

**ASSESSING THE EFFECTS OF ENVIRONMENTAL SECURITY DEBATE ON
MITIGATING THE EFFECTS OF CLIMATE CHANGE IN UGANDA**

BY

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**A DISSERTATION SUBMITTED TO THE SCHOOL OF SOCIAL SCIENCES IN
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DECLARATION

I, OPOI JULIUS OWINO, declare that this research paper titled **Assessing the effects of Environmental Security Debate on Mitigating the Effects of Climate Change in Uganda** is my own original work. It has been conducted in accordance with ethical research guidelines and adheres to the academic integrity standards of Nkumba University.

All sources referenced and cited in this paper have been properly acknowledged, and any assistance received has been disclosed appropriately. Furthermore, this paper has not been submitted previously for academic credit in any course or program.

Signed: _____

Date: _____

04/10/2025

APPROVAL

This research dissertation entitled **ASSESSING THE EFFECTS OF ENVIRONMENTAL SECURITY DEBATE ON MITIGATING THE EFFECTS OF CLIMATE CHANGE IN UGANDA** is now ready for submission for both internal and external examination.

Signature:

Date:

Assoc. Prof. Asiimwe Solomon Muchwa

~~(SUPERVISOR)~~

DEDICATION

This research is dedicated to **Mr. Acaye Philip Steve**, whose unwavering support, encouragement, and inspiration have been instrumental in my academic journey. To my family and friends, who have stood by me through challenges and triumphs, your belief in my potential has been my greatest motivation.

I also extend my deepest gratitude to my mentors and educators, whose wisdom and guidance have shaped my understanding and fuelled my pursuit of knowledge. To all aspiring scholars and researchers, may this work serve as a testament to the power of perseverance and the pursuit of truth.

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TABLE OF CONTENTS

DECLARATION	i
APPROVAL	ii
DEDICATION	iii
ACKNOWLEDGEMENTS	iv
ABSTRACT	vii
CHAPTER ONE	1
INTRODUCTION AND BACKGROUND	1
1.1 Introduction.....	1
1.2 Background.....	1
1.3 Statement of the Problem.....	6
1.4 Purpose of the Study	7
1.5 Objectives of the Study	7
1.6 Research Questions.....	8
1.7 Scope of the study.....	8
1.8 Significance of the Study	9
1.9 Arrangement of the study.....	10
CHAPTER TWO	11
LITERATURE REVIEW	11
2.1 Theoretical Review	11
2.2 Actual Review.....	13
2.2.1 The Key Environmental Security Debate Issues and their Effects on Climate Change.....	16
2.2.2 The Personal Environmental Security Debate Implementation and its Significance on Climate Change	17
2.2.3 The Communities Environmental Security Debate Implementation and Its Significance on Climate Change.....	19
2.2.4 The Strategies Being adopted from the Environmental Security Debate to help address the Climate Change Challenges in Uganda	20
CHAPTER THREE	23
METHODOLOGY	23
3.1 Introduction.....	23
3.2 Research Design.....	23
3.3 Research Approach	24
3.4 Classification on research methods.....	24
3.5 Research strategy	25
3.6 The study population.....	25
3.7 Sample Size.....	26
3.8 Sample Size Determination.....	26

3.9 Sampling Methods	27
3.10 Sampling Techniques.....	27
3.11 Simple Random Sampling	28
3.12 Purposive Sampling	28
3.13 Data Collection Methods	28
3.14 Data Collection Tools/ Instruments	30
3.15 Data Analysis	31
3.16 Ethical Considerations	31
CHAPTER FOUR.....	33
DATA PRESENTATION, ANALYSIS, INTERPRETATION AND DISCUSSION OF STUDY FINDINGS	33
4.1 Introductions	33
4.2 Section A: Socio Personal Data	33
4.3 Understand the environmental security debate	39
4.4 The environmental security debate and its significance on climate change	49
4.5 The strategies being adopted from the environmental security debate to help address the climate change challenges in Uganda.....	58
CHAPTER FIVE	69
DISCUSSIONS, CONCLUSION AND RECOMMENDATION.....	69
5.1 Discussion.....	69
5.2 Limitations of the study	71
5.3 Conclusion	72
5.3 Recommendation	73
REFERENCES.....	74
APPENDICES	77
Appendix I: Questionnaires	77
Appendix II: Interview	83

ABSTRACT

This research investigated the effects of the environmental security debate on Mitigating the Effects of climate change in Uganda. It aimed to identify key issues within the debate, assess personal and community-level implementation, and examine strategies adopted to address climate change challenges. Literature review informs the research that an "Environmental Security Debate" in Uganda is frequently associated with the complex effects of climate change, which fuels debates about population displacement, conflict potential, and resource scarcity, especially in arid areas like Karamoja, according to the literature assessment. Even though there have been a lot of government and non-governmental organization-led initiatives to comprehend and lessen these impacts through legislation, like the National Environment Act, there are still issues with implementation because of a lack of coordinated enforcement, poor technology, and a lack of funding to support climate adaptation at the local level. In order to address the increasing vulnerabilities among vulnerable populations, the literature study also emphasizes the necessity of improved information sharing from government representatives and the incorporation of strong, local-level adaptation plans.

A mixed-method approach, incorporating both quantitative and qualitative methodologies, was utilized to capture diverse perspectives. Data was mainly obtained through interviews, questionnaire and through documentary review. Findings from 82 participants sampled through simple random sampling and purposive sampling and through a comprehensive analysis and presentation reveal that, Uganda has established numerous climate change-related policies; however, a closer look indicated that several of these policies were unsuccessful and did not directly address the problems of climate change. Although insufficient, a number of technologies were also applied to lessen the effects and risks of climate change. The research recognized the limited efficacy of climate risk assessments and the degree of success attained by the solutions in reducing the impacts of climate change. If

the fight against climate change is to be won, the Ugandan government and other non-governmental working organizations on the issue should increase their efforts in terms of concrete solutions.

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 Introduction

An environmental security assessment examines environmental and natural resource issues as central questions and core analytic variables. However, the conceptual yardstick and key variables is security, whether that of the individual (human security), community, nation, or region.

1.2 Background

This background to the study is presented under the following subtitles to allow a logical flow of the chapter; Background of the study (Conceptual Perspective, Theoretical Perspective, Historical Perspective, and Contextual Perspective), statement of the problem, purpose of the study, study objectives, research questions, scope of the study, significance of the study, justification of the study, and arrangement of the study.

Conceptual Perspective

According to Floyd (2008), Environmental Security emerged as both a concept and a set of policies as a consequence of the end of the Cold War. As a result of this, new debates were simultaneously opened up regarding the nature of the threat, the appropriate referent object of security and also the meaning of security itself. There was, at the same time and for the same reason, a need for a new set of “discourses of danger” on the part of the United States security establishment. Environmental security quickly became one of the more prominent issues in this new era of security studies. Although currently sidelined by “the war on terror”, the possible linkage between global warming and security gives renewed fervor to the environmental security debate. Many scholars both revisit this debate and consider its significance for securitizing the climate; that is, making climate change a security issue.

Early advocates Within the International Relations' sub-discipline security studies say that, security is regarded as being an “essentially contested concept”. The contentedness of security arises as a function of the fact that the meaning of security is not an ontological given, but changes across time. Since security has no constant meaning, the concept means something different for every tradition within security studies. Consequently, different traditions within security studies conceive very differently of environmental security; differing vastly in terms of who or what is to be secured, what is to be secured against and also the nature of the threat itself. As a result, environmental security is not so much a concept as it is a debate, with different approaches to environmental security at odds with one another.

World Bank (2022) upholds that Climate change is the significant variation of average weather conditions becoming, for example, warmer, wetter, or drier—over several decades or longer. Earth's climate is now changing faster than at any point in the known history of the climate, primarily as a result of human activities. There is scientific consensus that unmitigated carbon emissions will lead to global warming of at least several degrees Celsius by 2100, resulting in high-impacts of local, regional and global risks to human society and natural ecosystems. Global climate change has already resulted in a wide range of impacts across every region of the earth as well as many economic sectors (ibid).

Impacts related to climate change are evident across regions and in many sectors important to society, such as human health, agriculture and food security, water supply, transportation, energy, and biodiversity and ecosystems; impacts are expected to become increasingly disruptive in the coming decades. There is very high confidence that the frequency and intensity of extreme heat and heavy precipitation events are increasing in most continental regions of the world. These trends are consistent with expected physical responses to a warming climate. The frequency and intensity of extreme high temperature events are

virtually certain to increase in the future as global temperature increases. There is high confidence that extreme precipitation events will very likely continue to increase in frequency and intensity throughout most of the world. Observed and projected trends for other types of extreme events, such as floods, droughts, and severe storms, have more variable regional characteristics.

Theoretical Perspective

The most innovative and thoughtful attempt to conceptualize the social construction of security issues is the theory of securitization as elaborated by the Copenhagen School, a body of research mainly associated with the work of Barry Buzan and Ole Waever. The work of the Copenhagen School is relevant to the ongoing analysis because it considers the implications of broadening the security agenda and deals specifically with environmental problems. Moreover, it has been influential in the political and academic debate with its warning about the risk of framing environmental problems in security terms. The theory of securitization argues that there are no objective threats, waiting to be discovered. Instead, various issues can be transformed into security issues if a political community constructs them as such through a successful speech act that transforms the way of dealing with them. Security in this perspective is not a value or a condition but a form of social practice. That is to say, if an issue succeeds in being labeled as a security issue, the method of handling it will be transformed. The consideration of the discursive formation of security issues provides a new perspective to analyze the environmental security discourse. First, it allows an investigation of the political process behind the selections of threats, exploring why some of them are considered more relevant and urgent than others. Second, it suggests that the awareness of environmental issues can have a relevant role in defining and transforming political communities and their identities, since the process creates new ideas about who deserves to be protected and by whom. Finally, as Behnke (2000, 91) points out,

securitization can open the space for a ‘genuinely political’ constitutive and formative struggle through which political structures (including the practices associated with security) are contested and re-established. However, for the Copenhagen School, securitization has problematic consequences. The label security brings with it a set of practices and a way of dealing with a problem that characterizes an issue as a security issue.

Historical Perspective

Appeals to ‘climate security’ represent a recent and fairly successful attempt to introduce environmental concerns into the security agenda. Despite this momentum, the link between environmental change and security remains a contested topic: not only are environmental problems often silenced by more urgent threats but the very opportunity of considering the environment as a security issue is also challenged. Since environmental problems began to gain relevance in political discourse in the 1970s, there have been a number of suggestions to consider their security implications (Falk 1971). However, it was only in the 1980s with the emergence of global environmental problems such as the depletion of stratospheric ozone or global warming that the debate on environmental security gained momentum. The publication of *Our Common Future* by the World Commission on Environment and Development (1987) marked the entry of the phrase ‘environmental security’ into international debates; the merits of the concept were considered on analytical and normative grounds (Soroos 1994).

The Foundation for Environmental Security and Sustainability (FESS) is a public policy foundation established to advance knowledge and provide effective solutions for key environmental concerns that pose risks to national, regional, and global security. According to USAID (2006), Congressional support, and through a grant from the U.S. Agency for International Development (USAID), FESS has developed the Environmental Security Assessment Framework (ESAF), a research methodology that uses a consistent, formalized analysis to construct policy-relevant recommendations that address potentially destabilizing

environmental conditions. At USAID's request, FESS has undertaken a series of three country-level environmental security assessment pilot case studies. The first pilot study focused on Nepal and was completed in the spring of 2004. The second case study dealt with environmental security in the Dominican Republic and was completed in the spring of 2005. Undertaken in collaboration with the Partnership for African Environmental Sustainability (PAES), the findings of the third case study, on Uganda, are the subject of the present report. In each case, the environmental security assessment has proceeded on two levels: as a field test of the ESAF methodology and as a focused country study aimed at producing specific policy recommendations for decision-makers.

Contextual Perspective

There are changes in the Environmental Landscape. Despite its abundant endowment of natural resources, Uganda's environmental security has been eroded significantly during the past several decades. Uganda has experienced severe land degradation, massive deforestation, wetland loss, and population displacement. Soil nutrient depletion is among the highest in sub-Saharan Africa. The country's forest cover stands at only 24 percent, compared to 52 percent about a century ago (NEMA 2002). The estimated deforestation rate is 2.2 percent per year (Butler n.d.). In the last decade (1990 to 2005), Uganda's forest cover decreased by 26 percent (Butler n.d.). Wetlands are also a vital resource, accounting for 10 percent of Uganda's total land surface area. Wetland losses have been significant; in Jinja district, for example, 80 percent of the wetlands have been converted to agricultural use (NEMA 2002). As in many African countries, these changes in Uganda's environmental landscape are primarily due to anthropogenic factors involving population growth and the consequent expansion of agricultural land and urban settlements. Unsustainable agricultural and rangeland practices as well as policy and institutional weaknesses have compounded the problem. To the more than 80 percent of Ugandans who derive their livelihoods from land,

land degradation means low and declining agricultural productivity, worsening poverty, and growing food insecurity.

1.3 Statement of the Problem

In 2010, Uganda had 6.93 Mha of tree cover, extending over 29% of its land area. In 2020, it lost 73.6 kha of tree cover, equivalent to 36.0 Mt of CO₂ emissions. From 2001 to 2020, 918 kha of tree cover was lost, equivalent to a 12% decrease in tree cover since 2000 and 413 Mt of CO₂ emissions.

According to Climate Knowledge Portal (2021), while Uganda natural climatic is moderate, the country has also been experiencing increased frequency and severity of extreme weather events. Uganda has in past decades experienced more erratic rainfalls leading to frequent busting of rivers, mudslides and landslides that lead to loss of lives and property of communities especially those living in the mountainous areas. At the same time those in low lands experience floods. Prolonged dry seasons are also frequent leading to loss of crops and livestock. From 1900 to 2018, the country has encountered 20 floods, 40 epidemic, 9 drought, and 5 landslides events. The accumulative damages caused by those natural disasters amounts to over 200,000 deaths and at least \$80 million economic loss.

Climate change is affecting a wide variety of sectors; agriculture, water, health and human settlements have been particularly affected. Environment and natural resources are under threat from both natural and manmade drivers of change including; poverty, rapid population growth, unplanned urbanization, expansion of informal settlements, industrialization and the impacts of climate change and variability among others. Fragile ecosystems including hilly and mountainous areas, forests, riverbanks, lakeshores and rangelands are facing encroachment and degradation. Pollution levels are also on the increase and the country is contending with new and emerging environmental issues arising from e-waste, unsound use

of chemicals, oil and gas development and the impacts of climate change such as droughts, floods, storms, heat waves and landslides that have had serious effects on agricultural production, food security, nutrition, incomes, health status and the livelihoods.

The environmental debate recommendation has been on the books for a long time but has not been enforced. As a result for example, people encroaching on wetlands expect that they have a right to be on the land. When some eviction recommendation was finally enforced, the illegal wetland inhabitants resisted fiercely. This is an example of how recommendations from the environmental management debate have had tangible repercussions on climate change debate implementation.

1.4 Purpose of the Study

The purpose of the study is to make an academic inquiry on the effects of environmental Security Debate and its significance for climate change in Uganda.

