INDIGENOUS ABALUHYIA WORLDVIEW IN COMMUNICATING CLIMATE CHANGE DATA RELATED TO CONSERVATION OF KAKAMEGA FOREST

Lilian M. Were

A Thesis submitted in partial fulfilment for the requirements of the conferment of the Doctor of Philosophy Degree in Religion of Masinde Muliro University of Science and Technology

October, 2024

DECLARATION

This Thesis is my original work prepared with no other than the indicated sources and support and has not been presented anywhere for a degree or any other award.

Signature…….. Date…….

Name: Lilian M. O Were

REL/H/01/58271/16

CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance of Masinde Muliro University of Science and Technology a thesis entitled **Indigenous Abaluhyia Worldview in Communicating Climate Change Related to Conservation of Kakamega Forest.**

Signature…… Date……

Dr. Ochieng L. Ahaya

Department of Social Studies Education

Masinde Muliro University of Science and Technology

Signature……. Date…….

Prof. Janet Kassilly

Department of Social Studies Education

Masinde Muliro University of Science and Technology

COPYRIGHT

This thesis is copyright materials protected under the Berne Convention, the copyright Act of 1999 and other international and national enactments in that behalf, on intellectual property. It may not be reproduced by any means in full or in part excerpt for short extracts in fair dealing so for research or private study, official scholarly review or discourse with acknowledgement, with written permission of the Dean Directorate of Graduate studies on behalf of both the author and Masinde Muliro University of Science and Technology

DEDICATION

This work is dedicated to my entire family: my late parents Mr. Philip Okwaro and Mrs. Rosemary Atieno Okwaro who raised me, guided me and believed in me; my husband Joseph and children; Jonathan, Brian, Louis and Neema for your immense support. To my siblings for your continued encouragement and for always having my back.

AKNOWLEDGEMENT

I am grateful to the Almighty God for strength and grace to write this thesis without whom I would never have been able to do it. I am grateful to Masinde Muliro University of Science and Technology for the opportunity to study. My deepest gratitude goes to my supervisors: Dr. Ochieng Ahaya and Prof. Janet Kassilly for their guidance, support, inspiration, encouragement and tireless scholarly advice without which this thesis would not be. I also wish to express my sincere gratitude to the participants in this study without whom this work would not be. My sincere thanks go to my classmates whose input contributed to this study. My appreciation goes to my daughter, sons and husband for the sacrificial support during this journey.

ABSTRACT

Communicating climate change data that is related to forest conservation is increasingly becoming a topical issue of discussion. The efforts to communicate climate change data that is related to conservation of Kakamega forest narrowly focus on western scientific data without considering the input of indigenous Abaluhyia worldview. Thus, the communicated scientific information has not elicited the expected change in behaviour by the targeted audience with regards to conservation of Kakamega Forest and mitigating climate change. The study purposed to evaluate integrating the indigenous Abaluhyia worldview into communicating scientific data on climate change that is related to conservation of Kakamega forest. To do this, the study sought to establish the scientific approaches used in communicating climate change data that is related to conservation of the forest in general, to examine ways through which indigenous Abaluhya worldview communicates conservation of the forest in general, to assess how the indigenous Abaluhya worldview is used in the conservation of Kakamega Forest and to evaluate the integration of indigenous Abaluhya worldview with scientific approaches in communicating climate change data that is related to the conservation of Kakamega Forest. The study was guided by the Worldview Intercultural Communication theory which states that worldview is a basic interpretation schema in communication and can unlock the deepest ideas of the cosmos. The study adopted a descriptive survey design in order to describe the attitudes, values and perceptions of the participants. Purposive sampling techniques were used to select key respondents, the Mwileshi Community Forest Association and participants of Focus Group Discussions. Simple random sampling was used to select respondents from the registered members of Mwileshi Community Forest Association. Quantitative data was collected using questionnaires for the forest officers, forest rangers and workers of agencies that have a concern for climate change. Qualitative data was collected using interview schedules for the key respondents and participants from the Community Forest Association. Focus group discussion guides were used for the FGD participants. Qualitative data from the oral interviews was analyzed thematically while quantitative data from questionnaires was analyzed using tables and graphs generated by the statiscal package for social sciences. This study endeavored to help policy makers in recognizing the significance of the indigenous Abaluhyia worldview in communicating climate change related to conservation of Kakamega forest. Results of the study indicated that indigenous Abaluhyia worldview is not formally incorporated in communicating climate change. The study concluded that the attitude and response of the community that lives adjacent to the forest showed lack of comprehension and conceptualization of the communicated data, thus the need to change the approach of communicating. The study recommends that integrating indigenous Abaluhyia worldview with the scientific approaches in communicating climate change data related to the conservation of Kakamega Forest would enhance understanding of the communication, the community would relate with it and it would then elicit the desired behavior.

TABLE OF CONTENTS

DECLARATION.....**ii**
COPYRIGHT.....**iii**
DEDICATION.....**iv**
AKNOWLEDGEMENT.....**v**
ABSTRACT.....**vi**
TABLE OF CONTENTS.....**vii**
List of Tables.....**xi**
sFigure.....**xii**
ABBREVIATIONS AND ACRONYMS.....**xiii**
CHAPTER ONE.....**1**
INTRODUCTION.....**1**
1.1 Background to the Study.....1
1.2 Statement of the Problem.....9
1.3 The purpose of the Study.....11
1.4 Specific Objectives of the Study.....11
1.5 Research Questions.....11
1.6 Significance of the Study.....12
1.8 Assumptions of the Study.....13
1.9 Justification of the Study.....13
1.7 Scope and Limitations of the Study.....16
CHAPTER TWO.....**18**
LITERATURE REVIEW.....**18**
2.0 Introduction.....18
2.1 Communication.....18
2.1.1 Western Scientific Worldview of Communicating Climate Change.....20
2.2 Challenges of communicating climate change.....50
2.3 Indigenous African worldview's ways of communicating conservation of Forests. 64
2.4 Indigenous African worldview's ways of conserving Kakamega Forest.....79
2.5 Integrating indigenous Abaluhyia worldview with scientific approaches in communicating climate change data related to conservation of Kakamega Forest.….104

2.6 Theoretical Framework....126
CHAPTER THREE....129
RESEARCH METHODOLOGY....129
3.0 Introduction....129
3.1 Research Design....129
3.2 Study Area....131
3.3 Target Population....132
3.4 Sample....133
3.5 Sampling Procedures....134
3.6 Research Instruments....138
3.6.1 Questionnaires....139
3.6.2 Interview Schedules....139
3.6.3 Focus Group Discussion Guide....140
3.7 Validity....141
3.8 Reliability....141
3.9 Data Collection....142
3.10 Data Analysis and Presentation....144
3.11 Ethical Considerations....145
CHAPTER FOUR....146
APPROACHES USED IN COMMUNICATING CLIMATE CHANGE RELATED TO CONSERVATION OF KAKAMEGA FOREST....146
4.1 Introduction....146
4.2 Demographic characteristics of the respondents....146
4.3 Impacts of Climate Change related to destruction of Kakamega Forest....150
4.4 Efforts made to communicate climate change....155
4.5 Approaches used in communicating climate change....168
4.5.1 Communicating Climate change through verbal communication....169
4.5.2 Communicating Climate Change through written communication....175
4.5.3 Communicating climate change through community participation....178
4.5.4 Communicating climate change using electronic media....182
4.6 Importance of communicating climate change to communities that live adjacent to Kakamega Forest....185
4.7 Chapter Summary....189

CHAPTER FIVE.....191

THE INDIGENOUS ABALUHYIA WORLDVIEW IN COMMUNICATING CONSERVATION OF KAKAMEGA FOREST.....191

5.0 Introduction.....191

5.1 Indigenous Abaluhyia worldview's concept of communicating conservation of the Forest.....191

5.2 Indigenous Abaluhyia approaches in communicating conservation of Kakamega Forest.....193

5.2.1 Communicating Conservation of the forest through songs.....195

5.2.2 Communicating conservation of the forest through Prohibitions.....199

5.2.3 Communicating conservation of the Forest through wise sayings.....209

5.2.4 Communicating conservation of the forest using folktales.....211

5.2.5 Communicating conservation of the forest using cultural ceremonies.....213

5.3 Chapter Summary.....215

CHAPTER SIX.....216

INDIGENOUS ABALUHYIA WORLDVIEW'S APPROACHES OF CONSERVING KAKAMEGA FOREST.....216

6.0 Introduction.....216

6.1 Indigenous Abaluhya practices that enhance conservation of Kakamega Forest. .216

6.2 Importance of Conservation of Kakamega Forest.....227

6.3 The Relationship between conservation of the Forest and climate change.....232

6.4 Activities that cause destruction of Kakamega Forest.....237

6.5 Challenges of conservation of Kakamega Forest.....241

6.6 Summary of the Chapter.....242

CHAPTER SEVEN.....244

INTEGRATING INDIGENOUS ABALUHYA WORLDVIEW WITH SCIENTIFIC APPROACHES IN COMMUNICATING CLIMATE CHANGE RELATED TO CONSERVATION OF KAKAMEGA FOREST.....244

7.0 Introduction.....244

7.1 Response by the Forest adjacent community to communicating climate change related to conservation of Kakamega Forest.....244

7.2 Challenges hampering positive response to communicating climate change.....246

7.3 Application of the indigenous Abaluhya Worldview in communicating climate change.....260

7.4 Integrating the indigenous Abaluhya worldview with scientific approaches in communicating climate change related to conservation of Kakamega Forest.....269
7.5 Chapter Summary.....291
CHAPTER EIGHT.....293
SUMMARY OF CHAPTERS, FINDINGS, CONCLUSION AND RECOMMENDATIONS.....293
8.0 Introduction.....293
8.1 Summary of Chapters.....293
8.2 Conclusion.....301
8.3 RECOMMENDATIONS.....303
8.4 Suggestions for further research.....304
REFERENCES.....305
APPENDICES.....320
APPENDIX 1: INTERVIEW SCHEDULE FOR ELDERS.....320
APPENDIX 2: QUESTIONNAIRE FOR FOREST RANGERS/GUARDS.....326
APPENDIX 3: FOCUSED GROUP DISCUSSION GUIDE FOR COMMUNITY FOREST ASSOCIATION MEMBERS.....334

List of Tables

Table 4.1 Distribution of respondents by gender and Sub-County.....147

Table 4.2 Education Level of the respondents…….100

Table 4.3 Frequency in communicating climate change that is related to conservation of Kakamega.....163

Table 6.1 Extent of Deforestation of Kakamega Forest.....235

Figure

Figure 4.1 Distribution of respondents by age.....148

ABBREVIATIONS AND ACRONYMS

AGRA	Alliance of Green Revolution
ARC-	African Risk Capacity
CAFOD-	Catholic Agency for Development Overseas
CEC	County Ecosystem Conservator
CFA	Community Forest Association
ECRC-	EnvCom Resource Center
EEA-	European Environment Agency
ESPACE	European Spatial Planning; Adapting to Climate Events
FAO-	Food and Agriculture Organization
FGDs	Focus Group Discussions
FCA	Forest Community Associations
ICIPE-	International Centre of Insect Physiology and Ecology
ICT	Information Communication Technologies
IPCC-	The Intergovernmental Panel for Climate Change
KALRO	Kenya Agricultural and Livestock Research
KWS-	Kenya Wildlife Services
NEPA-	National Environmental Policy Act
PFM	Participatory Forest Management
REC	Regional Ecosystem Conservator
SEI	Stockholm Environmental Institute
SER	Social and Environmental Report
UNCCC 2014	United Nations Framework Convention on Climate Change

WWF	World Wide Fund for Nature

DEFINITION OF TERMS

Abaluhyia **:** the people who speak various LSuhya dialects and form the community that lives adjacent to the forest ie Abisukha, Abanyala, Abakabrasi, Abatsotso, Abatirichi, Abashisa, Abidakho

Indigenous : That which originated and occurs naturally in a particular environment

Worldview : The totality of how people make sense of their lived experiences, the attitudes and values that they hold and the way they respond to them

Abaluhyia worldview: the common view/conception, outlook and understanding of the experiences of Abaluhyia ethnic communities that live adjacent to Kakamega Forest about that forest and its resources.

Climate change **:** Observable changes in the environment in Kakamega Forest as a result of a gradual shift in the region's typical weather patterns

Forest conservation: Conservation of wooded land for the present and future benefit of the people living in and around the forest.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Communicating climate change issues linked to forest conservation is still a critical topic of conversation. This is because governments are becoming more aware of how bad climate change disasters are and the need to take action right away (Ward 2008; Ockwell, Whitmarsh & O'Neill 2009). Postma (2006) suggests that the issues of resource depletion, forest degradation, and climate change, coupled with population growth, have alarmed scientists, environmentalists, and concerned citizens more and more. Therefore, effective communication of climate change is imperative for the mitigation of its consequences.

According to the Stockholm Environmental Institute (2016), a substantial amount of literature, including books, publications, and online resources, is dedicated to climate change. However, it is important to observe that comprehension of the forgoing information is contingent upon the expertise and background of the intended readership. In the view of SEI (2016), the communication of climate change presents unique difficulties due to the inclusion of intricate matters and fundamental inquiries. This endeavor encompasses significant and intricate matters that aim to mobilize individuals in addressing a problem that need collaborative efforts for its resolution. SEI (2016) notes that efforts in communicating climate change frequently seek to alter the individual attitudes, intentions, and actions of audiences. This research emphasizes the significance of ensuring the relevance and actionability of transmitted messages for various audiences.

The author of this scholarly work presents a scenario that necessitates collaborative endeavors from both communicators and the audience to effectively tackle the difficulties related with conveying climate change.

The Paris Agreement on climate change identified public consciousness and the effective communication of climate change data as significant concerns, as highlighted by the Climate and Development Knowledge Network (2019). Hence, the propagation of information regarding climate change serves as a valuable contribution towards the attainment of the objectives outlined in the Paris Agreement. Tomalin (2009), explains that the significance of environmental concerns differs between Britain and regions like India and Africa. In Britain, environmental issues are often not perceived as immediate threats to survival. However, in India and Africa, environmental challenges such as deforestation and water contamination directly impact the lives and well-being of individuals, posing life-or-death situations. Hence, it is imperative to acknowledge and tackle environmental concerns as they have a direct impact on individuals' means of subsistence.

Ikuenobe (2014) asserts that there have been expressed worries regarding the extensive devastation of rain forests, the illegal hunting of wildlife, the contamination of rivers, the endangerment of diverse plant and animal species, and the destruction of numerous habitats as a result of deforestation. Nevertheless, despite ongoing efforts in communication, the destruction of forests and habitats persists. Consequently, for efficacious addressing of climate change that is related to forest conservation, it is imperative to enhance communication strategies.

According to CDKN (2019), women in Namibia were found to be disadvantaged by their low literacy rates during a project aimed at disseminating weather and climate data. The individuals were unable to comprehend the information disseminated by mobile applications. Nerlich et al. (2009) note that despite a wealth of literature on the theme of communicating climate change, carbon emissions have increased on both a global and national scale, and society remains vulnerable to climate variability. These researchers have raised inquiries regarding the efficacy of present endeavors in conveying the implications of climate change, as well as the audiences' capacity to enact change related to forest conservation as a response to this communication. As to the analysis conducted by these experts, the focal points revolve around the efficacy of the messages, the societal framework, and the assessment of the level of empowerment bestowed upon citizens to enact meaningful transformations.

Weart (2003) highlights the limited scope of disseminating information about the impacts of climate change, which mostly centers on western scientific research, assessments, and occasionally, discussions from prominent conferences and policy gatherings. Hiwasaki et al. (2014) and Chanza and de Wit (2015), support by explaining the perception that disseminating information about climate change is a technological and scientific procedure that calls for specialists to translate data on forest conservation, climate variability, and trends in a particular area. According to Pellizoni (2003), it is recognized that scientific data possesses a high level of complexity, to the extent that even professionals may exhibit disagreement among themselves. When contemplating the intricacies and uncertainties related to the communication of climate change data and forest protection, it is imperative to amalgamate the pertinent scientific information.

The ESPACE (2006) report states that the difficulty lies in getting people involved in the climate change debate in order to lower existing barriers and help people understand how their own beliefs and actions contribute to the problem and to the search for solutions. According to Park (2007), the author argues that although environmental issues may appear to be primarily physical in nature, their underlying causes and potential solutions may be traced back to individuals' attitudes, values, and expectations. According to the author's analysis, it may be inferred that the perceptions or worldviews held by individuals can influence their attitudes and actions related to environmental issues. Kearney and Bradley (1998) emphasize the significance of incorporating human values into the forestland and natural resource decision-making and communication processes. It has been noted that policymakers in the United States have acknowledged since the 1960s that forests possess worth beyond their commodity attributes, as they are appreciated by many individuals for many reasons. Furthermore, it is worth noting that inside the United States, the National Environmental Policy Act (NEPA) recognizes the existence of diverse human perspectives about the environment. As a result, NEPA mandates the inclusion of public engagement in the process of formulating land use plans for public areas. Consequently, SEI (2016) asserts that the audience's values and norms frequently conflict with these communications, thereby diminishing their impact.

According to Tarusarira (2017), the African religion, as manifested in the indigenous African worldview, operates in a mutually beneficial relationship with other aspects of human cognition. Therefore, individuals and organizations involved in endeavors to communicate climate change and promote sustainable development should consider integrating African religion into their approaches. The author acknowledges the presence

of regulatory practices within African religion that pertain to the utilization of the environment. These practices encompass the conservation of medicinal plants as well as the safeguarding of precious ecological locations from potential damage. Hence, effective communication of climate change pertaining to forest conservation necessitates an approach that resonates with the cultural values of the target audience, while also being tailored to their specific cultural context. The presence of Indigenous people in mitigation discussions is crucial in order to facilitate accurate and comprehensive assessments of environmental realities. The current tactics and initiatives utilized for conveying climate change information fail to adequately consider the crucial cultural, spiritual, and social aspects of human well-being. (Tarusarira 2017).

As per the National Climate Change Action Plan (2013-2017), Kenya exhibits a high degree of susceptibility to climate-related occurrences, which in turn provide a significant risk to the socio-economic progress of the nation. Droughts and floods have profound implications for the environment, society, and the broader economy, resulting in severe effects. Based on the scientific perception of climate change, it is anticipated that these repercussions would persistently influence the nation in the forthcoming years. According to the National Climate Change Action Plan 2013-2017, Kenya's burgeoning population and expanding economy, along with the process of urbanization, has the capacity to potentially amplify greenhouse gas emissions in the coming years. Therefore, to effectively address the consequences of climate change, it is imperative to engage in effective communication.

