2	3	4	5
7.	The county government mobilizes the public for climate change projects					
8.	County government is having strategies for public participation in climate change interventions					
9.	The county government has reached many people to participate in climate change projects					
10.	The MCAs are at the forefront to mobilize for public participation					
11.	We have a right to participate in climate change interventions at the county level					
12.	The CGM has put up notices for public participation in climate change projects					
13.	The CGM has taken steps towards climate change					

Which one(s) of the following affect the implementation of the climate change programmes in the county?

- ☐ Mobilization strategies
- ☐ Number reached/involved.
- ☐ Public participation

Section 6: Variations in Funding for Climate Change Interventions

6. Rate your understanding and agreement on the level of influence of the following funding variation or climate change in your county. (1 – not at all influential, 2 – slightly influential, 3 – somewhat influential, 4 – very influential, and 5 – extremely influential).

#	Item	1	2	3	4	5
1.	The funding by the MCG more likely to influence project effectiveness					
2.	The funding by the national government more likely to influence project effectiveness					
3.	The funding by the international organs more likely to influence project effectiveness					
4.	The amounts given for a project on climate change more likely to influence effectiveness					
5.	The funding terms of the sources is more important in projects' success					
6.	Funding directed to the community directly is more effective than ones directed at the county administration					
7.	Community based resource mobilization can be more effective in climate change interventions					

Which of the following affect the implementation of the climate change programmes in the county?

- ☐ Sources of funds
- ☐ Funding Amounts
- ☐ Funding terms

Section 7: Climate change interventions

How satisfied are you with the county government's effort in climate change interventions based on the following? (1 – Not at all satisfied, 2 – slightly satisfied, 3 – moderately satisfied, 4 – Very satisfied and 5 – Extremely satisfied).

#	Item	1	2	3	4	5
1.	Reducing GHC emissions programmes					
2.	Soil erosion prevention agriculture					
3.	Reduced use of inorganic fertilizers					
4.	Enhanced Tree planting					

5.	Reduced tree cutting					
6.	Inclusive approach					

Thank you for cooperation.



Appendix III: Interview Guide for County Executive, County Assembly, International bodies and National Government Representatives

1. Purpose of the Survey

The purpose of this face-to-face survey is to collect information from the directors and senior staff, CECs and the chairperson in charge of the committee on environment in the respective assemblies of the selected counties.

The data collected was for purposes of partial fulfilment of the requirements for the award of a degree of Masters in Public Policy Management, Strathmore Business School, Strathmore University. The survey is aimed at the extend of climate change adaptation by the relevant county government.

2. Confidentiality

Information provided in the questionnaire by the CECs, Chief Officers, Directors and Senior Staff was treated as confidential and used strictly for purposes indicated above. The student and research assistants involved are under oath not to disclose any information to a third party. If you wish to remain anonymous, please indicate in the text box below:

3. Duration and Modalities of the Interview

Kindly complete the questionnaire within 21 days upon receipt. We will collect the filled Questionnaire on the due date or earlier and in the format agreed. Retain the duplicate copy of the questionnaire for your own records.

4. Queries

Queries or assistance regarding the completion of this interview should be addressed by the interviewers whose contact details are below.

- 1- Guided by the existing legal frameworks, Sources of the frameworks and Outline of the frameworks, what would you say is the role of legal framework in underscoring the interventions on climate change by the county government of Makueni?
- 2- The county assembly has lots of say in implementation of county projects. What are the key areas of importance to the county assembly in implementation of climate change intervention projects? (Probe on Policies on climate, Implementation process and Implementation oversight).
- 3- In reference to the events and activities that take place for raising awareness on Climate change intervention projects, how do you describe the strategies used, numbers reached and the whole essence of public participation?
- 4- What are the variations in Funding of the climate change intervention projects at the county government level? (Probe sources, amounts, terms and conditions)
- 5- How do you describe the effectiveness of legal framework in climate change interventions in the county?

Appendix IV. Focus Group Discussions (FGDs) for the Local Administrators

1. Purpose of the Survey

The purpose of this face-to-face survey is to collect information from staff at the World Bank involved in climate change adaptation at counties.

The data collected was for purposes of partial fulfilment of the requirements for the award of a degree of Masters in Public Policy Management, Strathmore Business School, Strathmore University. The survey is aimed at the extend of climate change adaptation by the relevant county government.