1.5 Objectives of the Study

- i. To identify and understand the key environmental security debate issues and their effects on climate change
- ii. To analyze the personal environmental security debate implementation and its significance on climate change
- iii. To analyze the communities environmental security debate implementation and its significance on climate change
- iv. To examine the strategies being adopted from the environmental security debate to help address the climate change challenges in Uganda

1.6 Research Questions

- i. What are the key environmental security debate issues and their effects on climate change?
- ii. How does the personal environmental security debate implementation influence climate change in Uganda?
- iii. How does the communities' environmental security debate influence climate change in Uganda?
- iv. What are the strategies that can be adopted from the environmental security debate to help address the climate change challenges in Uganda?

Statement of the Research Hypothesis

Increased discourse on environmental security in Uganda, framed as a national security imperative, leads to more effective policy integration and resource allocation for climate change mitigation strategies, resulting in a reduced rate of greenhouse gas emissions.

The hypothesis suggests a positive correlation between heightened environmental security debate, policy action, and the implementation of mitigation measures to address climate change effects in Uganda.

1.7 Scope of the study

The scope of the study comprised the geographical, content/ subject and time scopes;

Geographical scope

The study was mainly carried out at the National Environment Management Authority (NEMA) offices in Kampala. Other stakeholder in the environmental security debate were visited within Kampala. NEMA is chosen for this research because it directly has the

mandate to handle environmental concerns in Uganda and it is where a bulk of information on environmental concern were collected.

Content scope

The study aimed to find out the influence of environmental security debate on climate change in Uganda in particular. This research was done at a time when the whole world is concerned with the ever-changing environment and extremities of different weather conditions.

Time scope

The study considered information relating to the period of five years that is 2017 - 2022. This range of five years is considered as being long enough to find out the influence of environmental security debate on addressing climate change debate in Uganda.

1.8 Significance of the Study

The results of this study is of great value to various groups of people such as environmentalists, policy makers, students, future researchers and even Government of Uganda.

Environmentalists and other implementers: this research came up with practical strategies and recommendations on how environmentalists and other implementers can address environmental security concerns and by doing that also address the challenges posed by climate change.

Government of Uganda: The study provides a basis for government to initiate and identify policies addressing the challenges posed by climate change.

Policy makers: policy makers are able to clearly comprehend the pertinent issues in the environmental security debate and with clear knowledge can be able to influence climate

change issues at policy level. They may be able to formulate possible solutions to the challenges of climate change.

Academicians: The findings of the study generates, provides and adds knowledge to existing literature on environmental security and climate change in higher institutions of learning and may also act as a foundation for further research in the same area.

1.9 Arrangement of the study

This study is arranged in five chapters as follows:

Chapter one comprises of the background to the study, statement of the problem, purpose of the study, study objectives, research questions, scope of the study, significance of the study, justification of the study, and arrangement of the study.

Chapter two contains the review of literature and information which is obtained from different scholars who have deliberated on environmental security and climate change. The review contains the variables, theoretical framework, the actual literature review, conceptual framework and research gaps.

Chapter three discusses the methodology of the research and covers the research design, the study population, the sample size and selection, sampling techniques, methods of data collection, procedure of data collection, data management and analysis, reliability and validity of the research instruments as well as data processing, analysis and interpretation.

Chapter four focuses on the presentation, analysis and interpretation of the findings in line with the major objectives of the study.

Chapter Five focuses on discussions of the findings, summary and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Theoretical Review

According to Trombetta (2009), the theory of securitization argues that there are no objective threats, waiting to be discovered. Instead, various issues can be transformed into security issues if a political community constructs them as such through a successful speech act that transforms the way of dealing with them. Security in this perspective is not a value or a condition but a form of social practice. That is to say, if an issue succeeds in being labelled as a security issue, the method of handling it will be transformed.

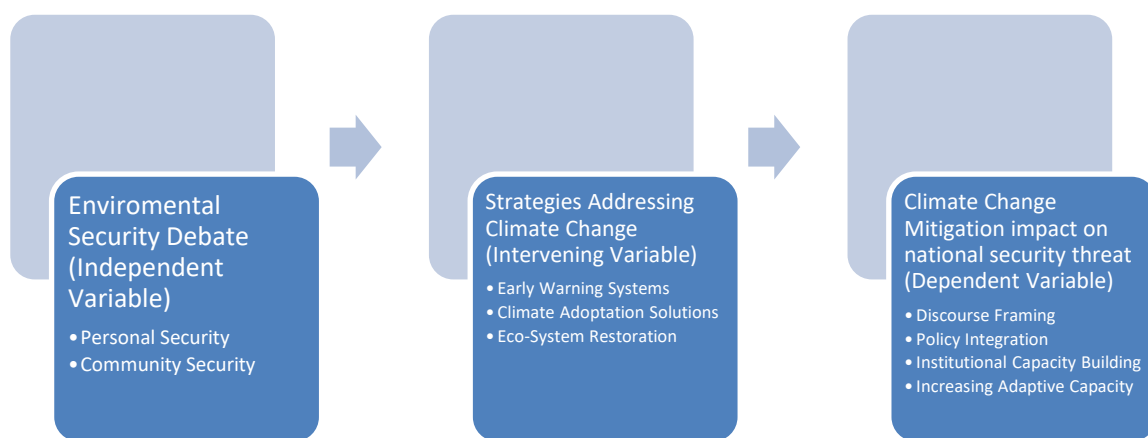
The consideration of the discursive formation of security issues provides a new perspective to analyze the environmental security discourse. First, it allows an investigation of the political process behind the selections of threats, exploring why some of them are considered more relevant and urgent than others. Second, it suggests that the awareness of environmental issues can have a relevant role in defining and transforming political communities and their identities, since the process creates new ideas about who deserves to be protected and by whom. Finally, as Behnke (2000, 91) points out, securitization can open the space for a ‘genuinely political’ constitutive and formative struggle through which political structures (including the practices associated with security) are contested and re-established.

However, for the Copenhagen School, securitization has problematic consequences. The label security brings with it a set of practices and a way of dealing with a problem that characterizes an issue as a security issue. The word security entails a specific logic or rationality, independent of the context or the intentions of the speakers.

Security is about survival, urgency and emergency. It allows for exceptional measures, the breaking of otherwise binding rules and governance by decrees rather than by democratic decisions. Moreover, security implies a ‘decisionist’ attitude which emphasizes the

importance of reactive, emergency measures. This set of practices is not necessarily codified nor can it be identified by specific rules. Instead, it is more a form of rationality, a way of framing and dealing with an issue, or ‘a generic structure of meaning which organizes dispositions, social relations, and politics according to a rationality of security’ (Huysmans 2006, 24–25). This mindset, once activated, is not open to negotiation. Although it is possible to decide whether or not to securitize an issue and securitization, as a social process, is determined by a political community rather than by individuals once an issue is securitized the logic of security necessarily follows.

Conceptual Framework Assessing the Effects of Environmental Security Debate on Mitigating the Effects of Climate Change in Uganda



Source: Researcher (2025)

The conceptual framework demonstrates that assessing the conceptual link between the environmental security debate and climate change in Uganda involves analyzing how climate change impacts personal and community insecurity, how environmental security concerns strategies influence climate action mitigation. This framework examines the discourse on

climate change as a national security threat, the role of governance in shaping responses, the impact of environmental degradation on resource access and conflict, and the influence of international climate agreements on national security policy in Uganda.

2.2 Actual Review

The emergence of global environmental problems, such as global warming and ozone depletion, resulted in one of the first attempts to securitize the environment on a global scale. The Brandt Report (1980) suggested that ‘few threats to peace and survival of the human community are greater than those posed by the prospects of cumulative and irreversible degradation of the biosphere on which human life depends’ (quoted in Brauch 2003, 81). These new threats suggested the need to redefine the nature of security in an interdependent world facing new challenges.

In the post-Cold War era, the environmental security discourse opened the window for debating a common approach to security affairs. For instance, at the United Nations General Assembly in December 1988, Gorbachev stressed: ‘the relationship between man and the environment has become menacing the threat from the sky is no longer missiles but global warming’ (quoted in Norman Myers 1993, 11). He also promoted the creation of an Ecological Security Council. As a result of these appeals to security, several initiatives were launched during the early post-Cold War era. Alarming concerns for the hole in the ozone layer transformed the problem into a threat to human health and promoted fairly successful agreements to deal with the issue at an international level. Concerns for climate change not only led to the creation of the Intergovernmental Panel on Climate Change (IPCC) to assess scientific, technical and socio-economic aspects of human impact on climate change but also to the signing of the UN Framework Convention on Climate Change in Rio in 1992 (United Nations 1992).

However, negotiations on climate change proved to be more problematic than those on the ozone because acting on climate change would require the transformation of much of the existing economic structure and way of life. Hence climate change was marginalized in the environmental security discourse.

Despite the initial momentum and the broad scope of environmental security discourses, the debate was captured by discussions about environmentally induced conflicts. This helped both to frame environmental threats in more familiar terms to national security experts and to consider the environment as a legitimate threat. The academic discussion was largely shaped by the work of Thomas Homer-Dixon and a series of well-funded research projects, which aimed to study the relationships between environmental degradation and violent conflicts (Homer-Dixon 1991, 1994). Although Homer-Dixon was cautious in suggesting a straightforward connection between environmental degradation and conflict, his argument was popularized by Kaplan's article 'The coming anarchy' (1994), which drew a grim picture of a future of human misery, migrations and violent conflict, suggesting that the environment would be the 'national-security issue of the early twenty-first century'.

The debate about environmentally induced conflicts has since evolved. Research suggests that conflicts are likely to be subnational and low intensity. These results have been corroborated by the projects undertaken by Spillman and Ba"chler (Ba"chler et al 1996; Ba"chler 1999). These projects identified the circumstances conflicts are likely to occur in and emphasized the conflictual dimension of the development process, suggesting that when people face the rapid changes and challenges imposed by the process of development conflicts can follow.

Violence is unlikely to occur along the fault-lines between developed and developing countries but it tends to be localized. More pertinently, conflicts were seen as part of the

dynamic that draws groups together rather than a disturbance of an otherwise stable society. This suggests that it is not possible to simply condemn conflicts as such (and intervene to restore order), but more emphasis has to be placed on the analysis of when and why different groups decide to resort to violence, and on how to prevent these developments. These results have largely been used by the study 'Environment and Security in an International Context', launched in 1995 by the NATO Committee on the Challenges of Modern Society (CCMS) and carried out by research teams in Germany and in the US (Lietzmann and Vest 1999). The project identified a number of 'syndromes' sets of complex, pathological relationships between environmental and other social, demographical and political factors that might help monitoring problematic situations and providing early warning systems for potential conflicts.

Research on environmental conflicts has produced an intense academic debate concerning the empirical validity of the claims, their analytical relevance, methodology and normative implications. The argument that environmental scarcity induces conflicts has been challenged by empirical research showing how environmental degradation often provides an opportunity for cooperation (Hauge and Ellingsen, 2001) and, more recently, demonstrating that it is resource abundance rather than scarcity that determines conflicts (Berdal and Malone 2000). Nevertheless, this debate is more relevant for the political practices it has determined.

Historically, Uganda's water resources have been sufficient to sustain the population as a whole, but this situation may not hold in the longer term. Since the late 1990s, Uganda has transformed its water sector and increased availability of water sources around the country. Despite its short-term success, in the medium-term Uganda faces a significant challenge in meeting the steadily increasing demand for accessible, adequate, and clean water resources. Water requirements are rising at an alarming rate as a result of recurrent droughts, high

population growth, and increased per capita demand. If current trends continue, demand may outpace supply of accessible water by the year 2025 (NEMA 2002).

2.2.1 The Key Environmental Security Debate Issues and their Effects on Climate Change

The key environmental security debate revolves around how climate change impacts resource scarcity, displacement, and conflict, potentially destabilizing nations and regions. Climate change acts as a "threat multiplier," exacerbating existing vulnerabilities and creating new challenges for human security, food and water security, and international relations.

Climate change is a growing priority for states and communities around the world and the UN Secretary-General has called it the defining issue of our time (United Nations, 2020). The link between climate change and security is indirect, non-linear, and multi-dimensional. While climate change does not cause violent conflict directly, evidence from around the world shows that climate change can multiply risks known to contribute to insecurity (Mobjörk et al. 2016).

According to UN Environment Program (2025) As climate change accelerates, its impacts exacerbate existing social, economic, and environmental challenges in many contexts, which can contribute to insecurity at local levels, or even internationally. Security concerns linked to climate change include impacts on food, water and energy supplies, increased competition over natural resources, loss of livelihoods, climate-related disasters, and forced migration and displacement.

Despite growing recognition of the interlinkages between climate change, peace and security, few examples of integrated programmatic approaches that address specific risks at the intersection of climate change and insecurity exist. Conflict and crisis affected contexts are more susceptible to being overwhelmed by climate change, but too often peacebuilding and

stabilization efforts often do not consider climate-related impacts or environmental hazards. At the same time, insecurity hinders climate change adaptation efforts, leaving already vulnerable communities even poorer and less resilient to interlinked climate and security crises, but climate change adaptation initiatives often fail to fully integrate peacebuilding or conflict prevention objectives.

2.2.2 The Personal Environmental Security Debate Implementation and its Significance on Climate Change

The environmental security debate, particularly its implementation, is closely intertwined with the issue of climate change. While some argue that framing climate change as a security threat can mobilize resources and action, others raise concerns about the potential for securitization to undermine human rights and environmental justice, and divert attention from the root causes of climate change. The debate highlights the need for a nuanced understanding of the relationship between climate change, security, and development, and the potential pitfalls of securitizing climate change without addressing its underlying drivers (Floyd, 2008).

Securitization of Climate Change involves framing climate change as a threat to national or international security, which can lead to increased funding and attention for climate-related issues.

Securitization has benefits and can potentially lead to more rapid and effective responses to climate change impacts, especially in vulnerable regions.

However, Critics argue that securitization can have significant drawbacks: it can lead to militarized responses to climate-related issues, potentially exacerbating conflict and displacement. It can distract from the need for sustainable development and addressing the root causes of climate change, such as fossil fuel dependence. And it can undermine human

rights and environmental justice by prioritizing security concerns over other needs (Mobjörk et al. 2016).

Environmental security, as a concept, recognizes the interconnectedness of environmental degradation, resource scarcity, and social stability. And indeed, climate change, with its impacts on resource availability and extreme weather events, is a key factor influencing environmental security. While climate change doesn't directly cause conflict, it can exacerbate existing tensions and vulnerabilities, leading to increased risks of conflict over resources or displacement (Morales-Muñoz, 2022).

The relationship between climate change and security is complex and indirect, involving multiple factors and potential pathways. Climate change impacts vary across regions and populations, with vulnerable communities often facing disproportionate risks. Thus, a comprehensive approach to climate security requires integrating climate action with sustainable development, disaster risk reduction, and conflict prevention efforts. Important to point out does that understand the specific contexts and vulnerabilities of different communities is crucial for developing effective climate security strategies (ibid).

Effective governance and institutions are essential for managing climate risks and promoting social stability. Securitizing climate change raises ethical questions about the prioritization of certain populations and the potential for unintended consequences.