Moser and Dilling (2012) state that experts and scientists have played an important role in talking about climate change. But science alone isn't enough to get people to act,

probably because the message is often lost in scientific jargon. According to these experts, the utilization of technical information or engagement in scientific arguments involving intricate details that surpass the comprehension of the local population might be perceived as a sort of exclusion. When professionals communicate with non-experts regarding the technical elements of climate change, usually through unidirectional means, there is limited opportunity for dialogue, fostering a collective comprehension of the issue and potential remedies. From Moser and Dilling's discourse on the need to foster dialogue that enhances collective comprehension, this study seeks to attain a communication approach that addresses that concern.

According to Tarusarira (2017), an African worldview is comprised primarily on three tenets: belief in God or gods, the existence of spirits (both good and evil), and the observance of cultic prohibitions (such as taboos and moral violations). Consequently, in some instances, trees, hills, or rivers were elevated to divine status, thereby necessitating their preservation. Obasola (2013) suggests that effective communication and understanding of environmental needs, as well as the responsibility of individuals towards environmental care, are crucial factors in addressing conservation and climate change issues. These considerations are believed to contribute to a comprehensive approach towards sustainable development. This scholar further states that Africans have a deep consciousness of their position within local ecosystems, recognizing the spiritual significance interwoven with nature and the environment. Obasola (2013) argues that conservation efforts should be based on the personal moral values rather than exclusivwly focusing on economic benefits.

The aforementioned perspectives recognize the significance of people's worldviews for effective communication and understanding of environmental needs. The indigenous African perspectives are centered around the earth and encompass the belief that the resources of nature are limited and ought not to be exploited or allowed to become extinct. It is essential for individuals to proactively participate in endeavors aimed at safeguarding the environment. Hence, it is imperative to effectively convey information on climate change to certain target audiences by aligning the messaging with their respective worldviews.

Chirisa et al. (2013) state that we need to use ways of communicating that include both local knowledge and western science that apply to everyone. These experts argue that the combination of both climate change consequences and forest protection is necessary in order to effectively communicate information on the subject. According to Ajani et al (2013), the inclusion of indigenous traditional knowledge in communicating scientific data, has the capacity to significantly improve communication efforts related to climate change and forest conservation. However, it appears that policy makers have largely disregarded the utility of this information.

Awuah-Nyamekye (2013) claims that African religious beliefs shape their view of the world and have been and still are a significant part of how they care for the environment. The author argues that neither scientific nor traditional approaches alone are sufficient in addressing contemporary ecological challenges. Therefore, a combination of these two approaches is required to effectively handle climate change.

Kakamega Forest, located in Western Kenya, is recognized as a forest that has seen significant fragmentation and disturbance, as documented by Kokwaro in 1988. Based on

the findings of the Millennium Ecosystems Assessment (2005), the principal factors contributing to the decline in biodiversity within the Kakamega tropical forest are human-induced activities, notably habitat destruction and fragmentation, the introduction of invasive species, and excessive exploitation. These activities have also resulted in indirect consequences, such as climate change. According to Vuviya et al (2014), human-induced disturbances such as logging, charcoal production, debarking, and grazing persistently diminish the variety of plant and animal species, thus leading to a decline in the overall health and sustainability of forest ecosystems over a long period of time. The researcher notes that these activities exert significant impacts on the climate. Therefore, it is imperative to effectively communicate the significance of climate change in relation to forest conservation for the purposes of mitigation and adaptation to all relevant stakeholders (FAO, 2012).

Momanyi and Nyatuka (2015) posit that, the BBC World Service Trust (2009) has reported that a significant number of Kenyans lack a comprehensive awareness of the concept of climate change because they are unaware of the appropriate strategies for mitigating its effects. This is attributed to their both little access to information, lack of resources and lack of comprehension, which hinders their ability to properly manage and adapt. These experts contend that while there has been substantial documentation of the impacts of climate change, little or no attention has been given to the obstacles associated with effectively conveying climate change issues. Based on the findings of these experts, it has been observed that there exists a notable lack of public concern over the possible hazards associated with climate change in Kakamega forest. This lack of concern appears to be correlated with a limited understanding of the inherent uncertainties surrounding

climatic conditions in the region. Momanyi and Nyatuka (2015) argue that there is a deficiency in the conveyance of provided data, and a noticeable lack of concern is observed among the people. The scientific principles underlying climate change are not fully comprehended by communities, necessitating the use of communication strategies that are both accessible and engaging to the intended audience. In the past, conventional methods of disseminating information regarding environmental conservation were also grounded in scientific principles.

This study presumes that the ramifications of the absence of comprehensive understanding of the communication concerning climate change, stands to not only affect the region but the effects spread globally. The Indigenous Abaluhyia worldview, shaped by the perceptions and lived experiences of the community in relation to the forest ecosystem, possesses the potential to resonate with the moral sensibilities of the Abaluhyia population residing in close proximity to the Kakamega Forest. Therefore, it is imperative to incorporate the indigenous Abaluhyia worldview in communicating climate change data in order to enhance the understanding and engagement with local communities.

1.2 Statement of the Problem

Climate stability and resilience in the region and locally has been affected by human activities which has led carbon emission and thus the crisis climate change. This crisis of climate change that is related to forest conservation has continued to cause concerns in the global and local communities. Scholars have documented information on the impacts of climate change caused by destruction of forests; however, the documented information

is mainly based on the western scientific worldview. There is a need to communicate the documented information in a way that enhances understanding by the target audiences with a view to address the concerns that are raised about climate change. Studies indicate that some efforts have been made in communicating climate change data related to conservation of the forest to the community that lives around Kakamega Forest. However, the attitude and response of the community around the Kakamega forest to the communication portrays minimal change in behaviour with regards to climate change that is related to conservation of the Forest. This indicates that the communication is deficient since it has not sufficiently elicited the expected response.

Approaches used in communicating climate change data related to forest conservation are largely informed by the western scientific worldview and are often technical for the lay people to comprehend. Communicating climate change that is related to conservation of Kakamega Forest needs to be comprehensible and appealing to the target community. Awuah-Nyamekye (2009) contends that conservation guidelines often neglect the indigenous peoples' environmental knowledge or worldviews. As a result, communicating climate change data that is related to conservation of the forest which is done does not seem to capture the social and symbolic constructions of the environment as related to the worldview of the indigenous people.

Auqayefio and Fobil (2005) note that a predisposition to ignore the crucial connection between the indigenous African worldview and western scientific methods of conveying forest conservation explains why many environmental conservation programs in Africa have failed. Scientific worldview often clashes with and overlooks most local practices and experiences that have traditionally been used by indigenous people to communicate

climatic events as well as conserve their habitats, and it also tends to be universalistic while climate change impacts are localized. Communities tend to be better informed about their environment by their indigenous worldviews. Therefore, using scientific approaches alone in communicating climate change data related to forest conservation seems to be inadequate in the efforts aimed at communicating localized and specified climate change. This study therefore sought to examine the opportunities offered by the indigenous Abaluhya worldview and how it can be integrated with scientific approaches in communicating climate change data that is related to conservation of Kakamega Forest.

1.3 The purpose of the Study

The purpose of this study is to evaluate integration of the indigenous Abaluhya worldview with scientific approaches in communicating climate change data related to conservation of Kakamega forest to the community around the forest.

1.4 Specific Objectives of the Study

i. To establish the approaches used in communicating climate change data that is related to conservation of the forest in general.
ii. To examine ways through which indigenous Abaluhya worldview communicates conservation of the forest in general.
iii. To assess how the indigenous Abaluhya worldview is used in the conservation of Kakamega Forest.
iv. To evaluate the integration of indigenous Abaluhya worldview with scientific approaches in communicating climate change data that is related to the conservation of Kakamega Forest.

1.5 Research Questions

i. What approaches are used in communicating climate change data that is related to forest conservation in general?

ii. In what ways do the indigenous Abaluhya worldview communicate about forest conservation in general?

iii. How is the indigenous Abaluhya worldview used to conserve Kakamega Forest?

iv. How can the indigenous Abaluhya worldview be integrated with scientific approaches in communicating climate change data related to conservation of Kakamega Forest?

1.6 Significance of the Study

Communicating climate change data related to conservation of the forest remains an important issue for sustainable development both globally and locally. While efforts of communicating climate change continue, responses from the audience in relation to conservation and preservation of the forests with regards to behaviour change remains very minimal and yet it should be the key to addressing climate change impacts. The study recognized the significance of the indigenous worldview of the forest adjacent community in communicating climate change related to conservation of Kakamega forest. The study yielded data that is pertinent in informing policy makers in reassessing strategies previously used in communicating climate change data and subsequently embrace the indigenous Abaluhyia worldview to communicate climate change that is related to conservation of the forest. The methods developed in this study can help forest conservation and management bodies develop a framework on which to base their policies which concern communicating climate change data. This would improve the

efforts to effectively communicate climate change data related to conservation of forests as well as form a basis for enhanced active community participation. Consideration of the indigenous Abaluhyia worldview would also inform decisions and actions in the domain of communicating climate change data as well as conservation of forests.

1.8 Assumptions of the Study

The study was anchored on the following assumptions: that there are scientific approaches of communicating climate change data; that the indigenous Abaluhyia worldview have ways of communicating climate change data and conserving the forest and finally Indigenous Abaluhyia Worldview can be integrated in communicating climate change that is related to conservation of Kakamega Forest. The study assumed that all the respondents would be accessed and had the required knowledge necessary to provide honest and accurate information about communicating climate change that is related to conservation of Kakamega Forest without bias.

1.9 Justification of the Study

Climate change is related to increased temperatures and changing weather patterns which result into declining water supplies, reduced agricultural yields, health impacts on human beings, flooding and erosion. Diverse climatic changes and weather variations in the western region in Kenya have been attributed to destruction and fragmentation of Kakamega Forest. Thus, the need to address climate change that is related to conservation of Kakamega Forest.

Various scholars have written literature on the theme of climate change with reference to its general development, its impact on the globe, its extent and the behavior of the forest

adjacent community who continue to aid its severity. However, for climate change to be addressed effectively, people need to be aware as well as understand the magnitude of its impacts. Knowledge about climate change and the nature of its impacts on the ecosystem need to be communicated clearly to specific audiences. Human beings also need to comprehend and understand the communication that is aimed at making them aware of what they can do to participate in mitigating climate change impacts.

Some scholars have addressed the theme of communicating climate change using western scientific, technological and media perspectives. It is basically essential that the academic scholars do not assume that scholarly work on climate change is enough, instead they should take cognizance of the need for the communication to reach the target audiences and for them to comprehend and conceptualize communication about climate change that is related to climate change. Insights from the field indicate that communicating climate change related to conservation of Kakamega Forest has not elicited the expected response from the audience with regards to conserving Kakamega Forest and therefore, mitigating climate change. This study targeted to undertake scholarship that aimed at filling the gap of effective communication of climate change by integrating the indigenous Abaluhyia worldview with scientific approaches in communicating climate change related to conservation of Kakamega Forest. This scholarly work would add to literature on effective communication of climate change.

The study's philosophical justification identified the need to form a philosophy whose ideology aims at overcoming obstacles preventing effective communication of climate change related to conservation of Kakamega Forest. The study recognized the importance of a pragmatic viewpoint for practicality and clarity in communicating climate change

that is related to conservation of Kakamega Forest with a view to obtain a change in behaviour by the audience. The study was also cognizant of the need for communicators to appeal to the audience via a philosophy that engages the audience by employing their ethics, social, logic and historical worldviews in communicating climate change. Employment of these philosophical elements would demystify the belief that climate change communication is difficult and lead to strategies that appeal to the audience. A philosophy developed which captures knowledge, reality, religious thoughts and experiences would allow for effective communication of climate change to be achieved. This philosophy developed in this study would be a guiding principle of behaviour with regards to communicating climate change related to conservation of Kakamega Forest.

The Kenyan policy on climate change aims at enhancing adaptive capacity and building resilience to climate variability and change while promoting a low carbon development pathway. The government's policy on climate change emphasizes knowledge and the nature of climate change and mandates Kenya Forest Services to communicate climate change to the public with the aim of eliciting a change in behaviour by the forest adjacent community in relation it mitigating climate change. However, insights of this research indicate that effective communication has not been achieved despite these efforts to communicate climate change. Climate change variations continue and people living adjacent to the forest continue with activities that destroy the forest and enhance emission of greenhouse gas therefore abetting climate change. This study therefore, explores the integration of the Abaluhyia worldview in communicating climate change that is related to conservation of Kakamega Forest with the aim to inform the government policy for effective communication.

For communication of climate change to be effective, it should be relevant to the community's values, perceptions and beliefs. The worldview of the community that lives adjacent to the forest has the potential to appeal to them and subsequently elicit the required change in behavior by the target audience. Integrating indigenous African worldview with scientific approaches in communicating climate change that is related to conservation of Kakamega forest has the prospective of enabling the community to relate with the information that is communicated. As a result, the communication will be relevant to both the government and community.

1.7 Scope and Limitations of the Study

The study was focused and confined to applying the indigenous Abaluhyia worldview in communicating climate change that is related to conservation of Kakamega forest. The study sought to establish the western scientific approaches that are used in communicating climate change data that is related to forest conservation, examined how the indigenous African worldview communicates conservation of the forest and evaluated how the indigenous African worldview can be integrated with scientific approaches to enhance communicating climate change that is related to forest conservation. The sample was drawn from members of the Community Forest Association, ecosystem conservators, forest officers, forest rangers from the Kenya Wildlife Services. Data was collected through oral interviews, focused group discussions, questionnaires and document analysis techniques. The data was collected by the researcher assisted by some assistants.

This study had a potentially wide scope and could be done in various dimensions as well as adopt various approaches but the study was limited to applying the indigenous

Abaluhyia worldview in communicating climate change related to forest conservation in Kakamega Forest of Kakamega county. Oral interviews involving individual respondents took a long time since each respondent had to be brought to a level where they could understand the content of the interview for discussions to proceed. The researcher's timelines were therefore defied. Literacy among some respondents was a limitation that interfered with the understanding of the questions in the interview schedules which were written in English. Some of the conversations were therefore held in the local Luhya dialect thus necessitating engagement of some assistants who understood both the English language and the dialects to translate for both the researcher and the respondents. This interfered a little with conducting in depth conversations with respondents which is often enabled when bonds are established between the interviewer and the interviewee in direct conversations.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The literature reviewed in this section of the study addresses themes related to western scientific approaches to communicating climate change data in general; ways through which the indigenous worldviews communicate climate change related forest conservation; how indigenous African worldview conserves Kakamega forest and integration of indigenous Abaluhyia worldview with scientific approaches in communicating climate change data. However before indulging in the review of this literature, it is important to understand what communication is.

2.1 Communication

Moser (2009) defines communication as the process of imparting information to or convincing a passive recipient. According to this scholar's perspective, individuals are most effectively helped by actively participating in a matter, expressing their opinions and principles, and actively contributing to the development of societal solutions. The author posits that the act of inundating the general public with an overwhelming amount of scientific knowledge and technocratic solutions, without engaging in open dialogue and fostering an understanding of potential hazards and available alternatives, is prone to incite resistance and dissent. Douglas (2013) concurs with Moser (2009) when he states that communication is the process of transferring meanings between individuals or groups by using signs, symbols, and semiotic principles that are mutually understood.

Communication is the process of sharing information, ideas, and thoughts among individuals. It is predicated on the assumption that individuals possess shared values and beliefs, enabling the formation of a cohesive society. Keyton (2010) adds that there has been communication when the input is desired. This concept emphasizes the notion that communication is contingent upon the establishment of a shared understanding through the sharing of information. The act of communication is typically instigated by a perceived necessity or inclination to impart an idea or thought to someone (Lunenburg, 2010). Baran (2005) introduces the cultural dimension by providing a definition of communication as a process that is deeply ingrained in our daily existence, shaping our perceptions, comprehension, and construction of our perspectives on reality and the global environment. The author subsequently asserts that communication serves as the fundamental basis of our society.

The consensus among experts is that shared values, beliefs, information, and perception are crucial elements for establishing good communication. These factors facilitate a comprehensive understanding of the perspectives and realities of the individuals involved. Therefore, the facilitation of efficient communication fosters a reciprocal exchange, thereby empowering collective societal mobilization. Enhancing comprehension of the target audience facilitates the identification of optimal communication strategies and enables the delivery of messages that will effectively resonate with diverse individuals. Moser (2009) argues for the necessity of incorporating the African worldview into the communication of climate change, aligning with the objectives of this study in integrating African worldviews into climate change communication. This is because the indigenous African worldview serves as a repository

of individuals' values and beliefs. After conducting an analysis of the concept of communication, the research shifted its focus towards an examination of the existing body of literature pertaining to the scientific methodologies employed in the communication of climate change.

2.1.1 Western Scientific Worldview of Communicating Climate Change

Chirisa, Matamanda, and Mutambwa (2018) have extensively examined and analyzed diverse contemporary approaches employed in the communication of climate change data and forest conservation. Their comprehensive exploration is presented in their publication titled "Africa's Dilemma in Climate Change Communication: Universalistic Science versus Indigenous Technical Knowledge." Chirisa et al emphasize that the communication of climate change and conservation of the forest has emerged as a pertinent topic in conversations pertaining to climate change. These researchers utilize Weart's (2003) work to argue that when attempting to convey matters pertaining to climate change, the dissemination of information tends to concentrate primarily on scientific discoveries, amalgamation of data, and occasionally the outcomes of prestigious conferences and policy gatherings. In their study, Chirisa et al (2018) acknowledge the emphasis on scientific perspectives by referencing the works of Hiwasaki et al (2014) and Chanza and de Wit (2015). They assert that the communication of climate change information is commonly regarded as a technical and scientific endeavor, necessitating the expertise of individuals who can interpret and disseminate data pertaining to climate variability and trends within a specific geographic area.

Chirisa et al (2018) maintain that the propagation of scientific observations and projections has led to progress in addressing climate change, particularly through effective communication to the general public and informing policy measures for climate change mitigation and adaptation. Nevertheless, it is important to note that science is characterized by its universalistic nature, whereas the consequences of climate change tend to be localized. Chirisa et al. (2018) acknowledge that relying just on scientific methodologies and adaption tactics is insufficient for effectively addressing localized issues that are distinct to certain places and cannot be generalized.