2. Confidentiality

Information provided in the questionnaire by the participants was treated as confidential and used strictly for purposes indicated above. The student and research assistants involved are under oath not to disclose any information to a third party. If you wish to remain anonymous, please indicate in the text box below:



3. Duration and Modalities of the Interview

This FGD interview will take approximately 40 minutes. We will complete the survey form for you and leave you with a counterpart copy. Upon completion of the survey we shall allow you five minutes to raise any questions which we shall respond to.

4. Queries

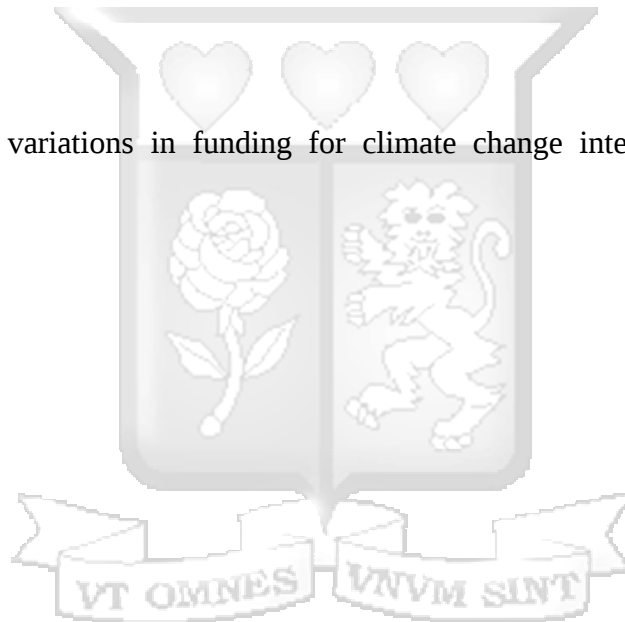
Queries or assistance regarding the completion of this discussion should be addressed by the interviewers whose contact details are below.

i. To what extent have county legal frameworks formulated for climate change interventions been implemented in Makueni County?

ii. What is the effectiveness of county policy making in implementation of the climate change interventions in Makueni County?

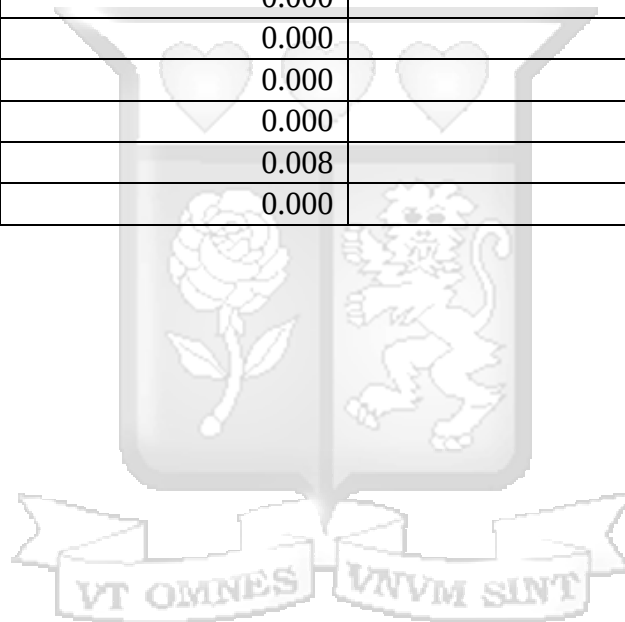
iii. What is the level of awareness about climate change interventions among Makueni County residents?

v. What are the variations in funding for climate change interventions in Makueni County?



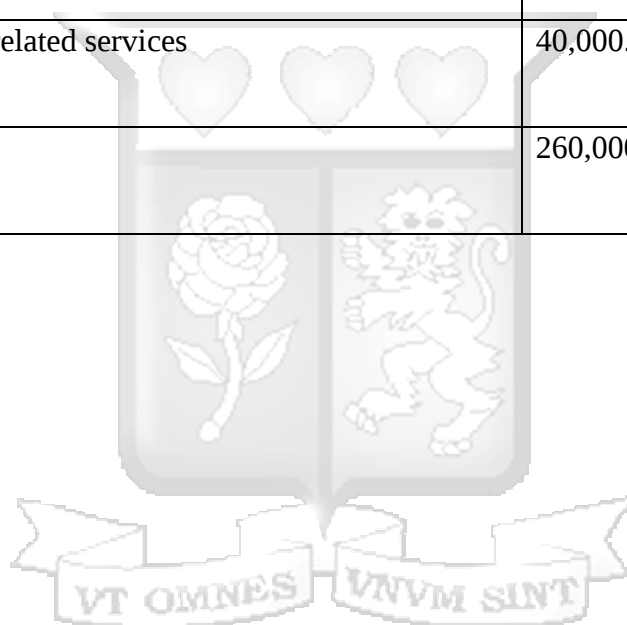
Appendix V: Internal consistency validity TEST