The environmental security debate highlights the multifaceted challenges of addressing climate change and its implications for human security and development. While securitizing climate change can be a useful tool for mobilizing resources and action, it's crucial to avoid simplistic or militarized approaches. A more holistic and integrated approach is needed, one that recognizes the interconnectedness of climate change, environmental security, and human

well-being, and that prioritizes sustainable development, conflict prevention, and social justice (Dalby, 2020).

2.2.3 The Communities Environmental Security Debate Implementation and Its Significance on Climate Change

The "environmental security debate" centers around how environmental issues, particularly climate change, impact global and community security. This debate explores whether environmental degradation should be treated as a security threat, influencing policy and resource allocation. Implementation of climate change mitigation and adaptation strategies is crucial, as climate change can exacerbate existing vulnerabilities, leading to displacement, resource scarcity, and potential conflicts.

Securitization of Climate Change explores whether climate change should be framed as a security issue, potentially leading to increased funding and attention but also raising concerns about militarization of environmental responses. Climate change impacts, such as droughts, floods, and resource scarcity, can worsen existing social, economic, and political tensions, potentially leading to conflict and instability (Warner, 2019).

Environmental Justice highlights the disproportionate impact of climate change on vulnerable communities, emphasizing the need for equitable and just solutions. The debate emphasizes the interconnectedness of environmental, social, and security issues, requiring integrated approaches to address climate change and its consequences (ibid).

Framing climate change as a security issue can potentially increase funding and political will for climate action, but it's crucial to ensure this doesn't lead to militarized responses or neglect local communities' needs. Addressing climate security requires implementing adaptation measures that build community resilience to climate impacts, such as improving water management, promoting sustainable agriculture, and enhancing disaster

preparedness. Recognizing the potential for climate change to exacerbate conflicts is crucial for developing conflict prevention and peace building strategies that incorporate climate-related risks (Vogler, 2023).

Effective implementation of climate action requires the active participation of local communities, empowering them to participate in decision-making processes and implement solutions that address their specific needs. Addressing climate change and its security implications requires international cooperation and the sharing of best practices, particularly for vulnerable regions and communities (ibid).

Climate change impacts on agriculture can lead to food shortages and price increases, potentially triggering social unrest and displacement. Droughts and water shortages can increase competition for water resources, leading to conflicts between communities or even nations. Climate-related displacement can strain resources in host communities, potentially leading to social tensions and security concerns (Warner, 2019).

In conclusion, the environmental security debate highlights the complex and multifaceted relationship between climate change and security. Addressing climate change effectively requires not only mitigation and adaptation measures but also a deeper understanding of its security implications and the need for community-based, integrated, and equitable solutions.

2.2.4 The Strategies being adopted from the Environmental Security Debate to help address the Climate Change Challenges in Uganda

Uganda is adopting strategies from the environmental security debate, such as integrating climate change considerations into national security frameworks and promoting climate-smart agriculture, to address climate change challenges. This includes enhancing climate resilience in vulnerable sectors, managing disaster risks, and reducing greenhouse gas emissions (Climate Service Centre Germany, 2015).

In Uganda there is an effort of integrating climate change into national security: A task force has been established, led by the Chief of Staff of the UPDF Air Force, to develop a comprehensive climate change and environmental security strategy. There has also been great effort to create compliance with legal frameworks, the strategy will be developed in line with international, regional, and national regulatory frameworks, including the Climate Change Act (2021).

Climate-Smart Agriculture and Food Security has also been one of the efforts, farmers are adopting strategies like changing crop types, planting early-maturing crops, crop rotation, and diversifying livelihoods. Similarly, there's a focus on improving access to knowledge and information about climate vulnerability and adaptation measures for farmers and efforts are being made to improve access to markets and financial resources to support climate-smart agricultural practices. Climate-smart agriculture (CSA) is crucial for improving food security in Uganda, given the country's reliance on rain-fed agriculture and vulnerability to climate change impacts. CSA aims to increase agricultural productivity and incomes, enhance resilience to climate variability, and reduce greenhouse gas emissions (Nakazi, 2023).

Furthermore, Uganda has committed itself to Reducing Greenhouse Gas Emissions by 22% by 2030 (This commitment is an increase from their initial NDC, which targeted a 22% reduction). Transitioning to renewable energy sources like solar and wind power is a key strategy and promoting sustainable modes of transportation which is crucial in reducing emissions (UNDP, 2023).

Uganda is also enhancing Climate Resilience through disaster risk management by actively managing disaster risks associated with climate change, such as floods and droughts; An ecosystem approach is being used to plan and develop interventions, ensuring a holistic and

sustainable approach to natural resources management and efforts are focused on building the resilience of vulnerable communities to climate change impacts (UNDRR, 2024).

Furthermore, at country level there are Cross-Cutting Actions which include research and data focusing on addressing research gaps and collecting and analyzing climate and food-related data;

Capacity building and awareness raising initiatives which are being implemented to improve the delivery of climate information across different sectors; Strengthening collaboration with local and international partners which is crucial for effective climate action; Supporting alternative energy sources, building resilience for vulnerable communities, and advocating for policies that promote climate justice are key actions.

There are also efforts to strengthen Institutional Frameworks and Policies like; The National Climate Change Policy (2015) which provides the framework for addressing climate change in Uganda; A climate change unit in the meteorology department of the Ministry of Water and Environment which coordinates and monitors climate change issues and; Poverty Eradication Action Plan (PEAP) and National Development Plan (NDP) which guide and support the development of institutional framework for managing climate change (The National Climate Change Policy, 2015)

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter covers the research design, the study population, the sample size and selection, sampling techniques, methods of data collection, procedure of data collection, data management and analysis, reliability and validity of the research instruments as well as data processing, analysis and interpretation.

3.2 Research Design

A research design is a plan, means or an approach of obtaining data for a specific study. It elucidates how the study was organized and implemented in detail, Mbabazi (2008). Kombo and Tromp, (2006) also define a research design as the glue that holds all the elements in a research project. The survey research design was used because it puts into consideration constraints of cost, is generated and administered easily; and it was used to collect information on a wide range of issues that include personal facts, attitudes, past behaviors and opinions. In this study, the population was large and may not have been managed easily. However, with use of samples, accurate and ample information was obtained.

The research was carried out through a survey research design. According to Oso and Onen (2009), survey research designs are used where populations are investigated by selecting a sample to analyze and discover occurrences at certain points in time. A survey provides numeric description of events of parts of a population and explains the events as they were. In this study, cross sectional design was also be used to obtain data from respondents at given times.

3.3 Research Approach

According to Saunders et al., (2012), research approach can be divided into three types: deductive research approach, inductive research approach and abdicative research approach. The study used the deductive approach where validity of assumptions or theories was tested. Deductive research approach explores a known theory or phenomenon and tests if that theory is valid in given circumstances. It has been noted that the deductive approach follows the path of logic most closely. The reasoning starts with a theory and leads to a new assumption. This assumption is put to the test by confronting it with observations that either lead to a confirmation or a rejection of the assumption. Moreover, deductive reasoning can be explained as reasoning from the general to the particular, whereas inductive reasoning is the opposite. In other words, deductive approach involves formulation of hypotheses and their subjection to testing during the research process, while inductive studies do not deal with hypotheses in any ways.

3.4 Classification on research methods

Both quantitative and qualitative research methods were used in this research. During the study, qualitative approach was applied on opinions, views and descriptions of research variables and it enabled expression of opinions, views and descriptions of the phenomena as observed by respondents. While quantitative approach was used to gather information focusing on describing a phenomenon across a larger number of participants therefore it provided the possibility of summarizing characteristics across groups or relationships. This mixed method approach adopted by the research allowed the research to survey a large number of respondents and apply statistical techniques.

3.5 Research strategy

Research strategy is a methodology that is used in investigating a research issue. According to Saunders et al (2003), research strategy is a general plan that helps in answering research questions in a systematic way. The strategy for the study contained clear objectives on the influence of environmental security debate on climate change focusing on research questions, data collection resources and various constraints that affected the study in different ways such as limitation to access, time, location, funds and ethical issues constraints.

3.6 The study population

The population of study comprised the Officials from National Environment Management Authority - NEMA (02), officials from Ministry of Water and Environment (Selected 18), technical staff at the Kampala Capital City Authority - KCCA (selected 26), groups in Academia (20), Law enforcement staff and other stakeholders (Selected 16).

Table 1: Study population

Category	Number
Division leadership	
i. National Environmental Management Agency - NEMA	02
ii. Ministry of Water and Environment	18
i. Technical Staff KCCA	26
ii. Academia	20
iii. Law Enforcement	16
Total	82

Source: Researcher, 2024

3.7 Sample Size

Sample size is a count of the individual samples or observations in any statistical setting, such as a scientific experiment or a public opinion survey. Though a relatively straightforward concept, choice of sample size is a critical determination for a project. Too small a sample yields unreliable results, while an overly large sample demands a good deal of time and resources. For this study, the sample size was generated from among the members in top management, middle level staff and from the support staff.

3.8 Sample Size Determination

This sample size for this study was selected using probability and non-probability methods. More specifically the research used the purposive and random sampling techniques.

The sample size for the study was selected based on the formulae set by Yamane (1967).

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

$$1 + N$$

Where n= the required sample size

N= the study population which is 102

e= the level of significant co-efficient which is 0.052

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

$$1 + N (0.05)^2$$

Therefore;

$$n = \frac{102}{1 + 102 (0.05)^2}$$

$$1 + 102 (0.05)^2$$

$$n = \frac{102}{1 + 0.3}$$

$$1 + 0.3$$

n= 79, so the sample size was 79

Although the sample size is 79, the researcher included 3 more participants (to make the number 82) because they were knowledgeable and provided data that could have easily been missed by the research. Sample size of 82 participants is justified if it's based on an a priori power analysis, a desired level of statistical accuracy and precision

Secondly a sample size of 82 is dictated by practical limitations, which include the available budget, time, or number of participants who meet the study's inclusion criteria. While a necessary consideration, it is ideally balanced with the need for statistical power. The justification for 82 participants also depended on the study's goals, including whether it aimed to detect an effect, achieve high precision, or explore themes in mixed research including a qualitative study. 82 participants is justified as a pragmatic decision and minimum acceptable number from prior experience, rather than a rigorously derived figure.

3.9 Sampling Methods

There are two sampling methods which were used in this study, namely probability (representative) sampling and non-probability (non-representative) sampling.

With probability sampling, the researcher did not determine the chance or probability of an element being included in the sample. This method gave each and every member of the population an equal chance of being selected for the sample.

With non-probability sampling, the researcher determined only those elements deemed important for the study to be included in the sample. This method gave the researcher the mandate to select out only those members that were important for consideration in the sample.

3.10 Sampling Techniques

The researcher used simple random and purposive sampling;

3.11 Simple Random Sampling

Simple random sampling was used to select respondents for data collection who are at the same level in the organization. According to Amin (2005) a simple random sampling is a sample obtained from the population in such a way that samples of the same size have equal chances of being selected. A simple random sampling technique was used to select respondents by choosing at random from among the population groups mentioned above.

3.12 Purposive Sampling

The researcher applied personal judgment to choose respondents and pick only those who best meet the purpose of the study. In this study, purposive sampling was used because it is judgmental, allowing the researcher to handpick certain groups or individuals according to their relevance to the issue at hand (Aina and Ajifuruke, 2002). The use of purposive sampling aimed at getting as more relevant and valuable information for the research as possible from among the respondents in top management like in NEMA and Ministry of Water and Environment.

3.13 Data Collection Methods

The research study applied the following data collection methods;

Primary Data Collection Methods

These comprised;

Interview Method

The researcher used the interview method involving face-to face interview which had a distinguished advantage of enabling the researcher to establish rapport with potential participants and therefore gain their cooperation. The interview method yielded high response rates since structured interview were used - respondents were asked to clarify incase an

ambiguous answer was given. Confidence was important because of the eye contact between the researcher and the respondents.

Survey Method

A survey is a data gathering method that is utilized to collect, analyze and interpret the views of a group of people from a target population. The survey methodology was guided by principles of statistics from the moment of creating a sample, or a group of people to represent a population, up to the time of the survey results' analysis and interpretation. The following steps were included in the process of conducting the survey, as well as several questions to ask one's self during each step, that is clarifying the purpose, formulating survey goals, verifying the resources, choosing a survey method, performing the sampling, writing the questionnaire, pilot testing and revising or changing the questionnaire, administering the questionnaire, processing and storing data, analyzing and interpreting the survey results, making a conclusion and reporting the survey results.

Secondary Data Collection Methods

Secondary data is a type of data that has already been published in books, newspapers, magazines, journals, online portals and so on. There is an abundance of data available in these sources about our research area in environmental security and climate change. Therefore, application of appropriate set of criteria to select secondary data to be used in the study played an important role in terms of increasing the levels of research validity and reliability. The secondary data were readily available from the other sources and as such, there were no specific collection methods. The researcher obtained data from the sources that were both internal and external to the organizations involved. The sources of secondary data were related to the research topic.

3.14 Data Collection Tools/ Instruments

Data collection tools or instruments provided first-hand information from the people concerned, Kavulia (2007). In this study, a number of tools were used for data collection and included; self-administered questionnaires and interview guides.

Interview Guide

The researcher set questions to guide the oral/ mouth to mouth interactions between the researcher and the respondents. The data collected by this method were more accurate compared to the other methods that were used for data collection. The interview method benefited the research since the researcher was able to go to the field physically and ask the respondents relevant information that was necessary for the research, it thus yielded more information from the field compared to other methods.

Self-Administered Questionnaire

The researcher used the questionnaire technique or tool for collecting data. The questionnaires were constructed with open ended and close ended questions. Open ended questions enabled the researcher to obtain in-depth opinions of respondents while close-ended questions involved questions that required answers limited within a scope that involved strongly disagree, disagree, not sure or uncertain, agree and strongly agree (Five-point Likert scale questionnaire). The open-ended questionnaires involved questions that required the respondent to give an opinion.

Secondary Data Collection Tools

The secondary data collection tools included documentation, online search portals and retrieval of archival records. The secondary data was readily available from the other sources and as such, there were no specific collection methods. The researcher was able to obtain data

from the sources both internal and external to participants within the research and those outside the main research area. The secondary sources included; Annual performance Reports, committee Reports, and other documents available in print (Catalogues) and online.

Data Collection and Processing

In order to shift the power of the researcher/participant relationship to the study participants, the research was undertaken in an environment comfortable for study respondents. Key informants were interviewed at their convenience. In this way it was an interviewee-guided interview and the researcher was able to direct, select and structure the story. Data editing and coding was done after data had been collected to ensure that all mistakes made by respondents were cleared then entered for analysis and summarized. Similarly in this process a number of questionnaires were administered to several respondents from NEMA, Ministry of Water and Environment and KCCA.

3.15 Data Analysis

Raw data was collected, coded, grouped and presented in tables and graphs. The researcher was prompted to use this method because it interpreted data to draw detailed conclusions. This study was based on research assumptions to find out whether they are true or not.

3.16 Ethical Considerations

The researcher introduced himself to the authorities and respondents with an authority letter from the university and when permitted by the corresponding authorities, was able to create reliable rapport with the respondents.

The researcher assured the respondents that data sought was for academic purposes only. The researcher informed the respondents about the purpose of the study, why and how they were selected. The researcher went ahead to seek for informed consent of each respondent both orally and in writing.