In the view of Chirisa et al. (2018), the scientific community is currently facing challenges in accurately forecasting the duration and distribution of seasonal rainfall. As a result, predictions in this sphere are depicted in a probabilistic nature. These authors claim that inherent traditional knowledge becomes applicable when scientific communication falls short, and when combined with scientific approaches, it has the capacity to make valuable contributions to climate change communication. However, policymakers appear to disregard its usefulness. Based on the inquiry of these academics, failure to incorporate indigenous traditional knowledge poses a significant risk to its continued existence, potentially resulting in its failure to be transmitted across generations. According to their perspective, indigenous traditional knowledge and science are influenced by religious and cultural beliefs, hence impacting the transmission of climate change in relation to forest conservation matters. These experts additionally note that when the severity of climate change increases and leads to extensive damage to both property and individuals' means of sustenance, particularly in developing nations, it becomes imperative to adopt communication strategies that incorporate both indigenous

traditional knowledge and universalistic science. The integration of these approaches is important in order to achieve effective dissemination of climate change information.

Chirisa et al (2018) maintain that there is a contrast between scientific approaches and indigenous knowledge in the communication of climate change impacts. They claim that the prevailing and scholarly discourse on climate change predominantly favor scientific knowledge, while largely disregarding the significant insights offered by indigenous traditional knowledge. Consequently, the integration of these two knowledge systems is often impeded. According to their perspective, this particular circumstance presents challenges to effectively integrating the concerns, beliefs, values, and attitudes of indigenous populations in the context of communicating climate change in relation to forest conservation. The BBC World Service Trust (2010) has been quoted by these experts, who acknowledge the presence of a significant dearth of pertinent and valuable material tailored to African audiences. This scarcity not only hampers the effectiveness of climate change communication among African individuals but also contributes to the complexity of their responses. According to the BBC, including indigenous communities' insights and experiences has been found to enhance the development of effective policies that align with their perspectives and values in the context of climate change communication.

Chirisa et al's (2018) discussions recognize the insufficiency of science in effectively communicating climate change. These scholars are aware that science lacks effective communication due to failure to affiliate the worldview of the local population. This study aims to bridge the gap presented by scholars who argue that scientific methodologies, despite their universalistic nature, are frequently utilized to address

climate change implications that are specific to certain regions. The incorporation of the indigenous Abaluhyia worldview aligns with the objectives of this study and has the potential to address the current research gap. This study identifies the significance of experts' views about the influence of indigenous religious and cultural beliefs on the perception and communication of climate change issues as the relate to indigenous traditional knowledge and science. The proposition put up by academicians, suggesting the integration of indigenous traditional knowledge with scientific methodologies in the communication of climate change impacts, aligns with the objective of this study.

ASSAR (2016) states that, the main communication methods utilized in Africa and Asia to distribute climate information to vulnerable people include of mobile phones, printed media online platforms, television, public demonstrations, and community fora. The proposal put forth by ASSAR suggests that it is important to evaluate the comparative efficacy of different communication channels in conjunction with the factors that influence and facilitate social and behavioral transformation, such as the nature of the information being conveyed, the intended recipients, and the prevailing social environment. The social context encompasses various components, including cultural aspects, gender roles and obligations, traditional practices, and religious disparities.

As stated by Assar (2016), it is recommended that the chosen communication channel should facilitate the audience in effectively converting the provided information into formats that can be readily utilized. The advice put forth by ASSAR is based on the recognition that there is substantial variation in the availability of climate information among different demographic groups, as well as within those categories. This variation is contingent upon individuals' access to technology, with specific emphasis on mass media

strategies. The efficacy of climate communication within communities is significantly impacted by power dynamics and gender-related factors, which determine the extent to which community members are able to disseminate their knowledge and engage in educational initiatives.

Moser and Dilling (2012), in their publication titled "Communicating Climate Change: Closing the Science-Action Gap," state that it is frequently assumed by communication campaigns that mass media is the most efficient method for engaging large audiences in mobilization efforts related to climate change. The allure of disseminating knowledge to a wide audience via television, newspapers, and the internet obscures the reality that information transmitted through mediated means is frequently consumed with limited attention, swiftly abandoned, or disregarded. Moreover, it entices individuals to disregard the ongoing structural transformations taking place within the media environment, which have significant implications for the caliber and variety of news coverage, as well as the exacerbation of societal divisions.

Moser and Dilling (2012) posit that, there are certain elements inherent in interpersonal communication that enhance its efficacy in conveying information about climate change when compared to mass media. These factors encompass the element of personal connection or interpersonal interaction, the utilization of non-verbal signals, and the facilitation of discussion between the communicator and their audience through direct communication. The utilization of an interactive approach in interpersonal communication facilitates the development of connection between the communicator and the audience. This is achieved by fostering a two-way participatory communication process, which is a distinguishing characteristic of indigenous communication systems.

The scope of communication's impact on climate change extends beyond conventional assumptions made in communication campaigns, as it encompasses more than the mere transmission of information or the persuasion of a passive recipient.

An examination of the research conducted by Moser and Dilling (2012) supports the notion that for effective communication of climate change, it is imperative to promote public engagement. According to these scholars, effective communication of climate change encompasses three key dimensions: cognitive, affective, and behavioral. In this context, individuals are required to engage in mental processing and acquire comprehension of the issue. Additionally, they should experience emotional responses, such as interest and concern, and actively respond by modifying their behavior in terms of climate and forest conservation. The aforementioned scholars, Solomon et al (2007) and Parry et al (2007), assert that although science cannot enforce action, it has effectively demonstrated that climate change is currently occurring, primarily due to human activities. Furthermore, they argue that this phenomenon poses substantial risks to both human and environmental systems. Moser and Dilling (2007) argue that, the process of taking action necessitates the inclusion of public input, support, or tacit approval, while the successful execution of such action requires the active involvement of the public. Therefore, communication serves as a crucial mechanism for connecting scientists and the general public, and consequently, it has the potential to fulfill a significant and beneficial function in facilitating public involvement with climate change.

Moser and Dilling (2012), propose that although communication in isolation is insufficient in addressing climate change and bridging the science gap, it presents a more favorable opportunity to achieve the objective of engaging the public in an effective and

meaningful manner. Communicating the problem of climate change is a considerable challenge due to the delayed manifestation of long-term average changes resulting from the presence of carbon dioxide and other greenhouse gases. The issue of climate change exhibits a gradual progression that hinders its quick discernibility, with the initial environmental consequences predominantly manifesting in geographically distant locations from the majority of the populace. The authors of this study reference the research conducted by Sterman (2008) and Gardiner and Stern (2002) to support their argument which claims that although having knowledge about the causes of climate change is somewhat associated with adopting appropriate behavioral responses, a more comprehensive comprehension of systems prepares individuals to better grasp the extent of the necessary response. Moser and Dilling argue that there exists data suggesting that increased information of the implications of climate change does not inherently lead to heightened concern. Furthermore, a more comprehensive grasp of potential remedies does not inevitably translate into effective behavioral changes. In promoting behavior change, it has been demonstrated that deeply ingrained pro-environmental attitudes and beliefs, along with incentives and perceived benefits, have a significant role.

Moser (2010), in her publication titled "Communicating Climate: History, Challenges, Process, and Future Directions," argues that communication around climate change is pervasive in society, competing for the attention of both the general public and policymakers. It is vital to inquire about the means of effectively communicating a global issue that possesses the potential for significantly more severe consequences compared to past issues. Based on the prevailing scientific consensus, climate change has the potential to compromise the ecological sustenance of several species, including a notable decline

in our own population, while also introducing alterations, difficulties, and detrimental effects to societal structures. Addressing this issue correctly and appropriately necessitates an unprecedented level of cooperation, the implementation of creative policies, and the adoption of new modes of thinking and behavior.

Moser and Dilling (2012) contend that climate change communication has prominently featured science and scientists. Nevertheless, they assert that relying solely on scientific information is inadequate in inspiring action, potentially due to the tendency for the communicated message to become obscured within scientific terminology. These experts argue that the presence of technical knowledge or scientific arguments involving intricate details that are beyond the comprehension of the local population can be perceived as exclusionary. When professionals communicate with non-experts regarding the technical aspects of climate change, usually through unidirectional means, there is limited opportunity for dialogue, fostering a collective comprehension of the issue and potential remedies. In order to achieve effective communication, it is imperative to prioritize the audience as the primary consideration. According to Moser and Dilling (2012), a key aspect of enhancing comprehension of the audience involves examining the factors that elicit resonance among individuals and groups. This includes identifying the issues and language that strike a chord with them, determining their core values, discerning their aspirations, and assessing their existing knowledge of climate change. Additionally, it is crucial to examine the prevalent mental models and potential misconceptions held by the audience.

Moser and Dilling (2012) highlight the tendency of humans to interpret incoming information based on their cultural framework. They assert that individuals comprehend

and assess information by relying on their overarching ideas about the world, society, and moral principles. According to Kahann and Braman (2006), experts argue that culture takes precedence over facts in the cognitive realm. This implies that individuals' beliefs on the empirical outcomes of specific actions are influenced by their cultural worldview. When individuals are confronted with evidence that contradicts their deeply ingrained views or the beliefs of their affiliated group, there is a tendency to dismiss or reject such information.

This study aligns with the perspectives of Moser and Dilling, emphasizing the need of effectively communicating climate change and conservation of forests. However, it is crucial to facilitate public engagement in order to effectively communicate climate change and mitigate its repercussions. These experts assert the necessity of acquiring a more profound strategy of comprehension by audiences in order to better grasp the extent of the necessary response that will result in an appropriate behavioral reaction. The experts assert that effective communication of climate change necessitates a comprehensive comprehension of the perspectives held by the audience. This highlights the need of incorporating the indigenous Abaluhyia worldview in the communication process. The perspective put forth by Moser and Dilling, which suggests that behavior change towards pro-environmental actions might be influenced by strongly held values, beliefs, incentives, and perceived advantages, aligns well with the objective of this study. These factors are believed to be embedded in individuals' worldviews and are considered to be influential in driving behavioral shifts. The contention put out by scholars that science alone is insufficient in driving action may be attributed to the tendency for scientific messages to become obscured by technical language. This study seeks to

address this gap in knowledge. Effective communication of climate change necessitates the establishment of a platform for discourse with the intended recipients, enabling the identification and utilization of their core beliefs, goals, and current knowledge.

Nerlich, Kroteyko, and Brown (2009) in their work entitled "Theory and Language of Climate Change Communication," argue that in spite of the growing significance of communicating climate change in society, global and domestic greenhouse gas emissions continue to rise, and society remains susceptible to climate variability. The authors of this study examine the efficacy of existing strategies in conveying information regarding climate change and the capacity of individuals to enact meaningful actions in response to such communication. These scholars observe that a consensus among most governments has been reached regarding the inevitability of climate change. Consequently, they argue that it is imperative to shift the focus of climate change communication from convincing individuals of its occurrence to encouraging the adoption of pragmatic strategies for addressing it.

Nerlich et al (2009) posit that, individuals possess a proclivity to engage in argumentation and behavior based on pre-existing beliefs, convictions, prejudices, and superstitions. This subsequently transforms the communication of climate change and forest protection from a solely scientific occurrence to one that encompasses cultural aspects as well. Nerlich et al (drawing from Hume, 2007) assert in their publication titled "Climate Change: from issue to magnifier" on Open Democracy that the endeavor of conveying climate change extends beyond mere awareness-raising efforts. Nerlich et al (2009) argue that while good science communication may be achieved at the stage of awareness generation, it is important to recognize that this milestone merely marks the beginning of

a larger job. According to their perspective, climate change is characterized by a multitude of intricate and ever-changing cultural discourses. Hence, it is imperative to undertake the considerably more demanding endeavor of elucidating and expressing the numerous rationales behind the absence of a viable resolution to the issue of climate change. It is imperative to undertake an examination of the intricate web of power dynamics, societal interpretations, and cultural discourses that are unveiled through climate change communication. According to the study conducted by Nerlich, Kroteyko, and Brown in 2009, it was found that...

The study conducted by Nerlich et al (2009) examines the significance and challenges associated with engaging diverse audiences in discussions about climate change through the utilization of different communication tools and methods. The scholars actively explore the complex matters pertaining to the correlation between climate change communication and behavior modification. The text examines the potential impact of communications on persuasion, as well as the societal structure and the level of empowerment citizens possess in effecting meaningful change.

Nerlich et al. (2009) show how detractors support a different strategy based on a deeper comprehension of affective and emotional engagement, such as by investigating non-expert, bottom-up climate views as opposed to expert, top-down understandings. Climate change communicators are encouraged to transition from employing one-way communication methods to engaging in dialogue and reflective engagement, as suggested by experts in the field. It is imperative to take into account not only the strategies for promoting logical public involvement in the discourse surrounding climate change, but

also the methods for rendering the subject personally compelling, captivating, and significant to individuals.

Nerlich et al. (2009) assert that a large portion of climate change communication in the past 20 years has focused on questions of uncertainty and whether or not anthropogenic climate change is occurring. According to their assertions, scientists face challenges in accurately predicting the specific manifestations of climate change at a local level, as well as determining the most effective communication strategies tailored to local conditions. Climate change presents significant threats to the global population, while these risks are predominantly perceived rather than tangible in nature for a substantial portion of society. Hence, within this particular framework, individuals are consequently empowered to engage in discourse and behavior based on preexisting beliefs, convictions, biases, and superstitious notions. Consequently, individuals engaged in communication must possess the capacity to comprehend and assess the scientific as well as cultural discourses around climate change.

Nerlich et al (2009) emphasize the significance of establishing a connection between climate change communications and cultural values and beliefs. This is because individuals tend to respond more effectively to traditions, experiences, and shared values rather than abstract concepts and scientific data. Effective communication requires communicators to ensure that their message is both meaningful and resonates with the values that hold significance for the intended audience. The communication should include an empowering tone and provide the audience with concrete instructions on the precise steps they may undertake to effect change. Similarly, Carvalho and Burgess (2005) advocate for the incorporation of a cultural lens in the examination of climate

change risk perception. This would facilitate the active participation of both communicators and consumers in the process of climate change communication, allowing for the creation of culturally specific meanings within their respective activities. Carvalho and Burgess (year) argue that there exists empirical support for the occurrence of social learning, as individuals draw upon their past experiences in the context of climate change science and policy formation. Nerlich et al (year) cite Wynne (2007) who argues that effective communication should be based on dialogue and a comprehensive awareness of the context. Although lay individuals may possess less scientific knowledge, they nevertheless possess a strong comprehension of the societal role of science.

Nerlich et al. (2009) continue to explain that communicating climate change is also entrenched in a variety of disciplinary traditions, including social and cognitive psychology, which studies attitudes to risk, strategies that can be used to trigger behavior change, mental barriers, and predispositions, and communication studies and social studies, which examine the interactions between scientists, the media, policy makers, and stakeholders. These scholars endeavor to address the intricate dynamics involved in disseminating knowledge about climate change and prompting behavioral reactions to messages related to climate change. According to Nerlich et al (2009), the influence of mass media messages on the translation of scientific information into policy decisions can significantly impact public perception of global climate change. The interpretation and assimilation of media messages vary based on criteria such as educational attainment, frequency of television viewing, readership of newspapers, and, increasingly, active engagement in media consumption.

Nerlich et al. (2009) conclude that it is not sufficient to provide more or better information for communication to be effective in terms of increasing awareness and promoting active engagement. There is a consensus among communicators that proactive measures need to be undertaken in order to modify individuals' behavior. The global community has witnessed an increase in awareness regarding the issue of climate change. Extensive information has been disseminated, accompanied by various recommendations. However, the implementation of these measures is a formidable challenge for individuals, communities, and governments worldwide. Nerlich et al. argue that a combination of measures is necessary, and effective communication can only be achieved when it is integrated with other ways that are closely connected to real social behavior in societal contexts. In order to ensure effective communication, it is imperative for communicators to possess a comprehensive understanding of their audiences, encompassing their beliefs, aspirations, anxieties, and the contextual circumstances surrounding the communication process.

The study at hand draws upon the work of Nerlich et al to critically examine the efficacy of scientific methods employed in climate change communication, as well as the capacity of audiences to enact meaningful change in response to such communication efforts. The present study seeks to explore the notion that individuals possess a proclivity to engage in argumentation and behavior based on pre-existing ideas, convictions, prejudices, and superstitions. The contention that the approach to communicating climate change should shift from convincing individuals of its existence to encouraging communities to adopt practical actions for addressing the issue aligns with the findings of this study.

Nerlich et al concur with Moser and Dilling's assertion that individuals have a tendency to act upon and argue based on pre-existing beliefs, convictions, and superstitions. Hence, the indigenous African worldview offers a comprehensive structure for the cultivation of values, beliefs, and practices that are essential for the appropriate conduct of individuals. According to Nerlich et al, the impact of climate change risks on local communities is mostly perceived through virtual means due to the utilization of scientific terminology. Consequently, effective communication on these dangers requires a foundation built upon individuals' pre-existing ideas and experiences. The aforementioned beliefs are based on the indigenous worldviews of the target groups, hence requiring their incorporation into the strategies employed for communicating the implications of climate change. The study concurs with Nerlich et al's assertion that effectively communicating the impacts of climate change necessitates a more comprehensive approach beyond just awareness-raising efforts. Significant attention is directed on recognizing the significance of the correlation between effectively communicating climate change and inducing behavioral change. In order to accomplish this objective, it is imperative to transition from a unidirectional mode of communication to one that fosters dialogue and reflective involvement. This study acknowledges the aforementioned deficiencies and aims to rectify them through the assessment of including the indigenous Abaluhyia worldview in the communication of scientific climate change facts.

The United Nations Framework Convention on Climate Change (UNCCC 2014) is cited by Huxley (2018) in his article "Communicating Climate Change Through Narrative: A Cross Pollination of Science and Theology" to show how scientific outputs are frequently used to explain climate change. The Intergovernmental Panel for Climate Change (IPCC)

is an authoritative scientific organization responsible for evaluating the most recent global scientific, technical, and socio-economic information pertaining to the comprehension of climate change. Huxley argues that various organizations, including some with religious affiliations, utilize the findings of the Intergovernmental Panel on Climate Change (IPCC) to shape their climate change advocacy efforts. Hence, the intricate nature of climate science and the inherent uncertainties associated with it provide challenges in effectively communicating climate change, irrespective of the target audience being policy makers or the general public.