Item	<i>r</i>	Significance	Interpretation
Q1	0.724	0.000	Strongly Valid
Q2	0.757	0.000	Strongly Valid
Q3	0.856	0.001	Strongly Valid
Q4	0.666	0.000	Strongly Valid
Q5	0.751	0.000	Strongly Valid
Q6	0.739	0.000	Strongly Valid
Q7	0.736	0.017	Strongly Valid
Q8	0.732	0.000	Strongly Valid
Q9	0.728	0.000	Strongly Valid
Q10	0.724	0.000	Strongly Valid
Q11	0.721	0.002	Strongly Valid
Q12	0.717	0.000	Strongly Valid
Q13	0.713	0.000	Strongly Valid
Q14	0.710	0.000	Strongly Valid
Q15	0.706	0.000	Strongly Valid
Q16	0.702	0.008	Strongly Valid
Q17	0.699	0.000	Strongly Valid



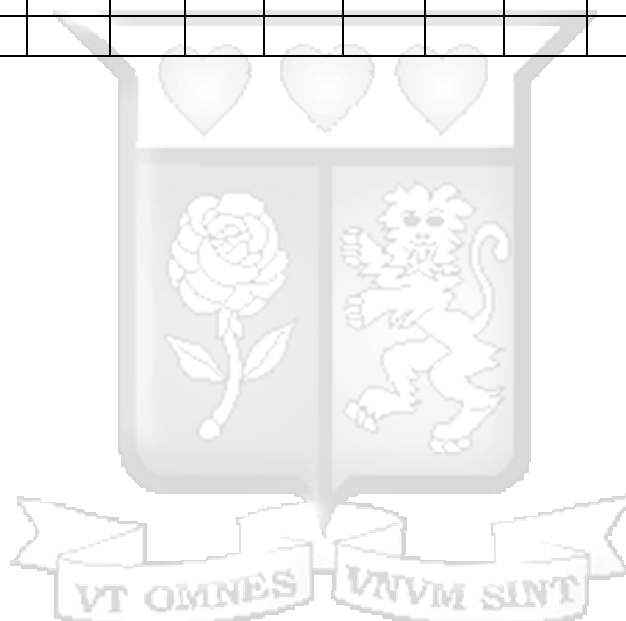
Appendix VI; Research Budget

	Item	Amount (KES)
i.	Literature search and Internet related services	20,000.00
ii.	Stationery and services	40,000.00
iii.	Field work expenses	120,000.00
iv.	Data analysis consultations	40,000.0
v.	Printing and related services	40,000.00
	TOTAL	260,000.00