The researcher informed the respondents of the long-term and short-term benefits of the study. And in cases where the respondent refused to participate in the study, their opinion was respected.

The researcher tried as much as possible to minimize embarrassing questions especially during interview. In order to obtain meaningful results, the researcher tried as much as possible to avoid perceptual biases during questionnaire administration and interviews.

The above ethical considerations were vital in ensuring that respondents do not withhold desired information and ensured that the data collected was reflective of a true and fair image of the views of the study respondents.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS, INTERPRETATION AND DISCUSSION OF STUDY FINDINGS

4.1 Introductions

This chapter presents the findings from 82 participants. The chapter includes; social and personal data and data related to the study objectives namely; the key environmental security debate issues and their effects on climate change, personal environmental security debate implementation and its significance on climate change, the communities environmental security debate implementation and its significance on climate change and, the strategies being adopted from the environmental security debate to help address the climate change challenges in Uganda.

4.2 Section A: Socio Personal Data

Gender

Male	Female
47	35

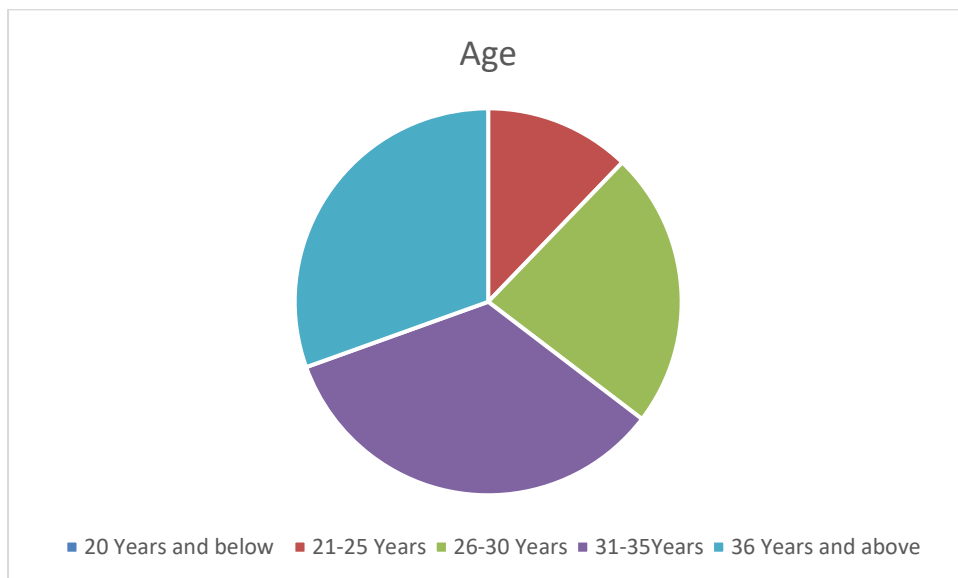
Source: Researcher, 2024

Findings above indicate that out of the 82 people who participated in this research, 47 (%) were male and 35(%) were female. Meaning that more males than females participated in the research. Having a disproportionately larger number of males than females in research can lead to concerns about generalizability, bias, and underrepresentation of female perspectives. This imbalance can limit the applicability of research findings to the broader population and may perpetuate gender stereotypes or overlook gender-specific issues. However, in this research the difference was small and the concerns for bias is not a big issue. Furthermore, the research was not looking for gender segregated data.

Age

Age	Response
20 Years and below	0
21-25 Years	10
26-30 Years	19
31-35Years	28
36 Years and above	25

Source: Researcher, 2024



Findings above indicate that out of the 82 people who participated in this research, 0 were 20 Years and below, 10 were between 21-25 Years, 19 were between 26-30 Years, 28 were between 31-35Years and 25 were 36 Years and above. Including participants of different ages in research studies provided valuable insights into how age influences the phenomenon being studied, but it also introduced potential complexities and considerations. This research was mindful of age-related differences in physical, cognitive, and social development, as well as cohort effects and potential biases. By carefully considering these factors, this researchers drew more nuanced and accurate conclusions.

Social Status

Category	Number
Division leadership	
ii. National Environmental Management Agency - NEMA	02
ii. Ministry of Water and Environment	18
iv. Technical Staff KCCA	26
v. Academia	20
vi. Law Enforcement	16
Total	82

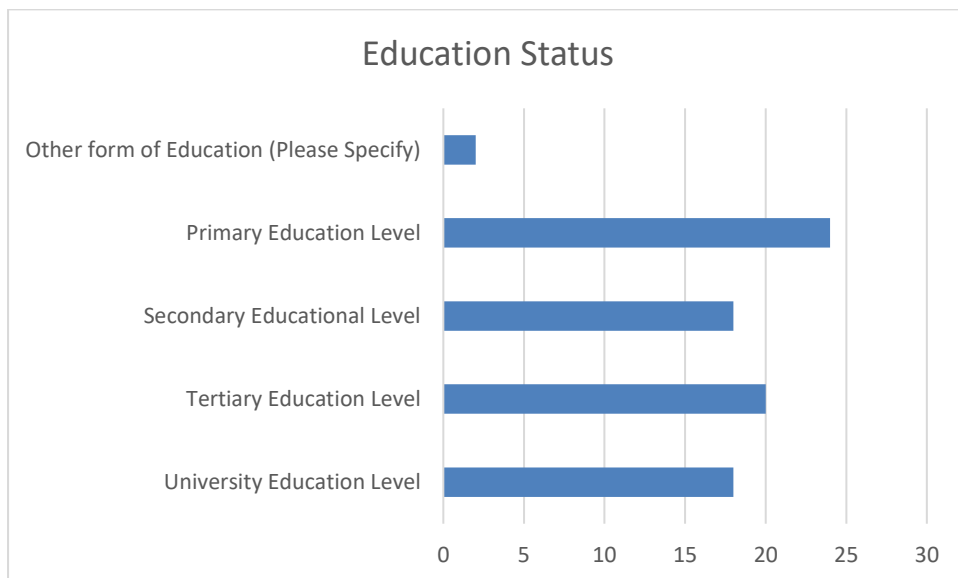
Source: Researcher, 2024

Findings above indicate that out of the 82 people, who participated in this research, 02 were officials from National Environment Management Authority (NEMA) 18 were officials from Ministry of Water and Environment, 26 were technical staff at the Kampala Capital City Authority (KCCA), 20 participants were from Academia especially teaching staff t university and, 16 included Law enforcement staff and other stakeholders in the environmental sector. Including individuals with diverse social statuses in this research led to a more comprehensive understanding of the subject matter, but it also presented challenges related to data collection, analysis, and interpretation which was addressed by examining secondary data to confirm data collected. This research was mindful of potential biases and power dynamics that can influence participation, responses, and the generalizability of findings.

Educational Status

Educational Status	Response
University Education Level	18
Tertiary Education Level	20
Secondary Educational Level	18
Primary Education Level	24
Other form of Education (Please Specify)	2

Source: Researcher, 2024

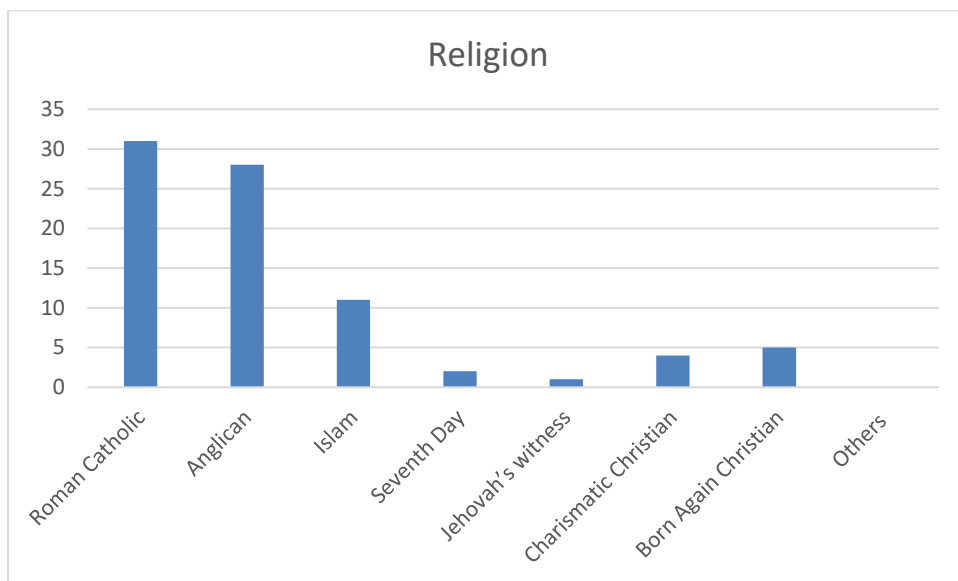


Findings above indicate that out of the 82 people who participated in this research, 18 had University Education Level, 20 had Tertiary Education Level, 18 had Secondary Educational Level, 24 had Primary Education Level and 2 had non-formal education (Carpenters). Having individuals with varying educational backgrounds in a research paper has the ability to introduce both advantages and disadvantages. Diverse perspectives enriched the research process, leading to more comprehensive and nuanced findings. However, it also presented challenges in terms of communication, interpretation of results, and potential for bias

5. Religion

Religion	Response
Roman Catholic	31
Anglican	28
Islam	11
Seventh Day	2
Jehovah's witness	1
Charismatic Christian	4
Born Again Christian	5
Others	0

Source: Researcher, 2024



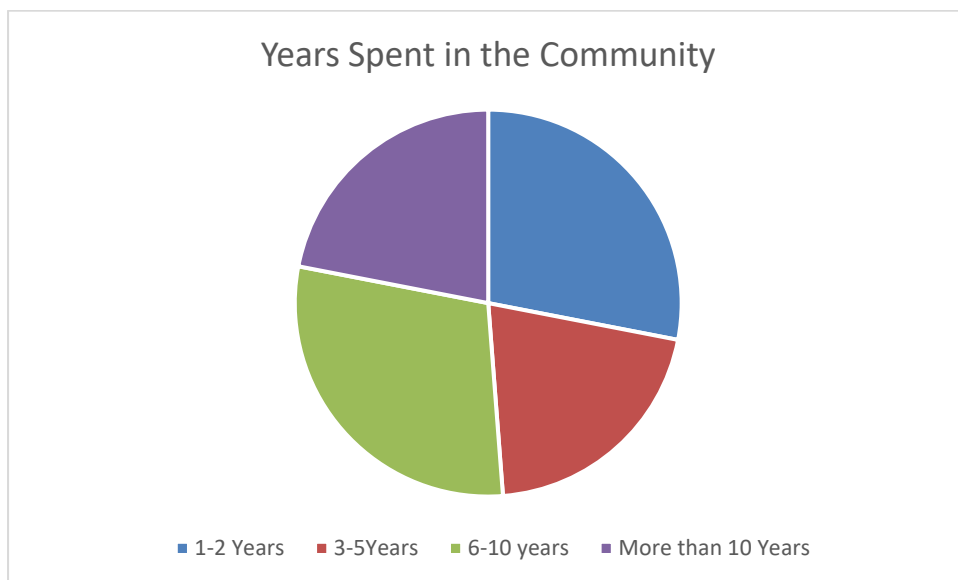
Findings above indicate that out of the 82 people who participated in this research, 31 were Roman Catholics, 28 were Anglicans, 11 belonged to the Islam sect, 2 were Seventh Day, 1 was a Jehovah's Witness, 4 were Charismatic Christians, 5 Born Again Christian and the others category had none. Having individuals with different religious affiliations in this research study introduced both opportunities and challenges. On the one hand, it led to a more diverse and nuanced understanding of the research topic by incorporating various

perspectives and experiences. On the other hand, it introduced complexities in data collection and analysis due to potential biases or differing interpretations of the research questions.

6 Years Spent in the Community

Years Spent in the Community	Response
1-2 Years	23
3-5Years	17
6-10 years	24
More than 10 Years	18

Source: Researcher, 2024



Findings above indicate that out of the 82 people who participated in this research, 23 had spent 1-2 Years, 17 had spent 3-5Years, 24 had spent 6-10 years and 18 had spent More than 10 Years in the community. In this research, including participants with varying lengths of residency in the community provided a richer understanding of community dynamics and impact. It allowed this research to explore how different experiences, attachment levels, and engagement patterns influenced various outcomes, contributing to a more nuanced analysis. Different durations of residency exhibited varying levels of attachment, involvement, and

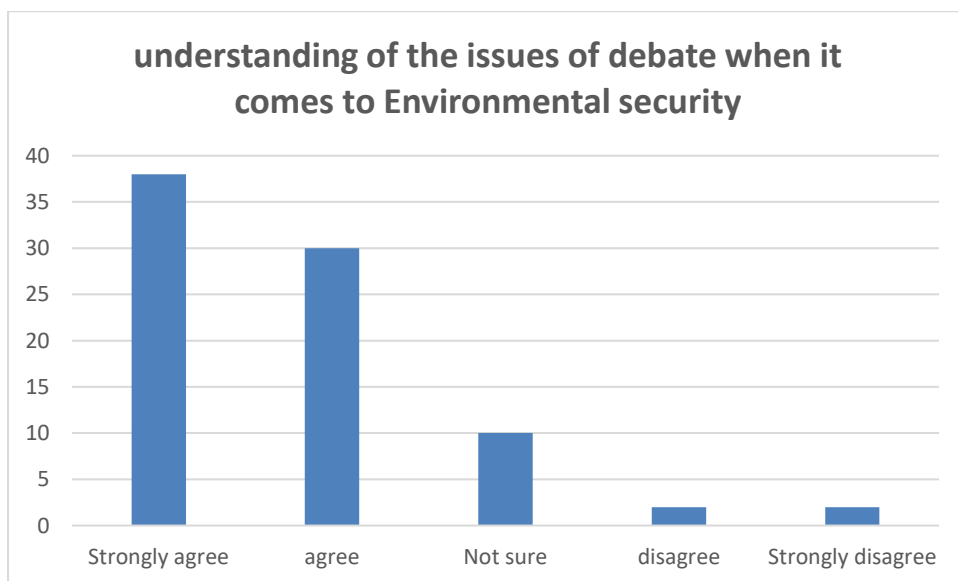
knowledge of the community. Analyzing these differences revealed how long-term residents experience the community differently from newcomers, and how these experiences shaped their perspectives and behaviors. Longer-term residents often exhibit stronger place attachment and greater civic engagement. Incorporating this variation allowed the researcher to investigate the relationship between place attachment, civic participation, and other relevant factors, like social capital and community well-being.

4.3 Understand the environmental security debate

I have an understanding of the issues of debate when it comes to Environmental security

Strongly agree	agree	Not sure	disagree	Strongly disagree
38	30	10	2	2

Source: Researcher, 2024



Findings above indicate that out of the 82 people who participated in this research 38 strongly agreed, 30 agreed, 10 were not sure, 2 disagreed and 2 strongly disagreed that they had an understanding of the issues of debate when it comes to Environmental security. Having a higher number of individuals agreeing in research strengthened the study's findings, but it

also raised concerns about potential biases and limitations in the research process. The findings indicate that a significant proportion of respondents perceive themselves as having a solid understanding of the debates surrounding environmental security. Specifically, 38 (46.3%) of the participants *strongly agreed* and 30 (36.6%) *agreed* with the statement, yielding a combined affirmative response of 82.9%. This suggests a widespread self-reported awareness of the key issues involved in environmental security among the study population.