According to Huxley (2018), the utilization of scientific vocabulary is characterized by its intricacy and can present challenges in comprehension as a result of the constraints imposed by one's level of expertise. The primary issue of the author revolves around the potential inaccessibility, overwhelming nature, and lack of engagement associated with the presentation of climate change solely through predictions and graphs, without the inclusion of corresponding solutions to address the resulting impacts of climate change. This academic researcher raises concerns on the efficacy of scientific findings as the primary means of communicating the impacts of climate change to the general people. Huxley (2018) contemplates the feasibility of presenting scientific facts on climate change in formats that are easily understandable, while also integrating messages of optimism and motivation to incite proactive measures. The academic researcher raises inquiries regarding the significance of religion in the dissemination of data on the impacts of climate change.

Huxley (2018) asserts that faith traditions provide a comprehensive comprehension of the psychological and intrinsic significance of hope when conveying messages about climate

change. In accordance with the teachings of Pope Francis in his 2015 encyclical, "Laudato Si: On Care for our Common Home," it is crucial to recognize the potential for change and for individuals to engage in sincere introspection in order to cultivate benevolence and harmony. By transcending the limitations imposed by psychological and societal influences, humanity can effectively address the challenges posed by climate change with dignity and embrace novel avenues towards liberation. The Pope suggests that through means of education and motivation, humanity has the potential to transition from a position of dominion over the earth and a superficial use of its resources, towards the development of new ways of life that are founded upon an all-encompassing ecological perspective, fostering a state of peaceful coexistence with the natural world. The encyclical acknowledges the anthropogenic nature of climate change through the inclusion of scientific findings. Additionally, it recognizes the separate domains of science and theology, but emphasizes the value of engaging in dialogue between the two disciplines. According to Huxley, the perspectives of climate and environmental change exhibit a convergence of scientific and religious elements. Faith-based groups have been utilized as platforms to enhance understanding of the local and global ramifications associated with climate change, while also promoting personal, communal, and worldwide accountability and fostering motivation for proactive engagement.

Huxley (2018) emphasizes how crucial it is to explain climate change through narratives. The utilization of tales as a means of communication possesses a heightened capacity to engender enduring transformative effects. The reason for this is because narratives hold significant importance not only within religion traditions, but also possess the ability to deeply connect with individuals on an emotional and intellectual level. There is an

encouragement among various faiths to revive or rediscover narratives and traditions that highlight the teachings of the respective faiths regarding the importance of caring for creation and the natural environment (ARC 2015). According to the work "Hope for the Future" (2015), Huxley asserts that the optimal approach to convey transformation is within the framework of religious reverence. The convergence of science and religion can be effectively achieved through the utilization of story structure, hence enhancing its attraction to the audience. The significance of action is emphasized in narratives, serving as a testament to the imperative of faith-driven engagement among individuals globally, with the aim of fostering unity and addressing the needs of both the present and future generations. This perspective is approved by the Catholic Agency for Overseas Development. According to Huxley (year), the establishment of enduring climate change mitigation requires the integration of teachings pertaining to environmental preservation and the cultivation of harmonious relationships with the natural world into many rituals and customs.

Huxely (2018) further states that, while science serves as the basis for discussing climate change, enhancing the core of this discourse would be advantageous by aligning it with individuals' religious beliefs. As per the scholar's perspective, faith transcends science by entering into a spiritual and philosophical domain, hence motivating adherents to actively explore concepts related to ecology and biocentrism. It is imperative to ensure that campaigns aimed at communicating climate change are both accessible and appealing to the intended target populations. This can be achieved by incorporating indigenous worldviews. The scientific community provides evidence to illustrate the impacts of climate change on the global population, both presently and in the future. Nevertheless, it

is evident that science in itself may not be the most effective means of communicating climate change. In order to foster a more profound philosophical and spiritual contemplation of humanity's connection with all living beings and the planet, it is imperative that the climate change movement transcends its scientific foundations.

This study aligns with the viewpoints presented by Huxley (2018), who emphasizes the need of not solely relying on scientific findings for effectively communicating the implications of climate change. This is in informed by the fact that scientific terminology is intricate and may present challenges for someone with less expertise. The study acknowledges the perspective that science often presents its data through forecasts and graphs, which might be perceived as disengaging and inaccessible by a majority of individuals, resulting in a lack of engagement from the intended audiences. The views and experiences of individuals in communication have the potential to serve as sources of inspiration for fostering optimism and motivating action. The African worldview encompasses retributive teachings that offer a sense of hope in the long run and emphasize the importance of adapting to environmental changes. The premise of this argument is that the indigenous African worldview emphasizes the need of effectively managing the environment and all aspects of creation. Huxley's work advocates for the incorporation of African religious traditions as a means of effectively conveying climate change. This study, in turn, focuses on the integration of the indigenous Abaluhyia worldview into climate communication efforts.

In their publication entitled "Climate Change Communication Strategy," ESPACE (2023) argues that communicators should strive to substantially enhance the community's awareness regarding the opportunities and threats associated with climate change.

Additionally, communicators should encourage individuals to acknowledge their responsibilities in adapting to and mitigating the impacts of climate change. The objective entails fostering active participation of individuals in the discourse surrounding climate change, with the aim of dismantling prevailing obstacles and establishing a connection between individuals and the influence their attitudes and lifestyles exert in contributing to the issue, as well as in facilitating the pursuit of potential remedies. As to the findings of the ESPACE report, individuals are advised to recognize the potential ramifications of climate change on their personal circumstances. It is recommended that they cultivate a sense of empowerment and optimism in addressing this issue, incorporating considerations of climate change into their decision-making processes. Furthermore, individuals are encouraged to embrace the positive transformations that can arise as a result of climate change mitigation efforts.

ESPACE (2023) acknowledges the inherent complexity and intricacy of climate change, which poses challenges in terms of comprehension and comprehension. The challenge of accurately identifying climate changes within brief timeframes necessitates the adoption of comprehensive worldviews as a means of addressing this issue. Engaging in proactive outreach to community groups and leaders helps effectively address inquiries and information requests originating from the community. However, individuals are seldom inclined to engage in action when faced with threats. It is imperative to refrain from instilling anxiety regarding climate change without concurrently providing individuals with actionable measures to address it. Individuals require inspiration and stimulation to prompt them into taking action, rather than relying exclusively on logical reasoning and empirical evidence. Individuals frequently disregard communications that lack practical

significance to their personal circumstances. The correlation between climate change and pressing concerns should be established.

According to ESPACE (2023), it is crucial to support individuals' internal sense of agency, which refers to their perception that their acts hold significance. The establishment of agency occurs when individuals possess the knowledge and determination to undertake specific actions, alongside the availability of a suitable platform that facilitates their execution. Individuals are more likely to persist in their actions when they encounter no obstacles that hinder their ability to engage in purposeful endeavors.

ESPACE (2023) contend that, the effective communication of climate change can be facilitated by the transmission of messages from a partnership, which is likely to contribute to successful outcomes. In order to optimize the dissemination of the climate change message, it is imperative for communicators to establish novel connections with media outlets, thereby capitalizing on potential opportunities. The primary messages in effectively communicating climate change are to the shared responsibility of individuals in mitigating their contributions to climate change, as well as the universal consequences that will affect all individuals. The participation of stakeholders has shown to be a highly effective strategy for integrating campaign messaging and attaining sustainable, enduring transformation. The establishment of relationships enables the construction of active networks. Stakeholders have the capacity to instill confidence in the target audience by affirming the official, reputable, and trustworthy nature of the project.

Whitmarsh, Saffron, and Lorenzoni (2011) conducted a study that is widely recognized in the academic community. The publication titled "Engaging the Public with Climate

Change: Behaviour Change and Communication" argues that although the consequences of climate change mitigation and adaptation have significant implications for personal values, decision-making, and actions, there is a noticeable absence of substantial involvement with the issue of climate change. The range of pro-environmental behavioral reactions to climate change is constrained. The level of communication regarding the necessity for adaptation is significantly lacking. There is a prevailing lack of concern among individuals regarding climate change, which consequently diminishes their inclination to actively address this pressing issue. Engagement pertains to individuals' cognitive, affective, and behavioral responses in regard to climate change.

Whitmarsh et al (2011) state that, there exists a widespread deficiency in public awareness regarding the emissions consequences associated with certain actions. Nonetheless, scholarly studies and practical applications in the field of scientific communication unequivocally reveal the insufficiency of presuming that the mere provision of information will effectively alter human behavior or generate public endorsement for policy measures.

Evans, Dyll, and Tomasell (2018) in their publication entitled "Communicating Climate Change: Theories and Perspectives," claim that there are two primary approaches to addressing climate change. The first approach, known as decarbonization, involves reducing greenhouse gas emissions, as recommended by the Intergovernmental Panel on Climate Change (IPCC, 2013). The second response involves empowering communities to adapt to climate change through the adoption of sustainable agricultural practices, including conservation agriculture, crop diversification, and the utilization of drought-resistant crop varieties. In order to attain these aims, it is imperative to implement

structural modifications within society that facilitate more accessible modes of communication, thereby enabling both the general public and governmental bodies to engage in discussions and deliberations concerning climate change-related matters.

According to Evans et al (2018), effective communication of climate change plays a crucial role in integrating climate change into policy formation, promoting behavioral change, and shaping attitudes towards climate change mitigation in a sustainable manner. Communication media play a significant role in shaping and constructing discourses and imaginaries that circulate within cultural and political contexts. These researchers concur with Wilson's (1993) assertion that communication media play an active role in shaping the perspective and attitude of the public towards climate change, as well as in constructing it as a social issue. Evans et al (2018) argue that communication is a dynamic and diverse collection of players beyond the nation-state, where discourses and images are disseminated, analyzed, and contested within the realms of cultural politics and geopolitics. Drawing upon the work of Carvalho (2010), the authors suggest that the media continues to play a pivotal role in disseminating public knowledge and influencing individuals' perceptions, consciousness, and the establishment of the public agenda with respect to climate change. According to Evans et al. (2018), the issue of climate change is a global challenge that might potentially be mitigated by the engagement of an educated global population. These scholars propose that the communication landscape should exhibit diversity in terms of participants. They emphasize the importance of equitable participation in climate change communication, which should cater to the interests of diverse groups across all societal levels. They argue that only the voices

actively engaged in discussions have the opportunity to influence the formulation of actions and policies pertaining to climate change.

Evans et al. (2018) assert that, the focus on climate change has predominantly been limited to elite circles, with a significant emphasis on global and mainstream transnational and national media. This approach has resulted in a lack of equitable representation, neglecting the inclusion of various interests. The active involvement and engagement of community stakeholders in the discourse and implementation of climate change measures are of utmost importance for fostering a sense of shared global accountability and empowerment. This is a plea for promoting effective communication of climate change that incorporates participatory methodologies, fosters active engagement in dialogues and decision-making processes, and strives towards a collective global responsibility for addressing climate change.

Evans et al (2018) have postulated that the communication of climate change has been conceptualized through multiple paradigms. Various approaches are employed, encompassing risk communication, development journalism, environmental communication, advocacy, and communication for social change development. The assertion made by Sterman (2008) regarding the shift of communication from policy-makers and governments to the individuals impacted finds agreement in their perspective. Rather of prioritizing public comprehension of risk, the emphasis has been placed on technical competence pertaining to climate solutions. Evans et al (2018) acknowledge the importance of involving affected communities, as they highlight that the effectiveness of the societal response is contingent upon addressing the unique communication requirements of all populations, particularly those who are most susceptible to risks and

prone to experiencing communication disparities. Hence, it may be argued that the risk communication technique may not be efficacious in fostering the development of shared knowledge and attitudes pertaining to climate change. The effective communication of climate change necessitates the cultivation of socially shared attitudes and perspectives, placing particular emphasis on the active involvement of communities in climate change conversations and decision-making processes.

In the view of Evans et al. (2018), effective communication should incorporate active engagement to foster inclusion and equity in climate change conversations and decision-making processes. The effective communication of climate change should actively involve and empower individuals in the many stages of climate change policy development, implementation of mitigation measures, and adoption of adaptation strategies. According to Evans et al (2018), it is contended that in order to facilitate substantial societal transformation, it is imperative to provide ordinary individuals with the collective chance to participate in decision-making processes pertaining to their own lives and overall societal progress across all levels. According to their perspective, the passivity of ordinary individuals in receiving information on climate change can be attributed to prevailing communication tendencies. Hence, active engagement in the communication of climate change processes plays a pivotal role in empowering individuals to collectively assume responsibility for influencing climate change decision-making at both local and global levels.

Evans et al. (2018) argue against the notion that a singular paradigm is sufficient for effectively communicating climate change. They propose the adoption of an integrated and structural participatory approach, which prioritizes the active involvement and

empowerment of individuals as its fundamental principle. The authors emphasize the necessity of adopting more robust participatory communication approaches to empower communities in adjusting to the rapid changes in climate. Effective climate communication plays a crucial role in shaping behavior and informing the development of policies that address the requirements of various societal segments across different levels.

This study pertains to the perspectives put out by Evans et al, which assert that communication mediums have a role in shaping and constructing discourses and imageries that circulate within cultural and political contexts. Evans et al. (year) assert that communication media have an active role in shaping the perception and attitudes of the public towards climate change, hence contributing to its development as a societal concern. This study recognizes the relevance of the concept that communication is a potent and diverse collection of players beyond nation-states. It acknowledges the circulation, discussion, and debate of discourses and imageries within the realms of cultural politics and geopolitics. The media has a crucial role in disseminating public information and influencing individuals' perspectives, awareness, and the public discourse surrounding climate change. This study is motivated by the perspective that the focus on climate change has predominantly been limited to privileged groups, such as the global and mainstream transnational and national media, rather than ensuring fair representation that includes various interests. The objectives of this study align with the suggestion to involve and engage local communities in discussions and efforts related to climate change. This is considered crucial for fostering a sense of shared global responsibility and empowerment. This study aligns with the findings of Evans et al.

(2018) by emphasizing the importance of including participatory approaches in climate change communication. It advocates for fostering active engagement in conversations and decision-making processes, as well as promoting a collective sense of responsibility for global climate change action. The study pertains to acknowledging the necessity of involving affected communities and acknowledges that the effectiveness of the societal response is contingent upon addressing the unique communication requirements of all populations, particularly those who are most susceptible to risks and prone to experiencing communication disparities. The value of the study lies in its recognition of the necessity for good communication to encompass participation, so fostering inclusion and fairness in climate change conversations and decision-making processes.

Mabon and Wan-Yu Shih (2018) postulate that, the communication of climate change is conceptualized as a bidirectional process involving the interchange of ideas and perspectives regarding the most suitable societal response to the challenges posed by climate change, rather than a unidirectional transmission of scientific facts. Furthermore, Mabon and Shackley (2015) contend that a key obstacle lies in establishing a solid foundation for effectively explaining the connection between climate change and forest conservation. This necessitates the identification of comprehensive justifications that may foster consensus and facilitate the implementation of tangible measures. According to the aforementioned experts, it would be advisable for this communication to present a comprehensive set of justifications for the preservation of forests and the implementation of climate-related measures, in order to effectively engage various groups of individuals. This study aligns with the perspective of Mabon and Wan-Yu Shih, emphasizing the

importance of establishing a solid foundation in climate change communication to effectively inspire action among the targeted audience.

Chari (2016), in the publication titled "Rethinking Climate Change Communication Strategies in Africa: The Case for Indigenous Media," states that it is recognized that the mass media serves as the primary means of obtaining information on climate change science. However, their efficacy has been subject to scrutiny, particularly in Africa where limited access to mass media and high illiteracy rates prevail. The role of mass media in climate change closely aligns with the normative expectations placed on media in various aspects of society. It primarily emphasizes the dissemination of information and the provision of instructional content, aiming to raise public knowledge of climate-related matters.

Chari (2016) further explains that, good communication serves as a key means of engaging audiences in discussions pertaining to climate change. However, it is a matter of concern because despite the apparent effectiveness of mass media in conveying information about climate change, there exist significant constraints rooted in their underlying principles and professional considerations. The careful consideration of a suitable communication channel is of utmost importance in the dissemination of information regarding climate change, as the effectiveness of messages relies on their customization to suit the particular audience.

Chari (2016) posits that, the intricate nature of climate change matters necessitates the utilization of indigenous knowledge communication systems in climate change communication strategies. These systems, such as songs or folk theatrical performances, have historically proven effective in conveying complex concepts in a more accessible

manner for the indigenous communities of Africa. The effectiveness of communicating the topic of climate change is hindered by several obstacles in mass media, particularly in cases where illiteracy and limited access to technology create hurdles to communication.

Chari (2016) observes that, the adherence to professional journalistic norms presents obstacles to the successful communication of climate change, hence indicating that the mass media may not be well-equipped to effectively communicate information pertaining to climate change. The author argues that the manner in which mass media reports on climate change issues is marked by instances of miscommunication, misrepresentation, misreporting, and distortions. This includes the use of exaggerated headlines, misquotations, falsification, overemphasis, and the inclusion of unnecessary information. These practices ultimately hinder the audience's comprehension of climate science and contribute to the erosion of scientific consensus on the subject. Given the communication barriers that restrict the mass media's ability to effectively convey climate science, it is imperative to reassess the communication tactics employed for addressing climate scientific matters. The utilization of indigenous media facilitates the incorporation of the socio-economic and linguistic context of indigenous communities, as well as their historical position, in the pursuit of indigenous solutions to issues specific to these communities.

Chari (2016) further states that, conventional forms of communication encompass proverbs, songs, dances, dramas, street theatre, and other mediums that emerge from daily interactions. The aforementioned modalities of communication are deeply ingrained within the social, cultural, and psychological framework of the general populace, and they strongly resonate with the routine encounters of the average individuals residing in

Africa. Indigenous media is rooted in indigenous culture and has prominent cultural characteristics, frequently adhering to established conventions that serve to uphold and delineate social connections and a particular worldview, while also being abundant in symbolic elements. Traditional media holds a significant place in the emotional and cognitive realms of individuals, hence establishing a personal and deep connection with its audience. One of the primary functions of clarifying communication is to enhance understanding and minimize ambiguity. The features of immediacy, impersonality, and diversity render indigenous media a more suitable platform for the dissemination of climate change topics.