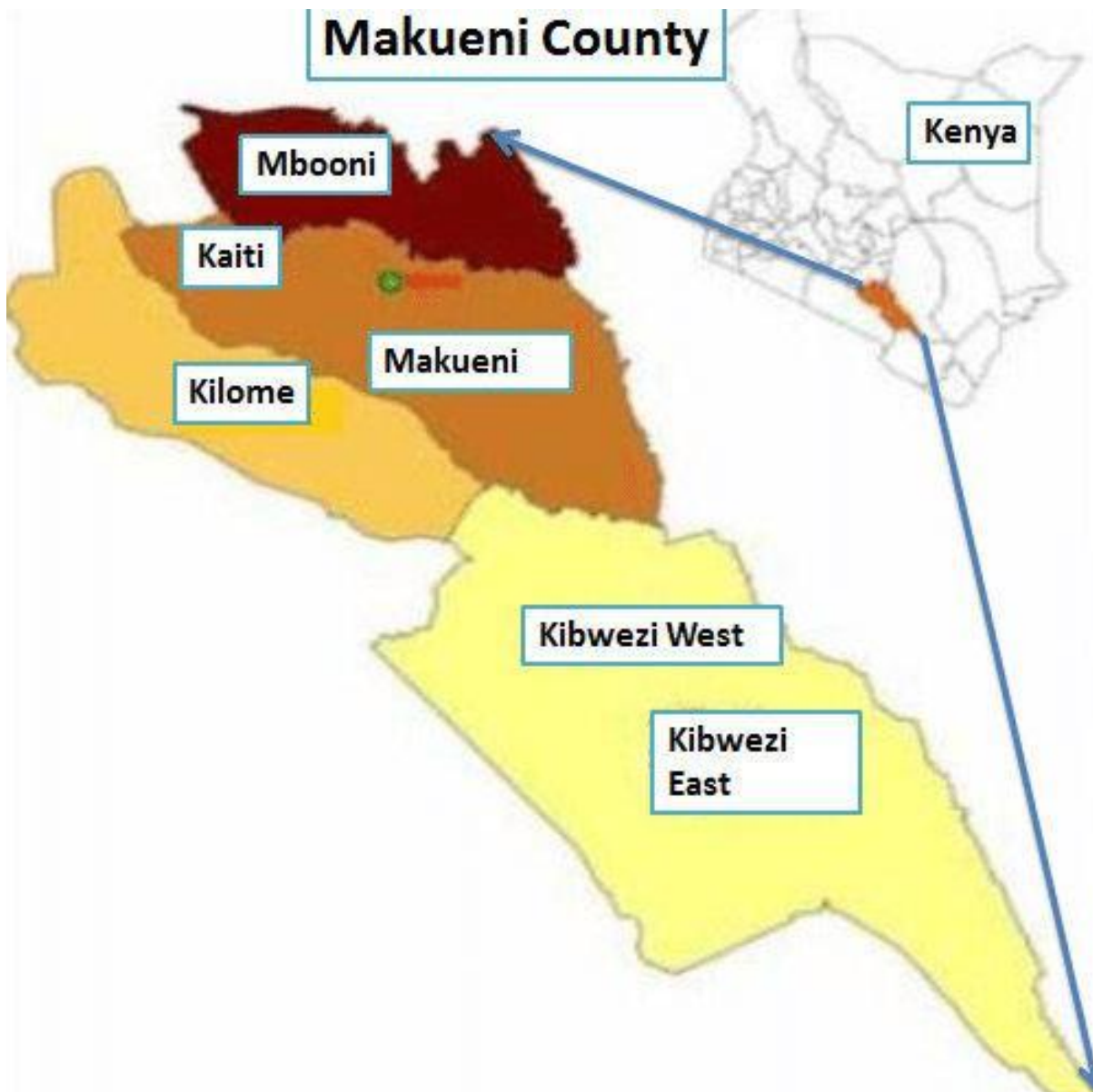


Appendix VII: Research Workplan

	We ek 1	We ek 2	we ek3	We ek4	We ek5	We ek 6	We ek7	We ek 8	We ek 9	wee k10	Wee k 11	Wee k12
Proposal draft												
Proposal Review												
Proposal Défense												
Administrative Processes												
Permit acquisition												
Data collection												
Data analysis												
Report writing												
Dissemination and Publication												
Graduation												



Appendix VIII: Map of Study Locale



Appendix IX: Institutional Ethics permit

RHInnO Ethics - SU-ISERC1716/23 - 1 of 1 - Date Issued: 2023-07-31

Strathmore University Institutional Scientific and Ethical Review Committee (SU-ISERC)



Strathmore
UNIVERSITY

Final Decision

This is to certify that the application for ethics clearance submitted by:

Principal Investigator: Mr. Obura, Marvin Otieno

Reference number: SU-ISERC1716/23

For Study: "POLICY FRAMEWORK AND CLIMATE CHANGE IN MAKUENI"

Was reviewed and received the following status: "approved"

Reviewer Comments

The SU-ISERC wishes you all the best with this research undertaking.

31 July 2023 13:15:52



Appendix X: NACOSTI Research Permit

 REPUBLIC OF KENYA Ref No: 658016	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION Date of Issue: 18/March/2024
RESEARCH LICENSE	
	
This is to Certify that Ms. Yvonne Ndirangu Njoki of Strathmore University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Makueni on the topic: EFFECTIVENESS OF POLICY FRAMEWORK FOR CLIMATE CHANGE INTERVENTIONS AT COUNTY GOVERNMENT LEVEL: CASE OF MAKUENI COUNTY GOVERNMENT, KENYA for the period ending : 18/March/2025.	
License No: NACOSTI/P/24/33910	
Applicant Identification Number 658016	Director General <i>Walter Kibet</i> NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Verification QR Code	
	
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