Meanwhile, 10 (12.2%) expressed uncertainty by selecting “not sure,” and only a small minority 2 (2.4%) each—*disagreed* or *strongly disagreed*. These minimal levels of dissent and indecision imply that the vast majority of respondents consider themselves informed on the subject.

Taken together, these results suggest a generally high level of engagement and familiarity with environmental security discourse, including areas such as ecological risk, resource conflict, policy responses, and sustainable development. However, the presence of respondents who were either uncertain or in disagreement highlights the need for continued efforts to enhance public understanding, possibly through education and awareness initiatives tailored to address existing knowledge gaps.

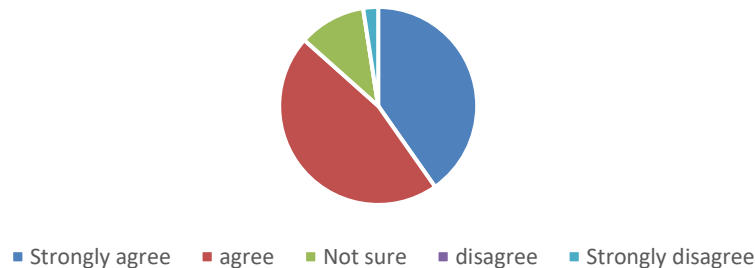
While consensus increased confidence in the results, it was crucial to ensure the agreement did not mask underlying issues like groupthink or a lack of diverse perspectives.

The consequences of climate change will affect us in many ways including, natural disasters, drought, sea level rise among others

Strongly agree	agree	Not sure	disagree	Strongly disagree
33	38	9	0	2

Source: Researcher, 2024

The consequences of climate change will affect us in many ways including, natural disasters, drought, sea level rise among others



Findings above indicate that out of the 82 people who participated in this research 33 strongly agreed, 38 agreed, 9 were not sure, 0 disagreed and 2 strongly disagreed that the consequences of climate change will affect us in many ways including, natural disasters, drought, sea level rise among others. The data strongly suggests that the majority of respondents acknowledge the multifaceted consequences of climate change. Specifically, 33 (40.2%) of participants *strongly agreed* and 38 (46.3%) *agreed* with the assertion that climate change will have widespread impacts including, but not limited to, natural disasters, drought, and rising sea levels. This results in an overwhelming 86.5% of respondents affirming the statement.

A smaller proportion of the sample, 9 (11.0%), selected “not sure,” indicating a degree of uncertainty regarding the scope or severity of climate change impacts. Notably, no respondents selected “disagree,” and only 2 (2.4%) *strongly disagreed*, highlighting a minimal level of skepticism or dissent.

These findings reflect a high level of awareness and concern about the tangible effects of climate change among the surveyed population. The near-unanimous recognition of potential threats—including environmental, economic, and social disruptions suggests a strong foundational understanding of climate change risks. The marginal levels of uncertainty and

opposition may point to gaps in exposure to scientific information or differences in perceived personal vulnerability.

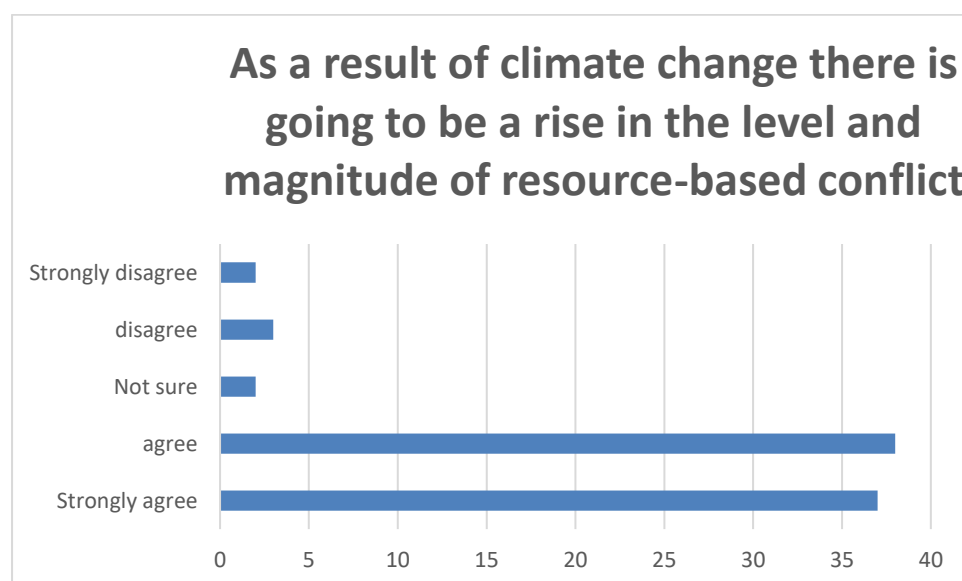
Overall, this data reinforces the importance of targeted public education and policy engagement strategies, particularly those that emphasize the diverse and interrelated impacts of climate change. Efforts to further educate the undecided or skeptical minority could help build a more cohesive and informed public response to climate-related challenges.

The fact that many participants agreed that the consequences of climate change will affect us in many ways including, natural disasters, drought, sea level rise among others, provided a stronger basis for believing in the validity of the findings.

As a result of climate change there is going to be a rise in the level and magnitude of resource-based conflict

Strongly agree	agree	Not sure	disagree	Strongly disagree
37	38	2	3	2

Source: Researcher, 2024



Findings above indicate that out of the 82 people who participated in this research 37 strongly agreed, 38 agreed, 2 were not sure, 3 disagreed and 2 strongly disagreed that as a result of climate change there is going to be a rise in the level and magnitude of resource-based conflict. A combined total of **75 respondents (91.4%)** either *agreed* or *strongly agreed* with the statement, indicating an overwhelming perception that climate change is likely to exacerbate resource-based conflicts. The high percentage of agreement reflects a strong consensus among participants that the environmental stresses induced by climate change such as water scarcity, land degradation, and food insecurity are likely to intensify competition over essential resources.

Only **5 respondents (6.1%)** expressed disagreement (disagree or strongly disagree), while a small proportion, **2 respondents (2.4%)**, were undecided. This minimal level of uncertainty or opposition further emphasizes the dominant view among the participants.

The results suggest that there is widespread awareness and concern about the socio-political consequences of climate change, particularly its potential to fuel conflict over dwindling natural resources. Participants perceive a direct link between environmental changes and increased tension or violence, especially in regions where access to water, arable land, and other critical resources is already contested or limited.

This finding supports existing literature that posits climate change as a "threat multiplier" intensifying existing vulnerabilities and instabilities in societies, especially in regions heavily dependent on natural resources. The strong agreement among participants also implies a need for proactive policy interventions, such as resource management, conflict mitigation strategies, and climate adaptation planning, to prevent or reduce future conflicts.

The indication that many respondents either strongly agreed or agreed that as a result of climate change there is going to be a rise in the level and magnitude of resource-based conflict is also an implication that a high degree of agreement made the research findings more persuasive and credible to other researchers and the wider audience on the implication of the phenomenon.

Threats to sustainability and livelihoods is an inevitable social-economic situation that humans will suffer because of climate change

Strongly agree	agree	Not sure	disagree	Strongly disagree
38	40	0	2	2

Source: Researcher, 2024

Findings above indicate that out of the 82 people who participated in this research 38 strongly agreed, 40 agreed, 0 were not sure, 2 disagreed and 2 strongly disagreed that Threats to sustainability and livelihoods is an inevitable social-economic situation that humans will suffer because of climate change. The findings from the study reveal a strong consensus among respondents regarding the inevitability of socio-economic threats to sustainability and livelihoods as a consequence of climate change. Out of 82 participants, 38 (46.3%) strongly agreed and 40 (48.8%) agreed with the statement, accounting for a combined total of 95.1% in agreement. Notably, none of the respondents selected the "not sure" option, indicating that the participants held definitive opinions on the subject. Only 2 respondents (2.4%) disagreed and another 2 (2.4%) strongly disagreed, representing a minimal portion of the population surveyed. This overwhelming agreement suggests a high level of awareness and concern about the adverse impacts of climate change on human well-being and environmental sustainability. The absence of neutrality further implies that the issue is perceived as both pressing and clearly understood among the respondents. These results underscore the urgent

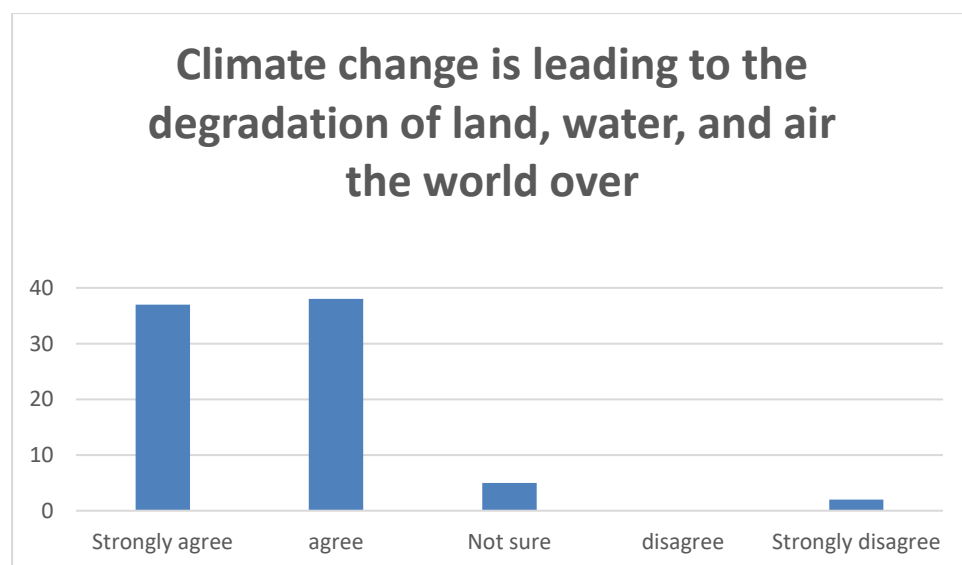
need for policy interventions aimed at climate adaptation, livelihood protection, and resilience-building, as the majority of the population recognizes the direct link between climate change and socio-economic vulnerability. The small proportion of dissenting views may point to the existence of skepticism or a lack of exposure to climate-related education, highlighting the continued need for inclusive and targeted awareness campaigns.

Having a higher number of individuals who agreed that threats to sustainability and livelihoods is an inevitable social-economic situation that humans will suffer because of climate change in the research strengthened the study's findings, but it also raised concerns about potential biases and limitations in the research process. While consensus increased confidence in the results, it was also crucial in this research to ensure that the agreement did not mask underlying issues like general group thinking or a lack of diverse perspectives.

Climate change is leading to the degradation of land, water, and air the world over

Strongly agree	agree	Not sure	disagree	Strongly disagree
37	38	5	0	2

Source: Researcher, 2024



Findings above indicate that out of the 82 people who participated in this research 37 strongly agreed, 38 agreed, 5 were not sure, 0 disagreed and 2 strongly disagreed that Climate change is leading to the degradation of land, water, and air the world over. The results of the study demonstrate a strong consensus among respondents regarding the impact of climate change on environmental degradation. Out of the 82 participants surveyed, 37 (45.1%) strongly agreed and 38 (46.3%) agreed with the statement that climate change is leading to the degradation of land, water, and air across the globe. Collectively, this accounts for 91.4% of the total responses, indicating a broad acknowledgment of the environmental consequences associated with climate change. Only 5 respondents (6.1%) indicated uncertainty, and a minimal 2 participants (2.4%) strongly disagreed, with no respondents expressing simple disagreement. The high level of agreement suggests a well-established perception among the population that climate change poses a significant threat to natural resources and ecosystem stability. The presence of a small group expressing uncertainty or disagreement may point to knowledge gaps or skepticism that could be addressed through targeted awareness and education initiatives. Overall, the findings reflect a heightened awareness of environmental issues linked to climate change and underscore the need for comprehensive policy interventions aimed at climate mitigation, environmental conservation, and public engagement to address ongoing degradation.

The fact that many participants agreed that Climate change is leading to the degradation of land, water, and air the world over provided a stronger basis for believing in the validity of the findings.

Climate change is already affecting public health and will continue to do that in years to come

Strongly agree	agree	Not sure	disagree	Strongly disagree
31	41	8	2	0

Source: Researcher, 2024

Findings above indicate that out of the 82 people who participated in this research 31 strongly agreed, 41 agreed, 8 were not sure, 2 disagreed and 0 strongly disagreed that Climate change is already affecting public health and will continue to do that in years to come. This indicates a strong consensus among respondents that climate change is already impacting public health and will continue to do so in the future. Out of the 82 participants, 31 (37.8%) strongly agreed and 41 (50.0%) agreed with the statement, resulting in a combined agreement rate of 87.8%. This overwhelming majority highlights a widespread recognition of the current and projected health implications of climate change, including the increased prevalence of heat-related illnesses, vector-borne diseases, respiratory conditions, and mental health challenges. A smaller proportion of respondents (9.8%) indicated uncertainty, suggesting the presence of informational or perceptual gaps that may benefit from further public health education and awareness initiatives. Only 2 respondents (2.4%) disagreed with the statement, and none strongly disagreed, reflecting minimal resistance to the established scientific consensus on the health-related consequences of climate change. These findings underscore the urgency of integrating climate considerations into public health planning and policy, with an emphasis on building adaptive and resilient health systems capable of addressing both current and future climate-related health risks. Having a higher number of individuals who agreed that Climate change is already affecting public health and will continue to do that in years to come strengthened the study's findings, but it also raised concerns about potential biases and

limitations in the research process. While consensus increased confidence in the results, it was also crucial in this research to ensure that the agreement did not mask underlying issues like general group thinking or a lack of diverse perspectives.

Some households and communities have already begun suffering from the effects of climate change, forcing them to abandon their homes in search of a new one

Strongly agree	agree	Not sure	disagree	Strongly disagree
33	38	11	0	0

Source: Researcher, 2024

Findings above indicate that out of the 82 people who participated in this research 33 strongly agreed, 38 agreed, 11 were not sure, 0 disagreed and 0 strongly disagreed that some households and communities have already begun suffering from the effects of climate change, forcing them to abandon their homes in search of a new one. The findings from this study indicate a strong consensus among respondents regarding the displacement effects of climate change. Of the 82 individuals who participated in the survey, 33 (40.2%) strongly agreed and 38 (46.3%) agreed with the statement that some households and communities have already begun suffering from the effects of climate change, prompting them to abandon their homes in search of new ones. This yields a cumulative 86.5% of participants affirming the reality of climate-induced displacement. Meanwhile, 11 respondents (13.4%) reported being unsure, suggesting a minority who may lack direct exposure or sufficient information about the issue. Significantly, none of the respondents disagreed or strongly disagreed with the statement.