In the view of Chari (2016), there is a general recognition that indigenous media has the potential to exert an impact on both individual and societal transformation. This is attributed to the effectiveness of traditional modes of communication in eradicating superstitious, outdated, and unscientific beliefs that may hinder successful communication. According to the scholarly perspective, there exists a correlation between communication and culture. Dialogical communication enables citizens to actively engage in the process of problem identification, solution formulation, and strategy implementation to effectively address their concerns. Therefore, it can be argued that citizens play an active role as agents of change, rather than merely being passive participants. The utilization of the dialogical approach in indigenous media is more suited for the effective communication of climate science issues, as it incorporates local knowledge, in contrast to mass media which tends to create a sense of alienation through its linear and patronizing approach.

Chari (2016) explains that, the indigenous populations of Africa have maintained a harmonious coexistence with their physical and natural surroundings, as they perceive it to be fundamental to their existence. This is due to the fact that the environment supplies them with essential resources such as sustenance, breathable air, medicinal substances, construction materials, and numerous other necessities. The presence of practices rooted in religion, cultural beliefs, and superstitions, which are reinforced by taboos, serves as a testament to the existence of a harmonious relationship aimed at preserving ecological biodiversity. In order to enhance the efficacy of communication techniques pertaining to climate science, it is advisable to integrate pre-existing general knowledge and wisdom on climate change, rather than relying solely on the assumption that all knowledge regarding climate science is disseminated through mass media.

2.2 Challenges of communicating climate change

The principles of communication exhibit a high degree of universality; nonetheless, the act of conveying climate change has distinct and unique obstacles. This topic encompasses significant and intricate matters, which give rise to fundamental inquiries regarding lifestyle and economy. The objective of this initiative is to encourage individuals to address a problem that necessitates collaborative efforts for its resolution (Capstick, Whitmarsh, Poortinga, Pidgeon & Upham, 2015).

Dupar, McNamara, and Pacha (2019) provide a comprehensive guidance on communicating climate change in their publication titled "Communicating Climate Change: A Practitioner's Guide." Insights derived from Africa, Asia, and Latin America by elucidating the distinct challenges associated with communicating about climate

change. These challenges encompass the need to effectively convey climate impacts in a clear and accurate manner, while circumventing the use of complex scientific terminology. Additionally, there is a requirement to foster inclusive and accessible dialogues pertaining to climate solutions. According to scholarly analysis, effectively addressing climate change necessitates the alteration of public policy, modification of citizen behavior, and fostering collaboration among the realms of science, policy, and society. These researchers persist in proposing that in order to cultivate an effective communication strategy, it is necessary to ascertain and comprehend the intended recipients of the message, so as to adequately address their knowledge requirements. Effective communication should be customized to address the particular concerns and requirements of the intended audience. It is imperative to comprehend the information and values of the audience. According to Dupar et al. (2019), it is imperative to employ language that effectively engages the audience and enhances their comprehension of the matter at hand, hence encouraging their active involvement and contributions.

According to Dupar et al (2019), the production of climate change information typically occurs at scales that surpass the local level, encompassing areas larger than neighborhoods, cities, or districts that are of primary importance to individual and organizational decision makers. Scholars argue that individuals possess a desire for climate knowledge that is pertinent to their specific circumstances, frequently necessitating localized information that elucidates the impact of climate change on their community.

Dupar et al (2019) argue that scientific climate communication predominantly relies on global climate models to forecast potential future climatic conditions resulting from

greenhouse gas emissions. According to the authors' perspective, the indigenous African worldview is characterized as a dynamic living process that facilitates the diffusion of information in manageable increments. Consequently, the dissemination of information is geographically limited and tailored to the specific needs of the local population, aiming to raise awareness about the consequences of climate change and provide guidance on effective measures for its mitigation. The African worldview also encompasses the consideration of localized climate conditions.

Dupar et al (2019) argue that effectively addressing the communication of climate change necessitates the bridging of the gap between scientific research, policy-making, and civil society. The scholar observes that successful interactions enable scientists to validate their findings via the lens of individuals' experiences. Moreover, these interactions play a crucial role in guiding scientists' research towards addressing the most urgent climate-related inquiries that significantly impact people's lives. Efficient and impactful interactions stimulate proactive involvement, spanning from the local community level to the realm of policy-making.

According to Dupar et al (2019), it is crucial for effective communication and engagement to incorporate individuals' own experiences with climate change alongside scientific research and analysis. This approach enables individuals to better comprehend the events occurring in their surroundings. The author highlights that due to technological advancements and the decreasing costs of information technology, there are now emerging possibilities for individuals to contribute to the identification of climate hazards and facilitate discussions regarding plans for adaptation and mitigation. Dupar proposes that a viable approach involves the dissemination of information and active involvement

of the community in order to effectively gather and consolidate their pertinent knowledge for the purpose of mitigating climate change.

This study aligns with the perspective that the scientific method of explaining climate change encounters obstacles. The utilization of technical terminology poses challenges in effectively conveying climate impacts in a straightforward manner, while also limiting inclusivity and accessibility for the intended audience. Effective communication in the context of addressing climate change impacts requires the utilization of a language that is comprehensible to the local community, resonates with the intended audience, and elicits a sense of relevance within their worldview. This approach facilitates the community's identification with the subject matter, hence enhancing their understanding and engagement. This study deviates from the commonly utilized global strategy in scientific communication on climate change, as it generates extensive amounts of data that fail to address the specific implications of localized climate change. The research aligns with the perspectives of scholars by seeking to incorporate indigenous worldviews into the communication of climate change. This approach aims to facilitate community involvement, enabling scientists to effectively connect their communication efforts with the beliefs, values, and experiences of individuals.

Moser (2010), in a study titled Communicating Climate Change: history, difficulties, process, and future directions, believes that individuals are best served when they take an active role in addressing a problem, have their opinions and values taken into account, and help shape the collective answers that are implemented. As per the assertions made by the author, the act of inundating the general public with an overwhelming amount of scientific information and technocratic remedies, without engaging in dialogue and

fostering an understanding of potential risks and available alternatives, is prone to incite resistance and dissent. Hence, the author posits that the incorporation of the indigenous African worldview holds promise in engaging marginalized audiences and fostering acceptance of communication regarding the implications of climate change. Integration can additionally facilitate engagement and participation, hence potentially resulting in desirable modifications in behavior.

According to Moser (2010), the role of science and scientists in conveying information about climate change has been significant. However, the effectiveness of science alone in inspiring action is limited, likely due to the tendency for the message to become obscured by complex technical terminology. The scholar highlights the potential exclusionary nature of technical information and scientific debates that surpass the comprehension of the general public. Consequently, when experts communicate with lay audiences about the technical aspects of climate change, often through unidirectional means, there is limited opportunity for dialogue and the development of a collective comprehension of the issue and potential remedies. The scholar suggests that in order to achieve effective communication, it is crucial to prioritize the audience. By making an effort to gain a deeper understanding of the audience, one can uncover the topics and language that resonate with individuals and groups. This understanding also includes identifying the values that hold significance, the aspirations they have, and their existing knowledge regarding the issue of climate change. Additionally, it involves recognizing common mental models and potential misconceptions.

Moser (2010) argues that due to the abundance of climate-related content, communicators must play the role of gatekeepers by directing audiences to the most reliable and up-to-

date resources. The process may entail integrating the information, providing context, and enhancing the contents with relevant local and sector-specific data. The consensus among scholars aligns with the findings of Malka, Krosnick, and Langer (2009), who assert that trust plays a pivotal role in facilitating effective communication regarding climate change. Specifically, a significant obstacle to public involvement in climate change discourse is the lack of trust in messengers, particularly scientists. Numerous studies have demonstrated that trust plays a significant role in moderating individuals' interpretation of transmitted facts and their level of worry.

Moser (2010) explains that the majority of climate communication campaigns target individuals with the goals of increasing their awareness of climate issues and solutions, gaining support for climate policies, and encouraging them to take personal action. The author provides an illustration by citing recent research findings that indicate the significant influence of societal norms, personal values, emotions, and experiences on individuals' perceptions of climate change. This influence surpasses the impact of knowledge pertaining to climate science and potential strategies for addressing climate change.

It is well recognized that scientists have made significant contributions to the communication of climate change, aiming to mitigate its impacts. However, it is also evident that such communication has not yielded the anticipated outcomes in terms of behavior modification. The lack of active engagement by individuals with regard to climate change has been identified as a contributing factor to their limited ability to effectively articulate their opinions and values, as well as their limited capacity to contribute to the development of social responses. The study supports the idea that when

scientific truths and technocratic solutions are imposed on a population without engaging in discussions and fostering awareness of potential risks and available alternatives, it is probable that resistance and opposition will arise. Hence, the present study identifies the significance of the scholars' suggestion about the incorporation of the indigenous African worldview, as it has promise in engaging marginalized audiences and fostering acceptance of climate change discourse. Integration can additionally facilitate active involvement and active participation, advance inclusivity within the community, hence potentially resulting in desirable modifications in behavior. The importance of comprehending the audience should not be underestimated, as doing so facilitates addressing language, values, and understanding pertaining to conveying climate change.

C. Lumosi and J. McGahey (2016) in their publication entitled Communicating Climate Change for Adaptation posits that the present discourse will address the challenges, triumphs, and future priorities that are pertinent to the subject matter at hand. It can be argued that the predominant approach in climate change communication has mostly emphasized the dissemination of information, rather than fostering discourse or promoting behavioral change. This approach has limited the knowledge of adaptation issues and hindered the awareness of potential paths for adaption. According to these scholars, there has been a noticeable trend towards increased utilization of stakeholder dialogue and a heightened emphasis on knowledge co-generation in recent times. However, communicators continue to encounter three significant challenges. These challenges include the effective integration of scientific information and traditional knowledge, the communication of climate change information to individuals and groups with diverse power dynamics, agency, and social dynamics, and the navigation of various

communication channels, learning processes, and modes of knowledge transmission to ensure marginalized groups have access to essential information. The issues presented by Lumosi and McGahey necessitate the integration of scientific information and African religious knowledge in the communication of climate change, with a specific focus on the context of Kakamega Forest. This study is motivated by the necessity to effectively explain the concept of climate change to groups characterized by distinct social dynamics, with the ultimate goal of enhancing accessibility to climate change information.

Lumosi and McGahey (2016) posit that in certain semi-arid regions, pastoralists are increasingly utilizing external climate forecasts, which are communicated over radio by meteorological officers, in addition to their conventional climate knowledge. The authors highlight a case study that examines the efficacy of climate prediction information among pastoralists residing in Southern Ethiopia and Northern Kenya. The study reveals that while pastoralists frequently rely on radio as a means to access external forecasts, a minority of them possess personal radios. The extent to which individuals may obtain external climate communication is predominantly influenced by their socioeconomic status.

Lumosi and McGahey (2016) refer to another study conducted among vulnerable farming communities in Senegal in which they discovered that men and women differ in their abilities to access information and their needs for different types of climate change information; women required forecasts on the end of the rainy season, while men required forecasts on the beginning of the rainy season. Hence, it is imperative to ensure the provision of climate change information that is pertinent to gender issues, and to

spread it through communication channels that are easily accessible and tailored to specific gender needs. According to Lumosi and McGahey (2016), Lumosi and McGahey elucidate that the channels employed for climate change communication are predominantly scientific in nature and have yielded some positive outcomes. Nevertheless, these academics highlight the limitations arising from restricted technological access due to financial restrictions, poor information accessibility, and gender-specific requirements for climate forecasting. This stance highlights the necessity of examining the amalgamation of existing scientific methodologies with African Religious practices in the context of conveying climate change.

Lumosi and McGahey (2016) argue that in order to enhance the pertinence and applicability of climate change communication, it is imperative to comprehend the fundamental conflicts between the efficacy of widespread mass communication and the necessity for context-specific information within localized settings. It has been observed that communication strategies aimed at conveying information about climate change to vulnerable rural areas frequently rely on one-way dissemination methods. According to these scholars, it is infrequent for communities to be engaged in the process of generating climate information or in the development of tailored adaption tools or guidance. Therefore, it is imperative to promote communication strategies that facilitate discourse, active involvement, and collaborative knowledge generation with local people. One of the primary considerations is the utilization of hybrid communication strategies that incorporate both technology-driven and human-centric techniques.

Lumosi and McGahey (2016) say that universal science is the sum of knowledge that is made up of ideas, theories, and concepts that are not specific to one group. Consequently,

the decision-making process is significantly influenced by the insights and expertise of individuals who dedicate substantial effort to modeling and projecting climate patterns. These endeavors contribute to the development of concepts and hypotheses pertaining to climate change and strategies for mitigating its effects. The dominant patterns observed during the course of several centuries have been the portrayal of science and economics as devoid of inherent values, while also emphasizing their detachment from social and ethical frameworks.

Based on the works of Stokes (2014), Wike and Carle (2015), Lumosi and McGahey highlight the significant endeavors undertaken by scientists, activists, and policy makers over a span of more than two decades. These efforts have been directed at increasing public consciousness regarding climate hazards and advocating for the necessary measures to mitigate them. It is worth noting that these collective actions have had tangible outcomes. These campaigns should aim to promote collective action and motivate individuals to unite based on shared values and objectives. According to the European Commission (2015), the most ambitious endeavors entail enduring and extensive commitments aimed at altering societal norms, fostering behavioral modifications, or providing substantial backing to significant legislative initiatives and laws on a global scale.

The study intends to address a gap identified by Lomosi and Mc Gahey, which suggests that previous initiatives to communicate climate change have mostly concentrated on information dissemination rather than fostering dialogue, promoting behavior change, and increasing understanding of adaptation routes. This study identifies the significance of the arguments put forth by the authors regarding the persistent challenges faced by

communicators. These challenges include the successful integration of scientific information with traditional knowledge, effective communication of climate change information to individuals and groups with diverse power dynamics, agency, and social dynamics, as well as the navigation of various communication channels, learning processes, and modes of knowledge transmission to ensure equitable access to essential information for marginalized groups. The objective of this study is to incorporate scientific data with the indigenous African worldview which would promote dialogue and in turn effectively communicate climate change to local audiences.

According to the study by the National Academy of Sciences (2010), scientific research has contributed to our understanding of climate change and its impact on societies worldwide. Hence, the universality of scientific knowledge is not geographically constrained, potentially resulting in its inability to adequately address climate change issues in certain global communities due to variations in social, economic, and environmental aspects. The use of universal scientific principles is prevalent in the context of climate change, as evidenced by the utilization of international treaties and scientific projections (The National Academy of Sciences, 2010).

According to Kahan, Jenkins-Smith, and Braman (2011), in their publication titled "Insights from Climate Communication Research and Practice," numerous studies have demonstrated that individuals tend to place greater confidence in others who possess similar histories or life circumstances. In the context of communications strategy, it is imperative to ascertain possible change agents and opinion leaders who possess a recognized and trusted status among the intended recipients. According to the SEI (2016), they possess the ability to fulfill multiple roles, including acting as primary conveyors of

information, secondary facilitators of understanding, and advocates for transformative initiatives. This statement challenges the prevailing perspective that the primary obstacle to taking action on climate change is a lack of information.

Bollier (2009) asserts in his work titled "Protecting and Enlarging the Digital Republic" that... The proliferation of contemporary technology has significantly diminished indigenous traditional knowledge, particularly among younger cohorts. The outcome of this situation is that the majority of these indigenous rituals are predominantly observed and upheld by the older members of the community. However, due to a lack of documentation, these practices are at risk of becoming extinct. Ison and Russell (2009) suggest the systematic documentation, validation, standardization, and transmission of indigenous knowledge to younger generations as a means of ensuring the cultural preservation and continuity for future cohorts.

According to Smith (2015) in their study titled "Communicating Climate Change Risk and Enabling Pro-Environmental Behavioral Change Through Human Resource Development," it is suggested that understanding values can assist communicators in effectively involving audiences who have historically exhibited skepticism or dismissal towards climate action. As per the author's perspective, it is imperative for climate change communicators to acknowledge that in order to effectively alter individuals' attitudes and actions, the message must align with the specific requirements and concerns of the intended recipients. According to SEI (2016), a productive method for comprehending user requirements and generating pertinent and implementable knowledge involves the exploration of challenges and collaboration with users, hence fostering the establishment of trust. Another potential approach would involve fostering

peer learning, a method that facilitates the connection of individuals facing comparable difficulties. This facilitates the establishment of a community of practice wherein individuals with expertise and practical experience can collaborate to exchange valuable ideas and knowledge derived from their respective professional endeavors. The prevailing consensus among countries is that climate change has reached an irrevocable state, necessitating a shift towards pragmatic approaches in addressing this global challenge. While it is commonly assumed by scientists that educating individuals about climate change is adequate, it is important to recognize that people's comprehension of this issue is shaped by their personal ideas and values. This role necessitates active engagement with their worldview.

In his publication titled "Why we disagree about Climate change," Hume (2007) discusses the factors contributing to divergent viewpoints on the subject. The argument put forth by Understanding Controversy, Inaction, and Opportunity posits that effectively communicating climate change necessitates a more comprehensive approach beyond mere awareness-raising efforts. At this juncture, the attainment of effective science communication has been realized, although the subsequent undertaking remains to be commenced. According to Hume (2007) in his publication titled "Geographical work at the Boundaries of Climate Change," the phenomenon of climate change is accompanied by a multitude of intricate and ever-changing cultural discourses. Individuals sometimes exhibit a proclivity to engage in arguments and behaviors that are influenced by pre-existing beliefs, convictions, prejudices, and superstitions. The scholar suggests that it is imperative to undertake the far more arduous task of elucidating and expressing the several rationales behind the absence of a resolution to climate change. It is imperative to

undertake an analysis of the intricate network of power dynamics, societal interpretations, and cultural narratives that are brought to light by the phenomenon of climate change.

The evolution of the understanding of scientific communication has played a significant role in prompting a reconsideration of the communication strategies employed in the context of climate change. During the 1980s, a prevailing perspective known as the "public understanding of science model" was embraced by numerous scientists and policy makers. This model posited that the general public required education from experts, as advocated by the Royal Society's Public Understanding of Sciences (1995). It further asserted that enhancing public engagement by scientists would lead to increased knowledge and consensus, as highlighted in the House of Lords' Science and Society report (2000). Nevertheless, the assumptions central to this model were contested by social scientists. They questioned the notion that providing the general public with more scientific information would automatically result in increased acceptance of scientific and technological progress, as well as a closer alignment between the knowledge and attitudes of lay individuals and experts (Nerlich et al., 2007).

According to a study conducted by the Hadley Centre for Climate Prediction and Research in 2004, the field of forestry communication has traditionally focused on the objective of influencing the perspectives and beliefs of its target audience. In addition to possessing knowledge about trees, foresters must also acquire the necessary abilities to engage with individuals and effectively interact with those who possess diverse worldviews and attitudes. According to Wynne (1992), the information deficit paradigm, which involves specialists disseminating scientific information to the general public, is an insufficient approach for controlling science within society.

2.3 Indigenous African worldview's ways of communicating conservation of Forests.

The perspective presented by Obasola (2013) in African Religion and Environmental Dynamics: Implications for Human and Sustainable Development is that, historically, religion has been a key factor in establishing a connection between humans and the natural world and instilling in them the values and knowledge that make environmental preservation a top priority. Religion holds a distinct position in determining environmental sustainability, while also serving as a significant factor contributing to environmental challenges. Obasola (2013) maintains the proposition that within the African context, religion has served as a catalyst for environmental conservation and safeguarding, notwithstanding the presence of certain instances of misconduct. Obasola (2013) further asserts that Africans possess a profound awareness and comprehension of their role within their immediate surroundings, acknowledging the spiritual significance intertwined with nature and the environment. This recognition of spirits inhabiting the natural world fosters a proclivity among Africans to cultivate and safeguard it. The author posits that it is imperative for members of society to adopt a culture of personal growth and introspection, since this will contribute to the overall betterment of the community. The author posits that the foundation of conservation should be based on the moral value of individuals, rather than solely focusing on economic benefits. Furthermore, the author suggests that addressing the challenges of conservation and climate change requires a comprehensive understanding of environmental requirements and a collective commitment to its preservation, which in turn will foster holistic development.

According to Obasola (2013), there is agreement with the International Labour Organization (ILO) and the Indigenous and Tribal People's Convention (No 169) Article

7 in recognizing the entitlement of indigenous communities to determine their own development priorities in relation to their livelihoods, cultural beliefs, social institutions, and spiritual welfare. This includes the right to exercise authority over their economic, social, and cultural progress, as well as the lands they inhabit or utilize. Obasola (2013) asserts that there exists a deep interconnection between religion and the environment, as evidenced by their shared historical development and their anticipated ongoing collaboration in the future. The influence of religious traditions and beliefs on human values and behaviors pertaining to the environment has been a significant factor in shaping attitudes. Consequently, this is a potential avenue for fostering favorable environmental attitudes in the future.

Tarusarira (2017) in his publication titled "The Ecumenical Review." Is the act of praying for rain a common practice? In The book "African Perspectives on Religion and Climate Change" examines the role of African religion as the native belief system and customs of African communities. Religion is shaped by their understanding, interaction, contemplation, and encounters with the natural world that surrounds them. Tarusarira (2017) posits that the notion of environmental stewardship is not alien to the indigenous populations of Africa. The author additionally highlights that the reason behind human acts of compassion has always been rooted in religious and spiritual beliefs.

Tarusarira (2017) states that, the fundamental components of the African worldview encompass the belief in a higher power, whether it be a singular deity or multiple gods, as well as the belief in benevolent and malevolent spirits. Additionally, this worldview encompasses adherence to cultic prohibitions, including taboos and violations of moral codes. As per the analysis of this scholar, individuals of African descent engage in

communication practices that involve the performance of sacrifices for several objectives. Moreover, they hold a steadfast conviction in the perpetual existence of deceased individuals, the existence of an imperceptible realm, and the notion of divine and posthumous judgement. African religion provides purpose and guidance to its followers, manifesting in the historical practices of Africans in managing their interactions with nature and fellow individuals. Consequently, in specific instances, certain animals may be perceived as revered adherents of a specific deity, while natural elements such as trees, hills, or rivers may be elevated to the status of deities. The presence of religious elements within the cosmology of African societies influences the trajectory of development projects.

Tarusarira (2013) continues to explain that, religion has a crucial role in shaping individuals' perception of the world and their position within it, hence influencing their decision-making processes. For instance, religious beliefs can impact choices related to agricultural practices, such as determining the timing and methods of field cultivation, as well as decisions regarding participation in potentially advantageous yet perilous social endeavors. The professor posits that the concepts of conservation, climate change, and sustainable development are inherently interconnected, as development factors such as land utilization, economic progress, and energy stability are intrinsically linked to climate considerations. The human development approach encompasses the spiritual dimension of life, with considerations of material poverty levels and the capacity to sustainably satisfy future demands.

Tarusarira (2013) notes African religion works with all of our human abilities, so people who want to fight global warming and promote sustainable growth should include it. The

presence of African religion contributes to the advancement of society by fostering a heightened sense of self-assurance. The aforementioned statement conveys significance and guidance to individuals engaged in a particular field, while also serving as a catalyst for innovation and originality. The individual possesses the inherent capability to cultivate a sense of self-worth and the aptitude to reject instances of exploitation and subjugation. In Tarusarira's (2013) view, the interconnectedness of nature and the environment with human existence is emphasized, as they are inseparable entities without any distinct boundaries. Hence, the act of causing harm to the natural world and its surroundings can be seen as a direct detriment to one's own well-being. The author posits that the establishment of a harmonious relationship with the natural environment corresponds to the establishment of a harmonious relationship with the spiritual realm, as these two domains are intricately intertwined and mutually reliant. Hence, natural phenomena like as flora, geological formations, and aquatic bodies are held in high regard and esteemed, serving as conduits to the metaphysical realm, possessing both tangible and intangible capabilities. This mechanism inherently guarantees the preservation of nature and the environment, while simultaneously mitigating the adverse effects of global warming, so facilitating the achievement of sustainable development. Tarusarira (2013) asserts that nonliving elements, such as rain, are regarded as sacred and as potent spirits because they are required to sustain life; therefore, a profound reverence and respect for the natural world is the foundation of African cosmovism.

Tarusarira (2013) postulates that, African religion has a significant role in shaping the manner in which its followers establish and maintain their connections with the natural world and other individuals. The author further posits that religion functions primarily as

an immanent, worldly, and localized framework for the creation and perpetuation of human society within a certain natural setting. Tarusarira (2013) argues that religion cannot be excluded from the manner in which Africans relate to the land on which development agencies erect buildings, sink boreholes, and engage in cultivation, as well as the manner in which they relate to water and sanitation issues and health concerns. This approach encompasses not only the psychological and social functions of integration and harmony, but also serves to safeguard the environment, a critical imperative in the face of global warming.

Tarusarira (2013) contends that, it is crucial for conservation strategies in Africa to consider the impact of African religion. According to the aforementioned scholar, the incorporation of religion can facilitate the adoption of a more comprehensive and inclusive perspective. The scholar suggests that it is imperative for conservation supporters to actively incorporate African religion from its inception. According to the scholar's perspective, integration entails the recognition and appreciation of individuals' religious convictions, with the aim of ensuring that their communication programs do not conflict with or undermine these values. Hence, unless the vision to effectively tackle climate change is clearly communicated by the individuals for whom it is meant, it will not be able to motivate and support a population in the long run. In order to effectively initiate any climate change and conservation initiative, it is imperative to take into account the comprehensive array of resources available to individuals, encompassing not just material and tangible assets, but also their spiritual or religious resources, which contribute to their overall welfare.

Chari (2016) elucidates that conventional forms of communication encompass proverbs, song, dance, drama, street theatre, and other mediums that arise from daily interpersonal exchanges. The aforementioned modalities of communication are deeply ingrained within the social, cultural, and psychological framework of the general populace, and they strongly resonate with the routine encounters of the average individuals residing in Africa. Indigenous media is rooted in indigenous culture and has prominent cultural characteristics, frequently adhering to established conventions that serve to uphold and articulate social dynamics and a particular worldview, while also being abundant in symbolic elements. Traditional media holds a significant place in the emotional and cognitive realms of individuals, hence establishing a personal and deep connection with its audience. One of its primary functions is to enhance the clarity of communication. The traits of immediacy, impersonality, and diversity contribute to the suitability of indigenous media as a means of spreading climate change topics.

Chari (2016) advances the position that, there is a general consensus that indigenous media has the potential to exert an impact on both individual and societal transformation. This is attributed to the effectiveness of traditional communication methods in eradicating superstitious, outdated, and unscientific beliefs that may hinder successful communication. According to scholarly perspectives, there exists a correlation between communication and culture. Dialogical communication facilitates the active participation of citizens in the process of problem identification, solution formulation, and strategy implementation to effectively address their concerns. Therefore, it can be argued that citizens play an active role as agents of change, rather than being passive participants. The utilization of the dialogical approach in indigenous media is more suited for the

communication of climate science issues due to its incorporation of local knowledge, in contrast to mass media which tends to create a sense of alienation through its linear and patronizing approach.

Chari (2016) advances that, the indigenous populations of Africa have maintained a harmonious coexistence with their physical and natural surroundings. This is due to their perception of the environment as the fundamental basis of life, as it fulfills their needs for sustenance, air, medicinal resources, construction materials, and several other necessities. The presence of religious practices, cultural beliefs, and taboos aimed at preserving biological biodiversity serves as a clear indication of the prevailing harmony in this context. In order to enhance the efficacy of communication techniques pertaining to climate science, it is advisable to integrate pre-existing general knowledge and wisdom on climate change, rather than relying solely on the assumption that all knowledge regarding climate science is disseminated solely through mass media.

Ikuenobe (2014) contends in the work entitled Traditional African Environmental Ethics and Colonial Legacy that because Africans possessed preservationist principles, practices and ways of life, there were no environmental issues generated by activities before colonization. The author provides an account of how African perspectives on ontology, cosmology, and religious rituals were used to convey their moral attitudes regarding the protection and preservation of nature. This scholar explains that indigenous African thought conceives nature as a whole entity, whereby humans and all natural objects are intertwined and live in a state of harmonious coexistence. The author acknowledges that that people’s behaviors and way of life were indicative of their efforts to live

harmoniously with the natural environment. These endeavors resulted in the conservation of natural resources.

Ikuenobe (2014) further asserts that traditional African perspectives on ontology and cosmology are evident in the traditional customs on medicine and methods of healing. The consumption of herbs, plant and animal products, is a common practice among Africans for the purpose of healing. As a result, individuals tend to have a strong inclination to demonstrate reverence towards the natural world and uphold the protection and conservation of animals and diverse plant species. These organisms provide as sources of roots, leaves, barks, and other natural materials that are integral to traditional medicinal practices. Ikuenobe (2014) cites Makinde (1988) who argues that the utilization of African traditional medicinal herbs and medical practices suggests a belief in the presence of nature. According to Ikuenobe (2014), the recognition of the value of nature is justified by its contribution to human interests, as humans are inherently interconnected with the natural world. Africans derive usefulness from the natural environment. It is imperative for those of African descent to strategically utilize natural resources to optimize their own welfare, while concurrently upholding ecological equilibrium, as any disturbances to the natural environment inevitably impact their well-being as integral components of the interconnected universe. Based on the insights of Ibessa (2006), Ikuenobe posits that Africans perceive the worth of the environment primarily in terms of its utility for human purposes. According to the scholar's account, trees serve as a means of capital investment and a form of insurance during difficult circumstances. Additionally, they offer a supply of timber, wood, and sustenance. Farmers and pastoralists possess an awareness that the degradation of their environment

will have detrimental consequences for their own livelihoods as well as for future generations of humanity.

In their scholarly paper titled "Communicating African Spirituality through Ecology: Challenges and Prospects for the 21st Century," Gumo, Gisege, Raballah, and Ouma argue that Africans possess mechanisms for effectively managing and controlling the utilization of their natural surroundings. According to scholarly sources, African spirituality is expressed through the natural surroundings and has been enriched by the environments in which humans have engaged in worship and reverence for entities spanning the subterranean, terrestrial, and celestial realms. As a result, a range of strategies are implemented to limit the utilization of specific natural resources in order to promote environmental conservation. According to the perspective of these authors, the attainment of sustainable development necessitates the active engagement of individuals at the grassroots level in safeguarding and preserving the natural environment as a manifestation of divine creation. The revitalization and utilization of African knowledge and belief systems pertaining to environmental sustainability have potential for enhancing environmental conservation efforts.

Gumo et al (2012) explain that, communication is an integral aspect firmly ingrained into the behaviors and structures of African culture, to the extent that it is challenging to conceive of any social or religious behavioral events devoid of communication. As per the assertions made by these scholars, the conceptualization of communication posits that it is a phenomenon that is commonly experienced and practiced by a significant portion, if not all, of the individuals who are affiliated with a specific group. It is asserted that communication, within a social context, holds significant importance in comprehending

the intricacies of a society's culture and religiosity. The diverse array of African languages has played a crucial role in the transmission of African spirituality across successive generations.

Gumo et al. (2012) argue that it is commonly known that Africans rely on religion to protect the region's rich biodiversity. In these writers' opinion, African spiritualism fosters a sense of reverence towards various elements of nature, including animals, woods, rocks, mountains, and rivers. Furthermore, it provides a rationale for the veneration of specific locations and the prohibition of certain behaviors. Scholars have noted that the emergence of conservation values stems from the recognition that natural resources are beyond the control, invention, or creation of ordinary humans. As a result, individuals of African descent refrain from interfering with phenomena or systems that are beyond their comprehension or influence. This phenomenon results in the cultivation of reverence towards the natural resources of the environment. According to scholarly analysis, among African religious beliefs, there exists an inherent and indissoluble connection between humanity and the entirety of God's creation, as both entities draw their existence from God, who is regarded as the ultimate source of all life. The environment encompasses animals, humans, plants, and natural occurrences, all of which collectively contribute to the provision of resources necessary for survival.

Gumo et al (2012) assert that African spirituality is expressed through the environment, and that Africans possess methods for managing the utilization of their surroundings. According to the authors, African spirituality has been enriched by the cultural context in which individuals have engaged in the worship and reverence of all elements present in the natural world. It is asserted that the African worldview on resource utilization and

environmental protection is grounded in spiritual principles. This spirituality is purportedly influential in shaping significant conservation initiatives and resource management practices, as per their assertions. Religious beliefs and taboo systems occupy a central position in the overall fabric of human existence. African spiritual worldviews engender a profound appreciation for the natural environment, fostering a sense of reverence for hills, woods, animals, and rivers.

Gumo et al (2012) affirm that, it is recognized that African societies exhibit an acceptance of the interconnectedness that exists between nature and humanity. The authors propose that conservation is a collective phenomenon, emerging from the collective knowledge of numerous individuals. African individuals possess an understanding that the sustenance of life is contingent upon the ongoing availability of natural environmental resources for human utilization. Conservation principles and practices, in their perspective, are not solely derived from law enforcement mechanisms. Rather, they are rooted in a combination of spiritual beliefs and social obligations that have evolved as a means of ensuring survival and avoiding retribution from the spiritual realm. According to the writers, it is asserted that many African worldviews convey the notion that the fertility of soil and the frequency of rainfall are dependent on the well-being of specific wildlife groups. Gumo et al (2012) express worry regarding the act of murdering sacred animals, the felling of sacred trees, and the destruction of sacred spaces within the forest. They observe that these actions are met with spiritual disapproval, which is manifested through severe droughts or outbreaks of illness. It has been cautioned that the deterioration of natural resources employed for spiritual purposes, such as deforestation and unanticipated outbreaks of fire, could inevitably result in the

destruction of designated natural sanctuaries reserved for spiritual practices. The concept is articulated by African individuals who want to preserve the connection between the spiritual realm and mankind by refraining from messing with the natural world.

Gumo et al. (2012) state that a framework for defining appropriate resource usage can be found in taboos, religious beliefs, sacred rites, and totems. The foundation of their beliefs is intricately connected to the realm of spirituality, which serves as a guiding force for their practices. Collectively, these conventional approaches establish an ecological equilibrium that guarantees the judicious utilization of animals and plants for sustenance and various other objectives. They provide guidance for the principles of resource utilization, conservation, and environmental protection. In the African context, the designation of a location or natural occurrence as sacred is predicated upon its perceived suitability for religious veneration or its association with a supernatural realm that prohibits human interaction with the sacred event. Sacred sites or phenomena possess an inherent safeguard against exploitation, hence ensuring the preservation of the biodiversity within the surrounding ecosystem.

Gumo et al (2012) acknowledge that, African worldviews encompass a range of beliefs, practices, and conventions that pertain to the usage of natural environmental resources. It is asserted that these norms and beliefs exert social constraints that regulate both individual and collective conduct. The aforementioned conventional practices are transmitted and upheld in the form of customary law, and this shared societal obligation is manifested as regimes governing common property resources. According to scholarly analysis, taboos are believed to leverage an inherent and illogical dread within the human psyche. These findings demonstrate that cultural taboos serve as a means of imparting

practical attitudes, such as religious reverence for human precaution, through the use of dramatic symbols. According to scholarly analysis, taboos are transmitted through oral tradition across successive generations, serving a functional purpose within society. These taboos exhibit regional variations influenced by environmental factors, as well as the specific social, cultural, and economic structures of distinct communities.

Gumo et al. (2012) claim that taboos have an impact on interpersonal connections within the African society. The authors illustrate that taboos serve the purpose of facilitating communication regarding the conservation of natural resources in the environment. The conservation of natural environmental resource consumption is achieved by the implementation of taboos. The experts examine the ways in which Africans have developed a diverse range of taboos pertaining to plants, animals, snakes, sacred locations, religious practitioners, and avian creatures. The implementation of the aforementioned taboos served to safeguard certain trees and their associated locations. In their study, Gumo et al. investigate the utilization of taboos as a means to enhance ecological biodiversity by ensuring the preservation and non-disruption of animals inhabiting specific ecological niches. Hence, within the context of African spirituality, taboos serve as strategies for the conservation of natural resources in the environment.

In their study, Gumo et al. (2012) investigate the concept of totems, which are symbolic representations that serve to unite individuals who perceive themselves as sharing a common lineage, stemming from a single progenitor, and interconnected by a shared obligation towards one another. The concept of totems encompasses living entities, such as birds, animals, or plants, which individuals hold in high regard, displaying a sense of awe, veneration, and respect. These entities are deemed sacred within religious contexts,

hence prohibiting their harm or physical contact. The writers highlight the religious prohibition against consuming the flesh of an animal belonging to one's own clan or engaging in the act of harvesting a totemic plant. Additionally, clan members actively safeguard their clan's animals and plants due to the vital role they play in ensuring the existence and continuity of the clan. The utilization of totems serves as a means of safeguarding animals and plants, hence facilitating the transmission of conservation messages.