These results underscore the growing perception—and likely experience among communities that climate change is not a distant or abstract phenomenon, but a present and pressing issue contributing to forced migration. The absence of dissenting views further highlights the

widespread recognition of the problem among the study population. This suggests an urgent need for policymakers and development practitioners to prioritize interventions aimed at mitigating the effects of climate change on vulnerable communities. Such measures may include the development of climate-resilient infrastructure, improved early warning systems, and comprehensive resettlement plans for affected populations. The findings also point to the importance of integrating climate adaptation strategies into broader national development frameworks to reduce the socio-economic vulnerabilities associated with climate-induced displacement.

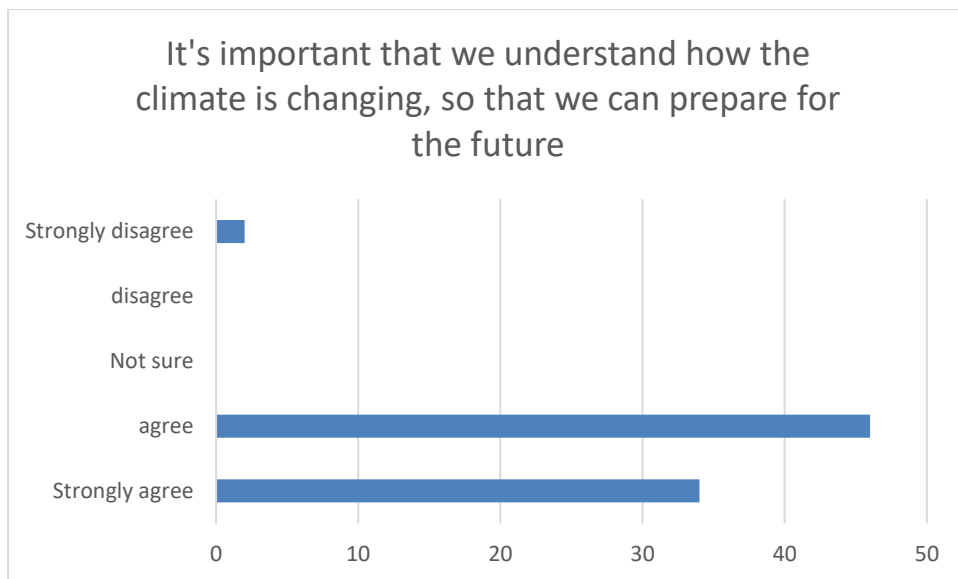
The indication that many respondents either strongly agreed or agreed that some households and communities have already begun suffering from the effects of climate change, forcing them to abandon their homes in search of a new one is also an implication that a high degree of agreement made the research findings more persuasive and credible to other researchers and the wider audience on the implication of the phenomenon.

4.4 The environmental security debate and its significance on climate change

It's important that we understand how the climate is changing, so that we can prepare for the future.

Strongly agree	agree	Not sure	disagree	Strongly disagree
34	46	0	0	2

Source: Researcher, 2024



Findings above indicate that out of the 82 people who participated in this research 34 strongly agreed, 46 agreed, 0 were not sure, 0 disagreed and 2 strongly disagreed that it's important that we understand how the climate is changing, so that we can prepare for the future. The findings reveal a strong consensus among respondents on the importance of understanding climate change in order to prepare for future challenges. Out of the 82 participants surveyed, 34 (41.5%) strongly agreed and 46 (56.1%) agreed with the statement that it is important to understand how the climate is changing to enable appropriate preparation for the future. This results in a total of 97.6% of respondents expressing agreement with the importance of climate literacy and preparedness. Notably, none of the respondents were undecided or expressed simple disagreement, while only 2 individuals (2.4%) strongly disagreed.

These results highlight a widespread acknowledgment among participants that climate change education and awareness are critical for effective adaptation and mitigation efforts. The high level of agreement suggests that most respondents recognize the link between knowledge and preparedness, underscoring the value of proactive engagement with climate science and

information. The minimal opposition, represented by only two respondents, may reflect outlier perceptions or skepticism, but does not significantly undermine the overall trend.

The data supports the argument that public understanding of climate change is viewed as an essential step toward fostering resilience in the face of environmental shifts. This finding has significant implications for policy and educational initiatives, pointing to the need for continued investment in public awareness campaigns, climate education programs, and participatory planning processes that empower communities to respond to current and future climate-related risks.

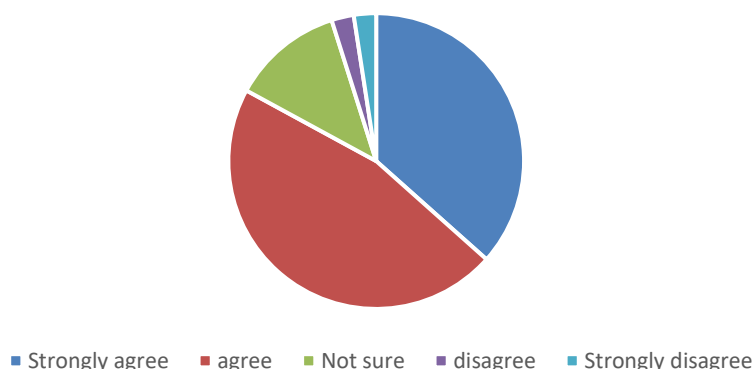
The fact that most participants agreed that it's important that we understand how the climate is changing, so that we can prepare for the future led to a more robust design and methodology, which was essential for attracting participants and achieving meaningful results, it led to a shared understanding among participants that reduced uncertainty and increased certainty about opinions and results.

Studying the climate helps us predict how much rain the next winter might bring, or how far sea levels will rise due to warmer sea temperatures.

Strongly agree	agree	Not sure	disagree	Strongly disagree
30	38	10	2	2

Source: Researcher, 2024

Studying the climate helps us predict how much rain the next winter might bring, or how far sea levels will rise due to warmer sea temperatures



Findings above indicate that out of the 82 people who participated in this research 30 strongly agreed, 38 agreed, 10 were not sure, 2 disagreed and 2 strongly disagreed that studying the climate helps us predict how much rain the next cold season might bring, or how far sea levels will rise due to warmer sea temperatures. The results of this study demonstrate a general consensus among respondents regarding the value of climate study in forecasting environmental changes. Of the 82 participants, 30 (36.6%) strongly agreed and 38 (46.3%) agreed that studying the climate helps predict how much rain the next cold season might bring, or how far sea levels will rise due to warmer sea temperatures. Together, this constitutes 82.9% of respondents affirming the predictive utility of climate science. Additionally, 10 respondents (12.2%) indicated uncertainty, while only 2 (2.4%) disagreed and another 2 (2.4%) strongly disagreed.

These findings suggest that a significant majority of the respondents recognize the importance of climate science in anticipating seasonal and long-term environmental patterns. The presence of a small proportion of respondents who are either unsure or in disagreement may point to gaps in climate literacy or access to reliable information. Nevertheless, the

overall trend reflects a high level of public confidence in scientific methods used to understand and project climate-related phenomena.

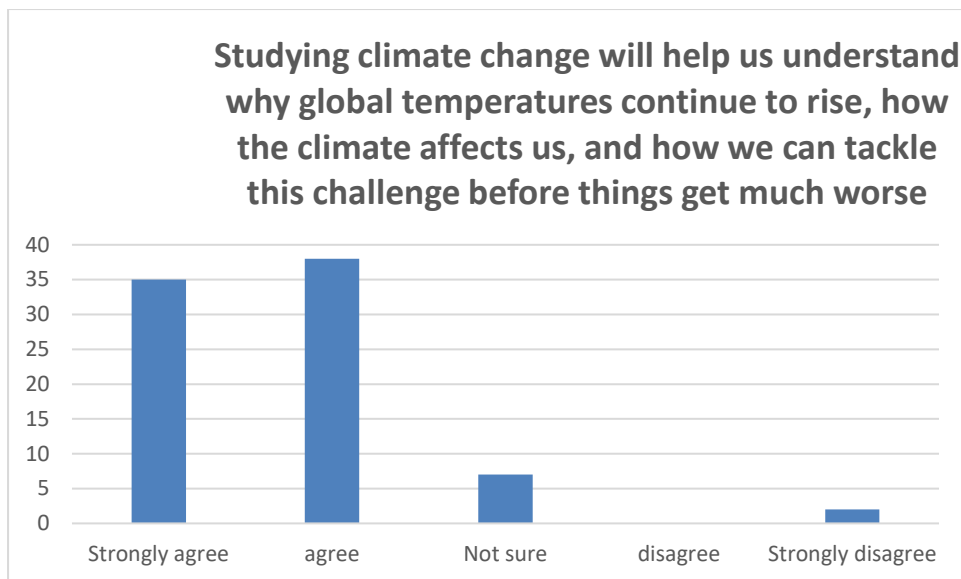
This strong support for climate study reinforces the importance of continued investment in climate monitoring, modeling, and public education. Accurate climate predictions are essential for planning in sectors such as agriculture, disaster preparedness, water resource management, and coastal protection. Therefore, these findings underscore the need to bridge knowledge gaps and ensure that scientific insights are communicated effectively to the public to enhance informed decision-making and adaptive capacity at both local and national levels.

The fact that most participants agreed studying the climate helps us predict how much rain the next cold season might bring, or how far sea levels will rise due to warmer sea temperature created a sense of alignment and shared understanding, which can be socially beneficial. However, a high level of agreement might indicate a lack of critical thinking or groupthink, where individuals prioritize consensus over objective analysis and potentially overlook flaws in the research.

Studying climate change will help us understand why global temperatures continue to rise, how the climate affects us, and how we can tackle this challenge before things get much worse.

Strongly agree	agree	Not sure	disagree	Strongly disagree
35	38	7	0	2

Source: Researcher, 2024



Findings above indicate that out of the 82 people who participated in this research 35 strongly agreed, 38 agreed, 7 were not sure, 0 disagreed and 2 strongly disagreed that studying climate change will help us understand why global temperatures continue to rise, how the climate affects us, and how we can tackle this challenge before things get much worse. The findings indicate a strong level of agreement among respondents concerning the importance of studying climate change in order to better understand its causes, impacts, and potential solutions. Out of the 82 participants, 35 (42.7%) strongly agreed and 38 (46.3%) agreed with the statement that studying climate change will help us understand why global temperatures continue to rise, how the climate affects us, and how we can address this challenge before it worsens. This amounts to a combined 81.7% of respondents expressing affirmative views. Additionally, 7 respondents (8.5%) were unsure, while 2 (2.4%) strongly disagreed. Notably, no participants expressed simple disagreement.

The overall trend suggests widespread recognition of the role that scientific study of climate change plays in deepening understanding and informing action. The high percentage of agreement points to a general awareness among the population that tackling climate change requires knowledge of its underlying mechanisms and consequences. The small portion of

respondents who were unsure or strongly disagreed may reflect either skepticism, limited exposure to climate science, or differing perspectives on the effectiveness of current climate studies.

These results underscore the importance of strengthening climate education and communication strategies to foster informed public engagement and support for climate action. Furthermore, the data highlights the value of evidence-based research in guiding policies and initiatives aimed at mitigating climate change and enhancing resilience. Promoting public trust in climate science can therefore be seen as a foundational step toward collective efforts to address the escalating global climate crisis.

The agreement might reflect a biased sample or interpretation, rather than an objective truth. Indeed participants could have been more inclined to agree with statements or findings, even if they did not genuinely hold those beliefs, especially if they perceive the researcher as an authority figure.

Knowledge regarding this phenomenon helps people to understand and tackle the consequences of global warming, encourages them to change their behaviour and helps them to adapt to what is already a global emergency.

Strongly agree	agree	Not sure	disagree	Strongly disagree
39	37	2	2	2

Source: Researcher, 2024

Findings above indicate that out of the 82 people who participated in this research 39 strongly agreed, 37 agreed, 2 were not sure, 2 disagreed and 2 strongly disagreed that education regarding this phenomenon helps people to understand and tackle the consequences of global warming, encourages them to change their behaviour and helps them to adapt to what is

already a global emergency. The results demonstrate strong support among participants for the role of education in addressing the challenges of global warming. Of the 82 individuals who took part in the study, 39 (47.6%) strongly agreed and 37 (45.1%) agreed that knowledge about climate change helps people understand and respond to its consequences, encourages behavioral change, and aids adaptation to the ongoing global emergency. This amounts to a significant 92.7% of respondents affirming the positive impact of climate education. A minimal number of respondents—2 (2.4%)—were unsure, while another 2 (2.4%) disagreed and 2 (2.4%) strongly disagreed.

These findings underscore a broad public acknowledgment of the transformative role of knowledge in confronting climate change. The overwhelming majority view education as an essential tool not only for raising awareness but also for prompting individual and collective behavioral change and enhancing adaptive capacity. The presence of a small minority who were uncertain or disagreed may point to information gaps, differing belief systems, or skepticism about the effectiveness of education alone in combating climate-related issues.

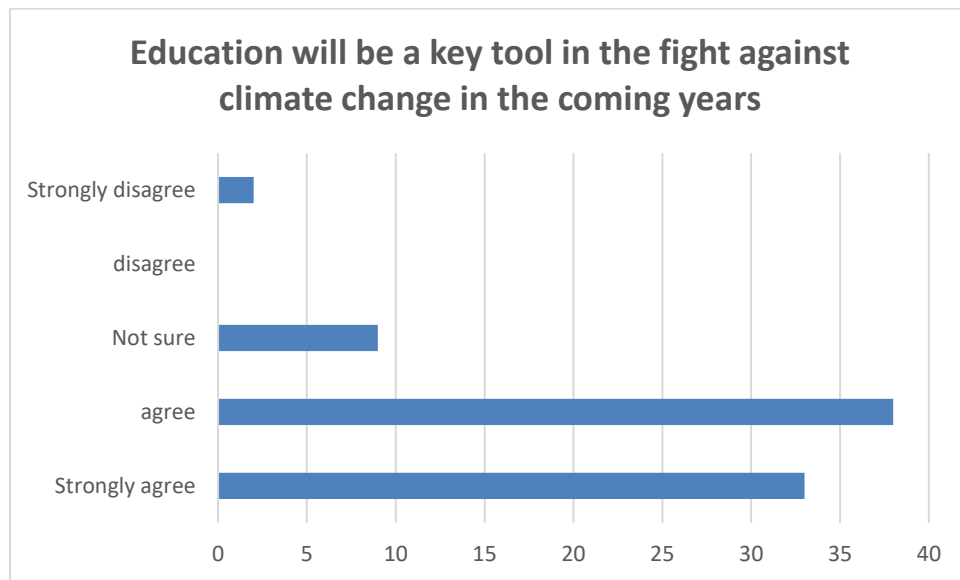
Overall, the data reinforce the importance of integrating climate change education into formal and informal learning systems. Empowering communities through accessible, accurate, and action-oriented information can significantly contribute to mitigation and adaptation efforts. These findings support the call for policy interventions that prioritize public education campaigns and curriculum development to equip citizens with the knowledge and skills necessary to respond effectively to the global climate emergency.

However, this research was sensitive to the fact that encouraging participation from individuals with varied backgrounds and opinions was important to ensure a more comprehensive and significant understanding of the research topic.

Education will be a key tool in the fight against climate change in the coming years.