Gumo et al. (2012) acknowledge that, people now appreciate conservation and protect the environment as a result. The authors elucidate that, in accordance with the indigenous African perspective, human beings are intrinsically interconnected with the entirety of God's creation due to their dependence on God, who is regarded as the ultimate origin of all life. The environment serves as the fundamental source of sustenance and survival. Gumo et al's (2012), research provides confirmation that taboos serve as a means of communicating the practices of utilizing and conserving the natural environment. A diverse array of taboos pertaining to plants, animals, sacred sites, and religious practitioners has been developed by those of African descent.

Gumo et al (2012) affirm that, the indigenous African worldview posits that human beings inhabit a religious realm, wherein natural processes and artifacts are intricately linked to the divine. As per scholarly perspectives, the universe is believed to encompass a hierarchical order, founded by a divine entity, whereby many entities like as divinities, ancestors, spirits, human beings, animals, plants, and inanimate objects coexist. The prevailing order is typically centered on anthropocentrism, when the actions of God and other spiritual entities are oriented towards the support and welfare of human people.

Disrupting the cosmic order is considered morally reprehensible, as it undermines both societal equilibrium and the broader universal balance.

Dodd (2017) admits that cultural worldviews represent underlying assumptions and ideas regarding a conceptualization of the functioning of the world. Dodd further elucidates that the cognitive concepts and assumptions that are zealously safeguarded within a culture's sacred realm are believed to exert influence on individuals' perceptions of events, interpersonal connections, and natural phenomena. Kalu (2001) posits that indigenous cultures effectively convey their worldviews by means of proverbs and folk stories of origin, as they serve as conduits for the expression of their respective worldviews. According to Dodd (2017), the concept of worldview holds significant value as a communicative tool for conveying accepted norms and cultural restrictions related to environmental protection among communities. According to Kaleli (1985), the indigenous African worldview influences Africans' perceptions and interactions with various events, including the difficulties encountered in life. According to Kaleli (1985), the African population possesses distinct existential and ontological assumptions that form the foundation of their worldview.

The commemoration of the 25th anniversary of the World-Wide Fund for Nature (WWF) at Assisi, Italy, in 1986 acknowledged the interconnectedness of religion and the environment. The gathering underscored the notion that every religious tradition possesses valuable contributions that can aid its followers in addressing environmental challenges. Leslie et al (2007) propose that individuals who hold religious beliefs are more inclined to hold sacred or spiritual elements in high regard, leading to a greater propensity for reverence, protection, and conservation. According to Mbiti (1991), the

absence of indigenous peoples' religions at the Assisi summit does not negate the evidence from various studies suggesting their longstanding coexistence with nature.

2.4 Indigenous African worldview's ways of conserving Kakamega Forest

Diawuo and Issifu (2015) elucidate in their study titled "Exploring the African Traditional Belief Systems in Natural Resource Conservation and Management in Ghana" that prior to the implementation of contemporary approaches to natural resource conservation and management, indigenous African communities frequently devised intricate systems for managing resources. Local communities have a wealth of indigenous knowledge that played a crucial role in the preservation and sustainable management of natural resources. Attuquayefio and Gyampoh (2010) argue that prior to the implementation of contemporary natural resource conservation approaches, traditional societies employed intricate religious and cultural belief systems, encompassing norms, myths, taboos, totems, and closed seasons, as means to safeguard, preserve, and regulate specific natural resources. The utilization of these belief systems was oriented on safeguarding and advancing the collective welfare, as opposed to individual pursuits.

Diawuo and Issifu (2015) opine that, there is a lack of emphasis on the informal institution of traditional African belief systems in the context of natural resource management and conservation, despite its significant potency and relevance. Efforts to incorporate rural populations with the conservation of natural resources have been implemented, albeit at a sluggish pace. The aforementioned phenomenon can be ascribed to the emergence of Western technology, the increasing impact of foreign religious ideologies and beliefs, as well as challenges related to migration, urbanization, and

resettlement. Conservation and management are integral components of sustainable development, playing a pivotal role in its realization.

Diawuo and Issifu (2015) maintain that, taboos serve as uncodified societal norms that govern human conduct. Taboos are social or cultural restrictions that are considered sacrosanct and prohibited due to societal norms or emotional aversion. The imposition of limitations and regulations, as exemplified by totems and taboos, significantly influences the preservation of natural resources and the overall ecosystem. The conventional faith in the spiritual attributes and applications of natural resources exerts influence on the preservation and enhancement of the natural environment throughout numerous rural communities.

Diawuo and Issifu (2015) admit that, the scientific and grey literature has documented the significant contributions of indigenous and local belief systems in various domains, including biodiversity conservation and wildlife management, traditional medicine and health impact assessment, as well as natural disaster preparedness and response. Therefore, it is apparent that African societies have long recognized the significance of traditional belief systems in the preservation of biodiversity.

Diawuo and Issifu (2015) avow that, traditional African communities adhere to environmental ethics as a means of governing their interactions with the natural environment. African traditional religion and cultural practices prevalent in various African cultures exhibit a commendable inclination towards environmental friendliness and sustainability, hence making significant contributions to the preservation and sustainable management of natural resources. Taboos and totems represent fundamental indigenous practices employed in Ghana for the purpose of biodiversity conservation.

Social taboos are found in all cultures within a given country and serve as a category of informal institutions. These institutions are characterized by the presence of traditional and religiously influenced norms or systems of taboos that dictate human behavior. Taboos and totems have held significant cultural significance within human civilizations, functioning as symbolic artifacts that commemorate ancestral heritage and foster the preservation of natural resources throughout the course of history.

Diawuo and Issifu (2015) explain that, traditional belief systems continue to have a significant role in shaping the behaviour of individuals in rural communities in Ghana, particularly in relation to the utilization of natural resources. The promotion of traditional belief systems has been observed in regions where specific animals and other natural components hold sacred significance. The protection of forests and other natural resources has been found to be a latent function of African traditional belief systems, which are considered informal institutions. Nevertheless, despite the significant contribution of traditional belief systems to the preservation of biodiversity and the environment, they are not adequately acknowledged in both theoretical and practical contexts. Modernization perceives African Traditional Religion belief systems, worship, and customs as detrimental to the progress, harmony, and social integration of communities.

Diawuo and Issifu (2015) acknowledge the presence of indigenous knowledge systems in natural resource management inside Africa, which have evolved over time to effectively solve a range of survival difficulties. For an extended period, they effectively preserved and administered their natural environments. The gods would not allow anybody to escape unpunished for their mismanagement of the natural environment. The

consequences and penalties imposed on individuals who mishandled their natural resources were notably harsh, leading community members to exercise caution and prudence in their utilization of the available resources. In ancient societies, forests, water sources, mountains, and animal habitats held a sacred status and were treated with reverence, therefore preventing any form of exploitation or abuse. The systemic exploitation of natural resources was facilitated by the influence of spirit mediums and the instruction provided by traditional organizations.

Diawuo and Issaji (2015) affirm that, the incorporation of indigenous ideas and practices has played a significant role in indigenous natural resource management. Religious beliefs and moral punishments, along with a variety of sacred and cultural traditions, served as means of expressing actions in the realm of natural resource management. The enduring nature of these beliefs and practices has demonstrated their endurance in the realm of natural resource management, where they have been employed through the utilization of taboos, totems, traditional protected areas, moral consequences, as well as laws and regulations. In the context of Ghana, the spiritual realm plays a significant role in governing the operations of traditional institutions as they endeavor to effectively manage natural resources. Wildlife species that are considered totems possess both historical and socio-cultural importance, in addition to their symbolic value for the clans that associate with them. The preservation of forested areas within the community is undertaken due to their significance in providing habitat for sacred totemic creatures that hold profound spiritual and cultural importance. The implementation of a prohibition on the hunting and consumption of totemic animals has played a significant role in the conservation and preservation of wildlife within the community.

Alcorn (2010) acknowledges that, like other human activities, native people are experiencing an increasing challenge from global climate change in his book Indigenous Peoples and Conversation. The author draws attention to the fact that the objectives of native peoples extend beyond the scope of environmental conservation. Alcorn (2010) explains that the pivotal issue of their concerns is around the attainment of a state of balance and comprehensive welfare, which encompasses the preservation of a thriving environment. The author asserts that the implementation of environmentally sustainable production customs is crucial for the continued well-being of both the environment and the individuals and communities responsible for its maintenance. As per the author's assertion, this particular concern can be understood as a cultural feature that has evolved over numerous ages, shaped by the imperative of survival and the reliance on indigenous societies and local resources. The significance of traditional beliefs in the preservation of numerous components of biodiversity, irrespective of their historical origins (Berkes et al., 2000; Turner et al., 2000; Shastri et al., 2002), is a subject of inquiry. Hence, Alcorn's assessment of the relationship between environmental sustainability and society's concern for the ecosystem and overall wellbeing aligns with the findings of this study. This phenomenon is exemplified by the regulatory measures and prohibitive practices that are inherent to African religious traditions and the broader societal norms.

Mensah, Owusu-Bi, Nyamekye, and Amisa (2014) acknowledge in their article titled Environmental Conservation and Preservation of Cultural Heritage: Assets for Tourism Development in the Akyem Abuakwa Tradition Area of Ghana that the conservation, protection, and management of indigenous ecological sites have gained global attention in recent years due to the enormous potential they hold for sustainable livelihoods and

scientific research. The preservation of local cultures is intrinsically connected to the management of these locations due to the reciprocal connections and interdependence between the local communities and their surrounding natural environment.

Mensah, Owusu-Bi, Nyamekye, and Amisa (2014) assert that scholars have identified a concerning trend in Africa whereby numerous heritage sites, encompassing sacred groves, local deities' shrines, river deities, distinctive natural and cultural assets, and the environmental ethics that govern them, are facing significant challenges and are at risk of losing their sustainability. The achievement of sustainable environmental conservation is widely recognized as dependent on the inclusion of cultural traits, particularly religious beliefs and practices, as well as traditional institutions that impact individuals' perspectives on environmental conservation policies. It is imperative to prioritize concerted endeavors aimed at the conservation of the environment and the preservation of local cultures, encompassing various beliefs and practices. This includes rituals that intricately intertwine the daily interactions of individuals with their surrounding environment.

Mensah et al. (2014) acknowledge that, the achievement of sustainable environmental conservation is contingent upon the comprehensive consideration of cultural attributes, particularly religious beliefs, practices, and traditional institutions that influence individuals' perspectives on environmental conservation policies. It is imperative to prioritize the implementation of coordinated endeavors aimed at the protection and sustenance of the natural environment, as well as the safeguarding of indigenous cultures, encompassing their specific beliefs and practices. This includes rituals that serve as a means for individuals to interact with their surrounding environment on a daily basis.

Mensah et al. (2014) clarify that changes pose a threat to the cultural and environmental assets of Ghana's traditional territory, potentially compromising their integrity. The factors contributing to environmental degradation and threats to sustainability are intricate and interconnected. The emergence of these characteristics can be attributed to commercial activities such as farming and logging, occurrences of bush fires, the erosion of traditional institutions, and insufficient governmental assistance. The agricultural sector, which serves as the primary pillar of the local economy, has played a substantial role in the depletion of forest resources. The phenomenon of rapid population expansion in the traditional region of Ghana has been observed to have a corresponding effect of increased strain on land for agricultural purposes, leading to concurrent environmental degradation. The management of natural resources has been impacted by the demands exerted by population dynamics on land and other ecological assets. The prevalence of bushfires stemming from agricultural land clearing, communal hunting practices, and the extraction of palm wine is widespread. The failure to adhere to local rules and regulations regarding these activities presents a significant risk to the local ecosystem.

Mensah et al. (2014) state that changes in how people in the area see the natural environment, especially beliefs and taboos that kept people from abusing and destroying natural resources, are to blame for the environment getting worse and water bodies becoming polluted. The majority of individuals who violate traditional beliefs and taboos that serve to safeguard the natural environment are driven by economic incentives. The increasing trend of neglecting agricultural practices around water sources and sacred locations is becoming more prominent.

According to Mensah et al (2014), it is crucial to grant local leaders greater agency in addressing environmental concerns, while also providing them with legal support to enforce the preservation of historically safeguarded locations, such as sacred sites. In order to safeguard the valuable cultural heritage assets, it is suggested that capacity building initiatives be established for traditional leaders within their respective traditional domains. The formation of individuals' perspectives on the environment and culture is predominantly influenced by their underlying worldview. Therefore, it is imperative to establish strategies that may effectively engage the local community in adopting environmental conservation practices and fostering a deep appreciation for local traditions. There is a need for the forestry service operating in the customary region of Ghana to enhance their participatory off-reserve forest initiatives by incorporating a greater number of sacred places. Collaborative endeavors of this nature may moreover furnish needed assistance and instruction to indigenous populations in the realm of fire avoidance and management, hence mitigating environmental devastation.

Ngara and Mangizvo (2013) discuss the role of Indigenous Knowledge systems in the conservation of Natural Resources in the Shangwe Community in Gokwe District, Zimbabwe. They highlight the significant threats faced by the natural environment and resources in this region. The authors argue that cultural taboos and their associated sanctions have played a crucial role in mitigating environmental abuse, particularly among the local population. Religious beliefs, cultural norms, and practices frequently exhibit alignment with contemporary conservation principles, rendering their preservation vital due to their crucial role in fostering prudent discourse and stewardship of natural resources. It is commonly noted that among rural communities worldwide, the

preservation of the environment is intricately intertwined with the cultural practices of the inhabitants.

Ngara and Mangizvo (2013) opine that, there is an increasing agreement among scholars that traditional institutions play a significant role in safeguarding ecosystems and biodiversity, even in the absence of formal legal regulations imposed by the government. Hence, it is plausible to consider incorporating these practices into conservation and management measures, given their implicit demonstration of efficacy. Within locations held in high regard, the indigenous inhabitants exhibit a practice of abstaining from activities such as deforestation, animal slaughter, and the collection of beneficial flora within these sacred sites. Furthermore, they adhere to a belief system wherein they perceive that transgressions of these restrictions would incur the displeasure of spiritual entities or deities, thus resulting in detrimental consequences for the community. The conservation of biodiversity is motivated by practical considerations, mostly stemming from the various advantages associated with the preservation of natural ecosystems. These benefits encompass areas such as sustenance, pharmaceutical resources, and other essential environmental materials.

Ngara and Mangizvo (2013) affirm that, the erosion of traditional beliefs on a global scale has led to the breakdown of informal, self-imposed limitations on the utilization of resources. Consequently, this poses a significant threat to species and ecosystems that were formerly safeguarded by these cultural traditions. The erosion of traditional checks and balances within contemporary communities has had a negative impact on their enforcement. The abandonment of customary cultural practices not only undermines

these practices themselves, but also poses a significant risk to natural environmental systems.

Ngara and Mangizvo (2013) posit that, the practice of ancestral reverence in Ghana is of significant importance in the preservation of natural resources. According to traditional Ghanaian beliefs, those who transgress culturally approved norms or engage in activities that harm the environment may face retribution from their ancestors. Burial and ritual sites are commonly regarded as the dwelling places of ancestors and are maintained as consecrated groves. The utilization of resources, including farming, hunting, and tree cutting, is strictly restricted in specific locations until the completion of designated rites. The sacred groves provide as habitats for ecologically significant species that hold economic and social importance. The utilization of cultural values played a pivotal role in the preservation of sacred groves, with the overarching objective of enhancing the management and conservation of natural resources.

Ngara and Mangizvo (2013) postulate that, it is said that in Zimbabwe, the implementation of Shona environmental taboos contributes to the promotion of sustainable practices in the utilization of natural resources. The acquisition of esoteric knowledge pertaining to sustainable utilization of natural resources is influenced by an inherent, unacknowledged understanding of specific environmental taboos. The Shona people persist in adhering to their cultural values, taboos, and beliefs as they engage in the preservation and administration of natural resources. Shona cultural taboos have a crucial role in the preservation of the environment, particularly in safeguarding water sources, natural vegetation, and animals. Consequently, they serve as a foundation for the

development of environmental ethics, fostering a mutually beneficial connection between humanity and the Earth's biodiversity.

Ngara and Mangizvo (2013) propose that within the Shona culture, there is a cultural restriction that restricts the uncontrolled cutting down of trees. The existence of spirits is ascribed to the considerable dimensions of trees, which function as their dwelling places. The act of cutting down trees that are specifically prohibited incurs penalties that involve the payment of a complete herd of cattle to the court under the jurisdiction of the chief. The artist's musical works exemplify the cultural importance ascribed to different types of trees. There is a commonly held belief that large trees and elevated slopes had considerable cultural and ritual significance as designated burial places exclusively reserved for rain priests. The Shona community partakes in a traditional custom of participating in weeding rituals near the rain shrines, which acts as a symbolic gesture of respect towards the spiritual entities. Consequently, the indentations that remain as a consequence of this custom are esteemed as revered cultural customs. According to the cultural practices and beliefs of the indigenous population, it is prescribed that they abstain from the act of cutting down trees, especially those that hold spiritual significance, located on any sacred hill in their neighborhood. Consequently, the information they learn makes a substantial contribution not just to the reduction of soil erosion but also to the facilitation of the natural process of forest regeneration.

Rukeh, Irerhievwie, and Agbozu (2013) in their publication titled "Traditional Beliefs and Conservation of Natural Resources: Evidences from selected Communities in the Delta State, Nigeria," argue that indigenous African conservation ethics have the potential to safeguard biodiversity species and the environment at large, provided that the

local communities are actively involved in the process. Scholars argue that Traditional Ecological Knowledge (TEK) systems encompass a range of practices, beliefs, and teaching and learning methods that have direct and indirect connections to resource stewardship and conservation at many levels. In their opinion, the indigenous African worldview is an all-inclusive system that works to establish and ensure the wellbeing of its community members. Africans have a vested interest in avoiding the displeasure of deities, spirits, and ancestors through the responsible treatment of nature and the environment, as any transgressions may result in severe consequences for humanity.