Strongly agree	agree	Not sure	disagree	Strongly disagree
33	38	9	0	2

Source: Researcher, 2024



Findings above indicate that out of the 82 people who participated in this research 33 strongly agreed, 38 agreed, 9 were not sure, 0 disagreed and 2 strongly disagreed that education will be a key tool in the fight against climate change in the coming years. The data reveals that a substantial majority of respondents perceive education as a critical instrument in combating climate change in the foreseeable future. Specifically, 33 (40.2%) of participants *strongly agreed*, and an additional 38 (46.3%) *agreed* with the assertion, resulting in a cumulative 86.5% expressing a positive stance. This overwhelming consensus underscores the perceived value of education in fostering environmental awareness and action.

Conversely, only 9 (11.0%) of the respondents were *undecided*, and a mere 2 (2.4%) *strongly disagreed*. Notably, there were no participants who selected the "disagree" category, suggesting that active dissent toward the proposition is virtually nonexistent within the study group.

These findings indicate a strong endorsement of the role of education in climate change mitigation. The minimal levels of uncertainty and dissent further suggest that educational initiatives aimed at environmental sustainability would likely encounter broad public support. Overall, the data affirms the significance of integrating climate education into both formal curricula and wider community outreach efforts as a strategy for long-term environmental resilience.

The implication that education regarding this phenomenon helps people to understand and tackle the consequences of global warming, encourages them to change their behaviour and helps them to adapt to what is already a global emergency. However, this research was sensitive to the fact that if the study relied heavily on agreement within a specific group, it might not be generalizable to broader populations with different perspectives and a strong emphasis on agreement might discourage dissenting opinions, which are crucial for identifying weaknesses in arguments or potential problems with research design.

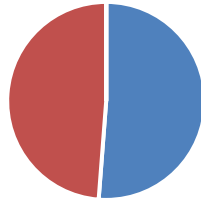
4.5 The strategies being adopted from the environmental security debate to help address the climate change challenges in Uganda

Through early warning systems people can take early action to block consequences of floods, stock pile resources and even evacuate people

Strongly agree	agree	Not sure	disagree	Strongly disagree
42	40	0	0	0

Source: Researcher, 2024

**Through early warning systems
people can take early action to block
consequences of floods, stock pile
resources and even evacuate people**



■ Strongly agree ■ agree ■ Not sure ■ disagree ■ Strongly disagree

Findings above indicate that out of the 82 people who participated in this research 42 strongly agreed, 40 agreed, 0 were not sure, 0 disagreed and 0 strongly disagreed that through early warning systems people can take early action to block consequences of floods, stock pile resources and even evacuate people. The findings from the research indicate a unanimous consensus among participants on the effectiveness of early warning systems in mitigating the impacts of floods. Out of the 82 respondents, 42 (51.2%) strongly agreed and 40 (48.8%) agreed that early warning systems enable timely actions such as blocking the consequences of floods, stockpiling necessary resources, and evacuating people. Notably, none of the participants were uncertain or disagreed with the statement, reflecting a 100% agreement rate.

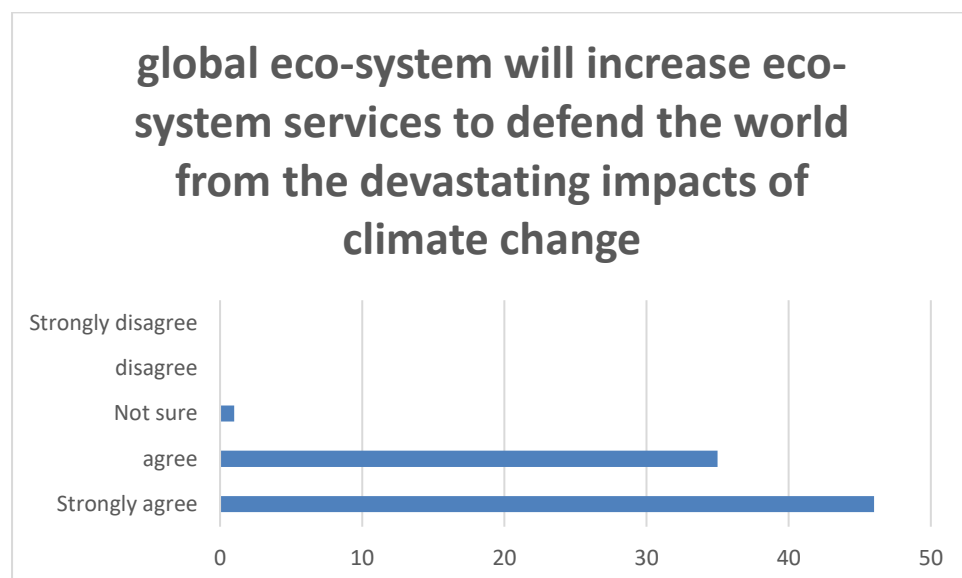
This overwhelming agreement suggests a high level of awareness and appreciation of the role that early warning systems play in disaster preparedness and response. The data strongly supports the assertion that such systems are critical in reducing vulnerability and enhancing community resilience in the face of flood hazards. The absence of neutral or dissenting views may also indicate that the effectiveness of early warning mechanisms is either widely experienced or clearly understood among the respondents. These findings highlight the importance of investing in and strengthening early warning infrastructure, public

communication systems, and community engagement strategies to ensure timely and effective disaster response.

Being part of the global movement to restore the global eco-system will increase eco-system services to defend the world from the devastating impacts of climate change

Strongly agree	agree	Not sure	disagree	Strongly disagree
46	35	1	0	0

Source: Researcher, 2024



Findings above indicate that out of the 82 people who participated in this research 46 strongly agreed, 35 agreed, 1 were not sure, 0 disagreed and 0 strongly disagreed that being part of the global movement to restore the global eco-system will increase eco-system services to defend the world from the devastating impacts of climate change. The findings reveal a remarkably high level of consensus among participants regarding the importance of participating in global efforts to restore ecosystems as a strategy to combat climate change. Out of the 82 respondents, 46 (56.1%) strongly agreed, and 35 (42.7%) agreed that being part of the global movement to restore the global ecosystem will enhance ecosystem services, thereby

strengthening the world’s capacity to withstand the devastating impacts of climate change. Only one respondent (1.2%) was uncertain, while none disagreed or strongly disagreed.

This overwhelming agreement (98.8% in total) suggests that there is widespread recognition of the critical role that ecosystem restoration plays in climate resilience. Ecosystem services—such as carbon sequestration, flood regulation, and biodiversity conservation—are increasingly understood as foundational elements in climate change mitigation and adaptation strategies. The absence of any disagreement further reinforces the strength of the collective perception among participants.

The findings also reflect a broader alignment with international environmental discourse, such as the United Nations Decade on Ecosystem Restoration (2021–2030), which emphasizes collaborative global action to revive natural ecosystems as a means of securing environmental sustainability and climate resilience. The single instance of uncertainty may point to a knowledge gap or the need for further education on the specific mechanisms by which ecosystem restoration contributes to climate defense.

The data indicates a strong awareness and endorsement among respondents for global ecological restoration initiatives as a viable and essential response to climate change, underscoring the need for sustained public engagement and policy support in these efforts.

Climate-resistant infrastructure like roads, bridges and power lines can with stand shocks from extreme climate impact through regulatory standards, spatial planning framework and strong communication drives

Strongly agree	agree	Not sure	disagree	Strongly disagree
38	33	9	0	2

Source: Researcher, 2024

Findings above indicate that out of the 82 people who participated in this research 38 strongly agreed, 33 agreed, 9 were not sure, 0 disagreed and 2 strongly disagreed that climate-resistant infrastructure like roads, bridges and power lines can withstand shocks from extreme climate impact through regulatory standards, spatial planning framework and strong communication drives. The data indicates that a significant majority of the respondents acknowledge the importance of climate-resistant infrastructure in mitigating the impacts of extreme climate events. Out of the 82 participants, 38 (46.3%) strongly agreed and 33 (40.2%) agreed that infrastructure such as roads, bridges, and power lines can be made resilient to climate shocks through the implementation of regulatory standards, spatial planning frameworks, and strong communication strategies. This constitutes a total of 71 respondents (86.6%) who support the statement, indicating widespread endorsement of this climate adaptation measure.

Meanwhile, 9 respondents (11%) were uncertain, which may suggest limited understanding or exposure to the technical aspects or policy mechanisms associated with climate-resilient infrastructure. Notably, only 2 participants (2.4%) strongly disagreed with the statement, and none outright disagreed, suggesting minimal opposition to the concept.

The results reflect a strong recognition of the critical role that institutional and technical measures play in enhancing infrastructure resilience. Regulatory standards ensure that construction practices meet safety and sustainability criteria, while spatial planning frameworks guide development away from high-risk areas. Additionally, effective communication strategies are essential for stakeholder awareness, community preparedness, and coordination among agencies.

These findings are in alignment with global best practices, particularly as promoted by the Sendai Framework for Disaster Risk Reduction and various national adaptation plans that prioritize resilient infrastructure as a frontline defense against climate-related disruptions.

The data shows a dominant belief among participants in the efficacy of regulatory and planning interventions to strengthen infrastructure resilience. This underscores the need for continued investment in policy development, public education, and infrastructure upgrades to enhance climate adaptability and reduce vulnerability to future environmental shocks.

Investing in more efficient ways of using water like holistic water management plans and integrated water resource management from source to distribution, treatment, reuse and return to the environment will reduce the adverse effects of climate change

Strongly agree	agree	Not sure	disagree	Strongly disagree
33	38	9	0	2

Source: Researcher, 2024

Findings above indicate that out of the 82 people who participated in this research 33 strongly agreed, 38 agreed, 9 were not sure, 0 disagreed and 2 strongly disagreed that investing in more efficient ways of using water like holistic water management plans and integrated water resource management from source to distribution, treatment, reuse and return to the environment will reduce the adverse effects of climate change. The research findings indicate a strong consensus among participants regarding the importance of investing in more efficient water use through holistic water management plans and integrated water resource management (IWRM) as a means to mitigate the adverse effects of climate change. Out of the 82 respondents, 33 (40.2%) strongly agreed and 38 (46.3%) agreed with the statement, making a combined 71 respondents (86.5%) who supported the assertion. This overwhelming majority suggests a high level of awareness and agreement on the role that comprehensive water management plays in addressing climate-related challenges.

Additionally, 9 participants (11%) were unsure, indicating a small proportion of respondents who may lack sufficient knowledge or understanding of holistic water management concepts

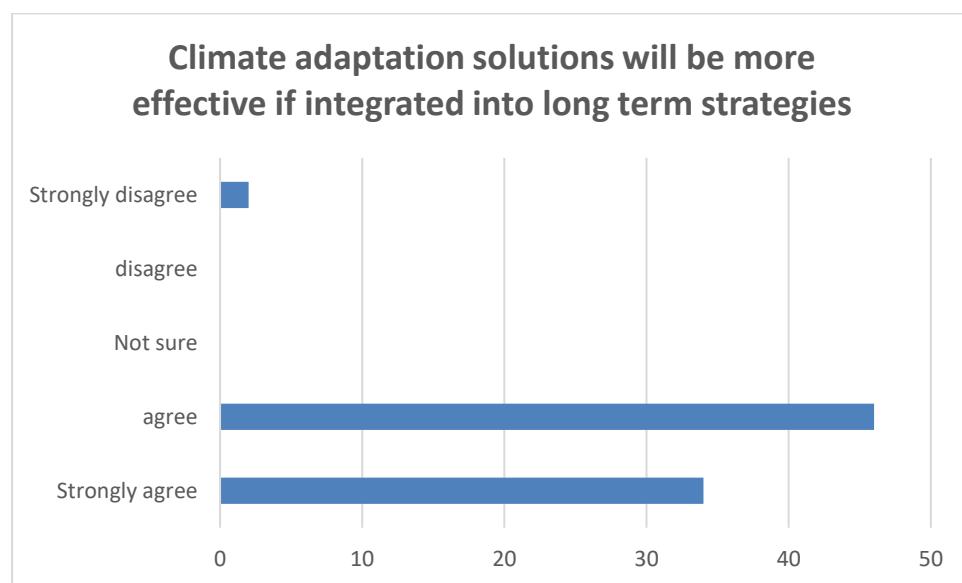
or their relevance to climate change adaptation and mitigation. Only 2 respondents (2.4%) strongly disagreed, while none disagreed, highlighting that opposition to the idea is negligible within the sample population.

These results underscore the perceived significance of integrated approaches to water management, which encompass the entire water cycle—from source to consumption, treatment, reuse, and eventual return to the environment. This reflects a recognition that efficient water use is not only critical for sustainability but also a strategic response to the increasing stress climate change places on water systems. The data further suggests that policy frameworks and public awareness campaigns should build on this existing support to strengthen the implementation of IWRM practices, particularly in climate-vulnerable regions.

Climate adaptation solutions will be more effective if integrated into long term strategies and policies and in the national plans of investments within the country

Strongly agree	agree	Not sure	disagree	Strongly disagree
34	46	0	0	2

Source: Researcher, 2024



Findings above indicate that out of the 82 people who participated in this research 34 strongly agreed, 46 agreed, 0 were not sure, 0 disagreed and 2 strongly disagreed that Climate adaptation solutions will be more effective if integrated into long term strategies and policies and in the national plans of investments within the country. The findings from the research reveal an overwhelming consensus among participants on the importance of integrating climate adaptation solutions into long-term strategies, national policies, and investment plans. Out of 82 respondents, 34 (41.5%) strongly agreed and 46 (56.1%) agreed with the statement, indicating that a total of 80 participants (97.6%) support this approach. This high level of agreement underscores a shared understanding of the necessity for strategic, forward-looking planning in addressing the long-term impacts of climate change.

Notably, there were no respondents who were unsure or who disagreed, further reinforcing the strong support for integrating climate adaptation measures into broader national development agendas. Only 2 respondents (2.4%) strongly disagreed, representing a very small minority whose views may stem from differing perspectives on policy integration or skepticism about its practical implementation.

The results suggest that participants recognize the value of embedding adaptation measures within structural and financial frameworks to ensure sustainability, consistency, and resilience in responding to climate-related risks. This alignment with national development plans can facilitate resource mobilization, institutional coordination, and policy coherence, all of which are essential for long-term climate resilience. Consequently, these findings support the need for governments and stakeholders to Taken together, these results suggest a generally high level of engagement and familiarity with environmental security discourse, including areas such as ecological risk, resource conflict, policy responses, and sustainable development. However, the presence of respondents who were either uncertain or in disagreement highlights the need for continued efforts to enhance public understanding,

possibly through education and awareness initiatives tailored to address existing knowledge gaps.

Overall, this data reinforces the importance of targeted public education and policy engagement strategies, particularly those that emphasize the diverse and interrelated impacts of climate change. Efforts to further educate the undecided or skeptical minority could help build a more cohesive and informed public response to climate-related challenges.

This finding supports existing literature that posits climate change as a "threat multiplier" intensifying existing vulnerabilities and instabilities in societies, especially in regions heavily dependent on natural resources. The strong agreement among participants also implies a need for proactive policy interventions, such as resource management, conflict mitigation strategies, and climate adaptation planning, to prevent or reduce future conflicts.

These results underscore the growing perception—and likely experience among communities that climate change is not a distant or abstract phenomenon, but a present and pressing issue contributing to forced migration. The absence of dissenting views further highlights the widespread recognition of the problem among the study population. This suggests an urgent need for policymakers and development practitioners to prioritize interventions aimed at mitigating the effects of climate change on vulnerable communities. Such measures may include the development of climate-resilient infrastructure, improved early warning systems, and comprehensive resettlement plans for affected populations. The findings also point to the importance of integrating climate adaptation strategies into broader national development frameworks to reduce the socio-economic vulnerabilities associated with climate-induced displacement.

The overall trend suggests widespread recognition of the role that scientific study of climate change plays in deepening understanding and informing action. The high percentage of

agreement points to a general awareness among the population that tackling climate change requires knowledge of its underlying mechanisms and consequences. The small portion of respondents who were unsure or strongly disagreed may reflect either skepticism, limited exposure to climate science, or differing perspectives on the effectiveness of current climate studies.

Overall, the data reinforce the importance of integrating climate change education into formal and informal learning systems. Empowering communities through accessible, accurate, and action-oriented information can significantly contribute to mitigation and adaptation efforts. These findings support the call for policy interventions that prioritize public education campaigns and curriculum development to equip citizens with the knowledge and skills necessary to respond effectively to the global climate emergency.

The findings also reflect a broader alignment with international environmental discourse, such as the United Nations Decade on Ecosystem Restoration (2021–2030), which emphasizes collaborative global action to revive natural ecosystems as a means of securing environmental sustainability and climate resilience. The single instance of uncertainty may point to a knowledge gap or the need for further education on the specific mechanisms by which ecosystem restoration contributes to climate defense.

The data indicates a strong awareness and endorsement among respondents for global ecological restoration initiatives as a viable and essential response to climate change, underscoring the need for sustained public engagement and policy support in these efforts.

The results reflect a strong recognition of the critical role that institutional and technical measures play in enhancing infrastructure resilience. Regulatory standards ensure that construction practices meet safety and sustainability criteria, while spatial planning frameworks guide development away from high-risk areas. Additionally, effective

communication strategies are essential for stakeholder awareness, community preparedness, and coordination among agencies.

These findings are in alignment with global best practices, particularly as promoted by the Sendai Framework for Disaster Risk Reduction and various national adaptation plans that prioritize resilient infrastructure as a frontline defense against climate-related disruptions.

The data shows a dominant belief among participants in the efficacy of regulatory and planning interventions to strengthen infrastructure resilience. This underscores the need for continued investment in policy development, public education, and infrastructure upgrades to enhance climate adaptability and reduce vulnerability to future environmental shocks skepticism about its practical implementation.

The results suggest that participants recognize the value of embedding adaptation measures within structural and financial frameworks to ensure sustainability, consistency, and resilience in responding to climate-related risks. This alignment with national development plans can facilitate resource prioritize and institutionalize climate adaptation strategies within national planning and investment structures.

CHAPTER FIVE

DISCUSSIONS, CONCLUSION AND RECOMMENDATION

5.1 Discussion

The environmental security debate centers on the idea that environmental issues, like climate change and resource scarcity, can pose threats to national and international security, potentially leading to conflict and instability

Environmental security encompasses a wide range of issues, including the consequences of climate change (natural disasters, drought, sea level rise), resource conflicts, threats to sustainability and livelihoods, and degradation of land, water, and air. It examines how environmental degradation can create or exacerbate security problems, such as resource competition, displacement, and social unrest.

Environmental security expands the traditional understanding of security beyond military threats to include environmental factors that can impact human well-being and stability. **Climate Change as a Security Multiplier** can exacerbate existing conflicts and create new ones by causing resource scarcity, mass migration, and ecosystem collapse. Competition over dwindling resources like water, land, and minerals can lead to conflict and instability, particularly in regions already facing high levels of poverty and inequality. Pollution, deforestation, and other forms of environmental degradation can have severe consequences for human health, livelihoods, and security. Environmental issues are often intertwined with social, economic, and political factors, making them a complex challenge to address.

Some argue that applying the concept of "security" to environmental issues can overstretch its meaning and lead to a focus on military solutions where other approaches may be more

appropriate. Some argue that the Copenhagen School's approach to securitization, which focuses on the social process that specifies threats, can be problematic because it tends to essentialize an historical and sector-specific understanding of security.

There's a concern that framing environmental issues as security threats can lead to a focus on military solutions rather than addressing the root causes of environmental problems. The concept of environmental security can be broad and vague, making it difficult to define and measure. Some argue that the focus on state-level security can overshadow the importance of individual and community-level environmental security.

Environmental security and climate change are intertwined, with the latter posing significant threats to the former, leading to resource scarcity, displacement, and conflict. This study has emphasized that environmental security encompasses a broad range of issues, including the consequences of climate change, resource conflicts, threats to sustainability and livelihoods, and the degradation of land, water, and air. This research recognizes the interconnectedness of environmental issues and their impact on human security.

According to this study, climate change can lead to decreased water availability, food insecurity, and increased competition over resources, potentially leading to conflict. Rising sea levels, extreme weather events, and environmental degradation as a result of climate change can force people to migrate or displace them from their homes, straining local resources and potentially leading to social unrest. Climate change can disrupt ecosystems, leading to biodiversity loss, habitat destruction, and reduced ecosystem services. Similarly, climate change is causing more frequent and severe natural disasters, which can lead to loss of life, infrastructure damage, and economic disruption.

Mitigating climate change through reducing greenhouse gas emissions is crucial to address the root cause of environmental security threats. Adopting sustainable practices and promoting environmental protection can help to build resilience to climate change impacts. In addition, international cooperation and collaboration are essential to address the global nature of climate change and environmental security challenges

Thus, climate change coping strategies include things like taking environmentally responsible actions (this is a potent way to manage and reduce the anxiety); adopting a problem-solving attitude; cognitive re-structuring or reframing; social support-seeking; becoming more attentive to the issue and, expressive coping.

5.2 Limitations of the study

The researcher faced some hardships in gathering some necessary information for the research study and these included the following;

The time was insufficient to fully access a bigger group of respondents for interview and questionnaire administration as well as for analyzing all the information in journal and other documentary sources/ articles. This problem was solved through sampling and by conducting interviews, administering questionnaires and getting a good number of relevant documents such as journals and going through them quickly.

Some respondents were not able to return the questionnaires in time, and some were not willing to take part in the study. This problem was tackled by using different data collection methods in order to generate comprehensive data analysis.

5.3 Conclusion

The environmental security debate highlights the growing recognition that environmental issues are not just environmental problems, but also security challenges that can have far-reaching consequences. While there are arguments for and against the concept of environmental security, it remains a crucial area of study and policy-making as we grapple with the challenges of a changing planet.

This study agrees that the consequences of climate change will affect us in many ways including, natural disasters, drought, sea level rise among others. As a result of climate change there is going to be a rise in the level and magnitude of resource-based conflict. Threats to sustainability and livelihoods will also be an inevitable social-economic situation that humans will suffer because of climate change because climate change has led and is still leading to the degradation of land, water, and air the world over. Climate change is already affecting public health and will continue to do that in years to come thus it's important that we understand how the climate is changing, so that we can prepare for the future.

The Government of Uganda recognizes the effects of climate change and the need to address them within the national and international strategic frameworks. This Strategic Program for Climate Resilience (SPCR) is a framework for addressing the challenges of climate change that impact on the national environmental and economic security including development of resilience by vulnerable communities. The overall objective of the SPCR is to ensure that all stakeholders address climate change impacts and their causes in a coordinated manner through application of appropriate measures, while promoting sustainable development and a green economy.

5.3 Recommendation

To enhance environmental security in Uganda, it's important to prioritize integrated resource management, community engagement, and climate change adaptation, alongside strengthening environmental governance and enforcing regulations.

To address Uganda's climate change impacts, recommendations stemming from environmental security debates include:

There is a need for Uganda to develop a comprehensive national renewable energy strategy with targets and incentives, a need to strengthen regulations for renewable energy projects and, improving grid infrastructure for renewables

There is a need for country-wide effort to foster educational initiatives and local expertise to increase knowledge and awareness among Uganda's populace

Uganda should get involved in national efforts that are geared towards protecting and restoring carbon-rich ecosystems like wetlands and forests that have been depleted over the years through careless land use practices

Efforts should be directed towards enhancing food system efficiency through sustainable practices in Uganda at both country level down to the grassroots in the country side of the country

There is a need in Uganda to integrate climate action into urban planning and building practices thus, cities should conduct climate risk assessments, develop integrated sustainable urban plans that include green infrastructure and resilient land use, implement climate-smart regulations and incentives for sustainable buildings, foster community engagement, and leverage data and technology for better decision-making and monitoring.

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APPENDICES

Appendix I: Questionnaires

Questionnaire examining the environmental Security Debate and its significance for climate change in Uganda

Introduction

Dear respondent,

I am Opoi Julius Owino a student offering a Masters Degree of Arts in Security and Strategic Studies at Nkumba University Uganda. As part of my master's degree I am conducting research to understand the environmental Security Debate and its significance for climate change in Uganda. Kindly share information to help me make a correct analysis. Your name is not required. The information provided will be treated as confidential and will only be used in the research study.

Section One: Socio Personal Data

1. Gender

Male	Female

2. Age

Age	Response
20 Years and below	
21-25 Years	
26-30 Years	
31-35Years	
36 Years and above	

3. Social Status

Social Status	Response
Community Leader	
Religious Leader	
Civil Servant	
Police Officer	
Private Business Person	
Artisan	
Community Member	
Others (Please Specify)	

4. Educational Status

Educational Status	Response
University Education Level	
Tertiary Education Level	
Secondary Educational Level	
Primary Education Level	
Other form of Education (Please Specify)	

5. Religion

Religion	Response
Roman Catholic	
Anglican	
Islam	
Seventh Day	
Jehovah's witness	
Charismatic Christian	
Born Again Christian	
Others (Please Specify)	

6. Years Spent in the Community

Years Spent in the Community	Response
1-2 Years	
3-5Years	
6-10 years	
More than 10 Years	

Section Two: understand the environmental security debate

I have an understanding of the issues of debate when it comes to Environmental security

Strongly agree	agree	Not sure	disagree	Strongly disagree

The consequences of climate change will affect us in many ways including, natural disasters, drought, sea level rise among others

Strongly agree	agree	Not sure	disagree	Strongly disagree

As a result of climate change there is going to be a rise in the level and magnitude of resource-based conflict

Strongly agree	agree	Not sure	disagree	Strongly disagree

Threats to sustainability and livelihoods is an inevitable social-economic situation that humans will suffer because of climate change

Strongly agree	agree	Not sure	disagree	Strongly disagree

Climate change is leading to the degradation of land, water, and air the world over

Strongly agree	agree	Not sure	disagree	Strongly disagree

Climate change is already affecting public health and will continue to do that in years to come

Strongly agree	agree	Not sure	disagree	Strongly disagree

Some households and communities have already begun suffering from the effects of climate change, forcing them to abandon their homes in search of a new one

Strongly agree	agree	Not sure	disagree	Strongly disagree

Section Three: the environmental security debate and its significance on climate change

It's important that we understand how the climate is changing, so that we can prepare for the future.

Strongly agree	agree	Not sure	disagree	Strongly disagree

Studying the climate helps us predict how much rain the next winter might bring, or how far sea levels will rise due to warmer sea temperatures.

Strongly agree	agree	Not sure	disagree	Strongly disagree

Studying climate change will help us understand why global temperatures continue to rise, how the climate affects us, and how we can tackle this challenge before things get much worse.

Strongly agree	agree	Not sure	disagree	Strongly disagree

Knowledge regarding this phenomenon helps people to understand and tackle the consequences of global warming, encourages them to change their behaviour and helps them to adapt to what is already a global emergency.

Strongly agree	agree	Not sure	disagree	Strongly disagree

Education will be a key tool in the fight against climate change in the coming years.

Strongly agree	agree	Not sure	disagree	Strongly disagree

Section Four: the strategies being adopted from the environmental security debate to help address the climate change challenges in Uganda

Through early warning systems people can take early action to block consequences of floods, stock pile resources and even evacuate people

Strongly agree	agree	Not sure	disagree	Strongly disagree

Being part of the global movement to restore the global eco-system will increase eco-system services to defend the world from the devastating impacts of climate change

Strongly agree	agree	Not sure	disagree	Strongly disagree

Climate-resistant infrastructure like roads, bridges and power lines can with stand shocks from extreme climate impact through regulatory standards, spatial planning framework and strong communication drives

Strongly agree	agree	Not sure	disagree	Strongly disagree

Investing in more efficient ways of using water like holistic water management plans and integrated water resource management from source to distribution, treatment, reuse and return to the environment will reduce the adverse effects of climate change

Strongly agree	agree	Not sure	disagree	Strongly disagree

Climate adaptation solutions will be more effective if integrated into long term strategies and policies and in the national plans of investments within the country

Strongly agree	agree	Not sure	disagree	Strongly disagree

Appendix II: Interview

An interview schedule examining the environmental Security Debate and its significance for climate change in Uganda

Introduction

Dear respondent,

I am Opoi Julius Owino a student offering a Masters Degree of Arts in Security and Strategic Studies at Nkumba University Uganda. As part of my master's degree, I am conducting research to understand the environmental Security Debate and its significance for climate change in Uganda. Kindly share information to help me make a correct analysis. Your name is not required. The information provided will be treated as confidential and will only be used in the research study.

Understanding the Environmental Security Debate

1. What are the issues of debate when it comes to Environmental security?
2. How do you think climate change will affect us in terms of, natural disasters, drought, sea level rise among others?
3. Do you think as a result of climate change there is going to be a rise in the level and magnitude of resource-based conflict?
4. Do you think threats to sustainability and livelihoods is an inevitable social-economic situation that humans will suffer because of climate change? why?
5. In which way will climate change lead to the degradation of land, water, and air the world over?
6. In which way will climate change affect public health and continue to do so in years to come?

7. In which way are households and communities already suffering from the effects of climate change? do you think this will force them to abandon their homes in search of new ones?

The Environmental Security Debate and its significance on Climate Change

8. How is the climate changing? and in which way can we prepare for the future?
9. In which way is studying climate going to help us predict how much climate will affect us in years to come?
10. Do you believe that in studying climate change we will be able to understand why global temperatures continue to rise, how the climate affects us, and how we can tackle this challenge before things get much worse?
11. Do you think knowledge regarding climate change helps people to understand and tackle the consequences of global warming?
12. Do you think public education will be a key tool in the fight against climate change in the coming years? How?

The strategies being adopted from the environmental security debate to help address the climate change challenges in Uganda

13. Do you think through early warning systems people can take early action to block consequences of floods, stock pile resources and even evacuate people? In which way will this be possible?
14. It is argued that being part of the global movement to restore the global eco-system will increase eco-system services to defend the world from the devastating impacts of climate change. In which way will it be possible?
15. Some scholars and leaders have argued that Climate-resistant infrastructure like roads, bridges and power lines can with stand shocks from extreme climate impact through

regulatory standards, spatial planning framework and strong communication drives.

Do you agree with this thinking? In which way will this be possible?

16. It is argued that investing in more efficient ways of using water like holistic water management plans and integrated water resource management from source to distribution, treatment, reuse and return to the environment will reduce the adverse effects of climate change. Elaborate on how this will be meaningful
17. It is argued that climate adaptation solutions will be more effective if integrated into long term strategies and policies and in the national plans of investments within the country. Discuss your own understanding of this argument