Niamir-Fuller, Ozdemir, and Brinkman (2016), in their study titled "Environment, Religion, and Culture in the Context of the 2031 Agenda for Sustainable Development," posit that it is increasingly acknowledged that indigenous peoples and local communities rely on traditional knowledge and customary sustainable practices to enhance their resilience towards environmental change, including climate change. Additionally, these practices play a significant role in preserving both biological and cultural diversity, while also contributing to global sustainable development. According to their perspective, the establishment of respectful connections with indigenous communities can lead to the sustainable management of their resources, so bolstering both global and local efforts to address climate change and promote conservation. These researchers propose that a more comprehensive comprehension and recognition of the role of culture and indigenous religion is necessary in order to effectively safeguard and conserve the natural environment. It is recognized that, in accordance with numerous African religious and cultural viewpoints, individuals are obligated to exercise prudent utilization of resources, irrespective of their seeming plenty and opulence. It is imperative to ensure the

preservation and protection of resources in order to mitigate pollution, minimize waste, and prevent overexploitation. By doing so, we can effectively pass on these resources to future generations in a sustainable and optimal condition. The aforementioned viewpoint is relevant to this study as it elucidates the behaviors and tactics employed by individuals of African descent in accordance with their cultural perspective. The prudent utilization of resources is a core principle that is underscored, alongside the preservation of resources, with the aim of securing advantages for forthcoming generations.

Gumo, Gisege, Raballah, and Ouma (2012) assert that, certain environmental resources are feared and preserved due to the belief that they are associated with malevolent individuals, resulting in their avoidance of destruction. According to scholarly discourse, it is posited that individuals who disrupt or impede their activities may face potential mortality or adverse consequences attributed to the mystical forces under consideration. According to the authors, the avoidance of contact with specific plants or animals by people serves to prevent disturbance, hence advocating for their preservation in a natural state to promote optimal ecological diversification. Numerous places were safeguarded based on religious or ideological convictions.

Gumo et al (2012) affirm that, religion specialists play a crucial role in facilitating the preservation of natural environmental resources within African communities. This is accomplished by their adherence to the principles of conserving specific natural resources. It is widely thought that these entities have acquired their abilities from the creator, resulting in their ability to enforce the preservation of environmental resources. As a result, their directives about conservation are adhered to. There is a prevailing belief

that non-compliance with the given directives may result in the imposition of curses onto either the individual or the entire community.

Gumo et al (2012) state that, several religious practitioners possess sacred sites that they meticulously maintain to enhance the effectiveness of their spiritual practices. Medicine practitioners establish regulations, belief systems, and cultural prohibitions to govern the consumption of medicinal plants derived from specific tree species. The local community is restricted from accessing specific areas of the forest by herbalists, who assert that these regions are susceptible to infestation by malevolent spirits.

Gumo et al (2012) state that, the majority of rituals within the African traditional society involve the preservation of the environment in which individuals reside. Rituals exhibit variation across different regions of the cosmos as a consequence of environmental determinism. African societies engage in a variety of rituals that are intricately connected to the natural environment, spanning from birth to death. According to their perspective, nearly all rituals have elements related to plant and animal life. The aforementioned rites are safeguarded for prospective utilization, as they undergo periodic recurrence at designated sacred locations. Numerous ceremonies were associated with specific locales that were carefully conserved for the purpose of transmitting them from one generation to the next. Through the implementation of certain previously established social norms, specific arboreal specimens and their corresponding habitats were safeguarded. This initiative facilitated the enhancement of ecological biodiversity, hence leading to the preservation of natural environmental resources.

Gumo et al (2012) explain that, traditional authorities designated some areas within the forest for the purpose of sustainable resource utilization and the conservation of essential

biodiversity. In the majority of instances, their primary purpose is to safeguard watersheds, delicate ecosystems, and the significant flora and fauna that hold importance for the surrounding population. The authors elucidate that traditional groups possess legal ownership of certain regions and wield overarching administrative responsibilities in relation to them. It is widely acknowledged by scholars that the management, defense, and preservation of these areas are collective responsibilities that fall upon the entire community. The authors note that the primary motivation behind safeguarding these locations stemmed from concerns regarding potential disturbances caused by the reanimated deceased.

In their study, Gumo et al. (2012) investigate the strategies employed by religious professionals and elders to safeguard sacred locations. These strategies involve the establishment and enforcement of norms and regulations that control the utilization of resources found inside these sites. The researchers investigate the practice of impeding the regular utilization of certain areas in order to promote optimal levels of ecological diversity within such areas. The authors reach the conclusion that the implementation of social control measures pertaining to the utilization of natural resources in these locations effectively mitigates or prevents deterioration, pollution, and contamination. It is noted that the notion of sanctity encompasses various forms of life, including plants, animals, birds, and snakes. A significant number of African cultures hold certain flora and fauna species in high respect due to their sacred nature. As per scholarly discourse, the preservation of certain flora and fauna species is undertaken with the primary objective of fulfilling religious purposes. According to prevailing beliefs, the transmission of sanctity within African culture is attributed to the ancestral imperative, as it is purportedly

inherited and upheld across successive generations. The belief posited by certain individuals suggests that the absence of communal sacrifices and offerings may exert an influence on the occurrence of tragedies. It is postulated that in the event that community members permit the demolition of sacred locations, there exists a belief that the ancestral spirits will bestow a curse upon the living. Hence, the notion that certain locations within the forest hold spiritual significance serves to foster the practice of sustainable ecological preservation.

Gumo et al (2012) confirm that, totems played a significant role in fostering environmental conservation within indigenous African tribes. A totem is defined as an animal, bird, or plant that individuals hold in high regard, displaying feelings of awe, veneration, and respect towards it. The sign in question serves as a unifying force among individuals who perceive themselves as sharing a common lineage, tracing back to a single progenitor, and are interconnected by a shared obligation towards one another. The act of consuming the flesh of a totem animal or engaging in the cutting of a totem plant is considered sacrilegious within the context of clan membership. It has been observed that individuals belonging to a clan have a tendency to safeguard their respective totemic animals and plants, hence preventing any harm or destruction to the lives of these totems. Numerous Luhya groups exhibit a practice of associating themselves with certain plant and animal totems, including notable examples such as the bushbuck and palm tree. The consumption of flesh derived from totem animals is strictly prohibited, as it is believed to result in bodily swelling. The act of swearing is commonly performed in the presence of totem plants as a means of determining the veracity of one's statements.

Gumo et al (2012) state that, the collective duty for managing, defending, and preserving such lands lies with the entire community. These sites were safeguarded due to concerns of potential distress to the deceased. The safeguarding of these hallowed sites was ensured by religious experts and elders who implemented a set of laws and regulations pertaining to the exploitation of resources within these locations. The implementation of social control measures pertaining to the utilization of natural resources in these locations ensures the mitigation of deterioration, pollution, and deforestation of forested areas.

Gumo et al (2012) acknowledge that, several African cultures hold certain flora and wildlife with high reverence, considering them to be sacred. The flora and fauna in question are preserved for religious purposes, with their sanctity being transmitted across successive generations. According to their explanation, when a community permits its members to engage in the destruction of sacred areas, it is commonly thought that such actions may result in ancestral curses being inflicted upon the living. Hence, the notion that certain locations within the forest hold sacred significance serves to foster the preservation of ecological resources in a sustainable manner. According to Gumo et al, religious specialists in African communities play a significant role in advocating for the preservation of the natural environment. This is accomplished by their adherence to the principles of conserving specific natural resources. The authors note that there is a prevailing belief that non-compliance with their directives may result in the imposition of curses against oneself or the entire clan. It is the duty of religious experts to maintain the proper maintenance of sacred areas, hence promoting effectiveness in their endeavors. Medicine practitioners establish and enforce regulations, beliefs, and prohibitions to govern the consumption of medicinal plants derived from specific tree species. The local

populace is effectively restricted from accessing specific areas inside the forest due to assertions that these regions are susceptible to malevolent spiritual entities.

Based on the findings of Omare (2006), Gumo et al contend that within the African worldview, the act of cutting down sacred trees and desecrating sacred areas within the forest is met with spiritual disapproval. This disapproval is believed to materialize in the occurrence of severe droughts and outbreaks of diseases. Hence, the imposition of restrictions on sacred trees and locations serves as a means of effectively communicating and emphasizing the importance of forest protection. The authors elucidate that a notable aspect of indigenous African perspectives is the designation of sacred forest areas by traditional leaders, with the intention of promoting sustainable resource utilization and safeguarding critical biodiversity. It is asserted that, in the majority of instances, this measure is implemented with the objective of safeguarding watersheds, delicate ecosystems, and the preservation of plant and animal species, which holds significant importance for the local population.

Gumo et al (2012), assert that African societies acknowledge and embrace the interconnectedness that exists between the natural environment and human beings. According to the authors, Conservation is considered to be a collective phenomena that emerges from the accumulated knowledge of several individuals. It is widely acknowledged that individuals of African descent possess a deep understanding of the fundamental importance of maintaining the availability of natural environmental resources for human utilization in order to sustain life. Conservation ideals and practices, in their perspective, are not solely derived from law enforcement mechanisms. Rather, they stem from a combination of spiritual and social duty, which has evolved as a means

to ensure survival and avoid retribution from the spiritual realm. The African population's understanding and interpretation of their worldview play a significant role in effectively communicating the importance of forest protection, ultimately contributing to the mitigation of climate change effects.

The aforementioned stance supports the dissemination of the African perspective, as it showcases the significance placed on environmental preservation by emphasizing the reverence for natural resources and the interconnectedness between people and the divine creation. This study aligns with the viewpoints of these experts as they support the suggestion to incorporate the Indigenous African worldview into the communication of conservation efforts, so making a contribution to addressing climate change.

Tarusarira (2017) in the scholarly work known as African Religion, Climate Change, and Knowledge Systems, states that Africans see the world as a spiritually interconnected whole in which human connections and the natural world are intrinsically intertwined. This subsequently engenders a deep admiration and veneration for nature, while refraining from its exploitation, and a dedication to preserving and enhancing the natural environment. The professor posits that the act of destroying nature and the environment ultimately leads to self-destruction. This implies that the natural world and the environment are inherently interconnected with human existence, lacking any distinct division. The expert highlights the correlation between harmonious coexistence with the natural environment and the renowned spiritual realm. Therefore, natural phenomena, such as plants, rocks, and bodies of water, are held in high regard and esteemed, serving as conduits of the world and possessing both tangible and intangible capabilities. The professor substantiates this perspective by asserting that such an approach guarantees the

preservation of nature and the environment, hence mitigating the effects of global warming. The researcher provides an illustration by outlining the relationships within the traditional African worldview, as narrated, which result in spiritual behaviors characterized by regard and respect. These activities play a significant role in the conservation and dissemination of nature. The aforementioned efforts contribute to the preservation of the environment, hence corroborating the findings of this study. Tarusarira (2017) acknowledges that, the indigenous African worldview has a significant role in shaping the manner in which followers of African religion establish and maintain their connections with the natural world and other individuals. The scholar examines the manner in which Africans engage with soil, water, health, and nature in a manner that serves not only psychological and social purposes of integration and equilibrium, but also contributes to the imperative task of safeguarding the environment, particularly in the realms of conservation and climate change mitigation. In the aforementioned excerpts, the author conveys the underlying purpose of this research endeavor.

Tarusarira (2017) opines that, the interconnectedness of nature and the environment with human existence is emphasized, as they are considered inseparable entities. The researcher emphasizes the significance of nature preservation by asserting that the destruction of nature and the environment ultimately leads to self-destruction. The scholar elucidates that the state of coexisting harmoniously with the natural world corresponds to coexisting harmoniously with the spiritual world, as these realms are intricately linked and mutually reliant. Therefore, natural phenomena, such as plants, rocks, and bodies of water, are held in high regard and esteemed, serving as conduits to the spiritual realm and possessing both tangible and intangible abilities. This feature

inherently guarantees the protection of nature and the environment. This phenomenon mitigates the effects of global warming, hence facilitating the progression towards sustainable development.

Ikuenobe (2014) contends that because Africans possessed conservationist beliefs, customs, and lifestyles, the activities that have caused environmental concerns did not exist before colonization. Ikuenobe (2014) argues that African perspectives on ontology, cosmology, medicine, healing, and religious rituals were crucial in shaping their moral stance on the conservation and preservation of the natural environment. According to the analysis provided by this scholar, traditional African thought perceives nature in a holistic manner, viewing it as an interwoven continuum including both humans and all natural entities, existing in a state of harmonious coexistence. The manner in which individuals conduct their lives is indicative of their endeavors to coexist harmoniously with the natural environment. These endeavors resulted in the conservation of natural resources.

Ikuenobe (2014) goes on to say that traditional African medical and therapeutic techniques reflect the indigenous worldview ideas of ontology and cosmology. According to the author, individuals of African descent depend on the utilization of herbal remedies and natural substances derived from plants and animals for the purpose of therapeutic treatment. Consequently, individuals had a compelling inclination to demonstrate reverence towards the natural world, leading to a desire to safeguard and maintain the well-being of animals and diverse plant species. These organisms provide as valuable sources of roots, leaves, barks, and other natural elements utilized in traditional medicinal practices. According to Ikuenobe, spiritual healing encompasses practices that encompass

the invocation and pacification of deities, spirits, and ancestors, or the utilization of supernatural powers to reinstate equilibrium in the natural world and restore order to an individual's existence. Due to this particular religious system, nature and natural entities are accorded appropriate reverence. The scholar highlights that diverse facets of the natural world are deemed significant for varying rationales. The utility of these entities to the human species is contingent upon the imperative of maintaining ecological balance for intrinsic reasons. The holistic perspective of nature and its moral regard are the underlying factors contributing to its inherent value.

Ikuenobe (2014), draws from the African worldview, in the assertion that reverence for nature serves human interests, given that humans are an integral part of nature. Africans derive usefulness from the natural environment. According to the scholar's perspective, it is advantageous for individuals of African descent to utilize natural resources for their advantage, while also striving to preserve a harmonious equilibrium in the natural environment. This is because any disturbances to nature have consequential impacts on Africans, who are interconnected with the broader cosmic entity. It is imperative for those of African descent to exercise caution in their treatment of nature and the environment, as doing so may inadvertently offend the deities, spirits, and ancestors. The repercussions of such transgressions can have severe consequences for human well-being, as divine wrath may be unleashed against them. According to the author, there exists a prevailing belief among Africans that instances of human poor health, natural disasters, or any negative events are attributed to a lack of balance or harmony within the natural world. In order to mitigate the emergence of a catastrophe, an ailment, or other adverse event, it is imperative to foster a state of harmony.

The objective of preserving and conserving the cosmos and its resources necessitates the implementation of a wide range of solutions encompassing technology, policy, science, and culture. Other environmental challenges, such as the protection of endangered species or the preservation of forests, necessitate the consideration of values (Wilson & Bedoe, 2009). Research indicates that an individual's lifestyle choices, influenced by their values, have the potential to significantly impact the environment (Chameides, 2010). According to Stern (2000), personal norms serve as the primary foundation for individuals' overall inclination towards engaging in pro-environmental behaviors. According to Scherbeger (2011), it is crucial to comprehend the values underlying environmental actions, as these acts frequently depend on and manifest these values. The scholarly observations provide strong support for the significance of the Indigenous worldview in facilitating communication regarding conservation efforts. The foundations upon which individual lifestyle choices are determined are characterized by values, beliefs, and standards. These lifestyle choices subsequently influence environmental initiatives.

Aitken et al (1998) observe that, the perception or experience of both physically and human-altered landscapes is influenced by cultural values. When engaging in the process of decision making, individuals typically need to integrate their own beliefs with the available factual information in order to formulate an appropriate and informed answer (Golledge and Stimson, 1997). Smith (2003) posits that the indigenous African worldview is manifested through cultural manifestations and societal systems. Hence, it can be argued that the cosmos exhibits a sense of organization and functions in

accordance with various levels of natural laws, moral principles, religious beliefs, and notably, an underlying enigmatic order.

The indigenous African religion and cultural practices, as observed in various African societies, have a strong inclination towards environmental friendliness and sustainability. This is evident in their distinct perceptions of reality (Dixon, 1976). According to Ibessa (2006), it is posited that Africans perceive the worth of the environment to be contingent upon its utility for human purposes. As per the analysis conducted by this scholar, trees has the potential to serve as a form of capital, investment, and a means of safeguarding against economic adversity. Trees have a crucial role in providing a sustainable supply of timber, wood, and food resources. Farmers and pastoralists possess an awareness that the degradation of their environment will have detrimental consequences for their livelihoods and the well-being of future human generations.

There is a growing sense of concern among environmentalists, scientists, and anyone with an interest in the environment regarding the issues of resource depletion, population expansion, climate change, and forest degradation (Postma, 2006). Awuah-Nyamekye (2013) argues that there exists a pressing imperative to undertake measures aimed at mitigating the dire circumstances at hand, with the ultimate goal of preserving the world from impending devastation.

Morford, Parker, Rogers, Salituro, and Waldichuk (2003) assert that, possessing knowledge and demonstrating respect for the diverse worldviews held by various stakeholders is crucial for forest and natural resource managers, as well as other involved parties, in effectively navigating the intricate process of decision-making related to environmental conservation. According to scholarly sources, local communities are

considered stakeholders who bear a responsibility in relation to forest conservation due to the direct impact of decisions and activities pertaining to the forest on their well-being. The perception of communication can either provide challenges or offer potential resolutions to the issues of climate change and forest protection. The promotion of communication and public participation is crucial in decision-making processes pertaining to natural resource management (Morford et al., 2003). According to Morford et al. (2003), having a comprehensive understanding of worldviews and communication styles can facilitate effective communication between forest managers and members of the public, hence aiding in the prevention or reduction of adverse impacts resulting from forest degradation. Nevertheless, it has been argued by these scholars that the utilization of terminologies in the field of natural resource management may result in misinterpretation due to the tendency of individuals to perceive words based on their cultural perspectives. Strang (1990) asserts that forestry organizations have historically faced challenges in establishing efficient means of communication with relevant parties, a situation that has only recently begun to change. The terminology employed by forest managers who have received Western training frequently mirrors their worldview. According to Strang (year), those inside the professional forestry culture may engage in discussions regarding forest improvement. However, others who are not part of this culture may either lack comprehension of the term or perceive the notion as implausible. This perspective arises from the belief that the forest possesses inherent perfection and is impervious to enhancement through human intervention. Consequently, the reaction of the specific audience may not accurately align with the intended message conveyed by the communication efforts of the Forest managers.

The Kakamega forest faces significant threats mostly as a result of economic and population pressures. The forest has been subject to unregulated and inefficient use, resulting in a gradual depletion of its resources and a compromised ability to regenerate. According to the findings of a survey, a significant proportion of families residing near forests, specifically 84%, were seen to engage in utilizing the forest as a source for obtaining essential commodities. Among these activities, grazing livestock and collecting fuelwood were identified as the most commonly practiced. The fragmentation of the forest has led to the division of the primary forest area into smaller, isolated islands (International Centre of Insect Physiology and Ecology, 2003). The safeguarding of sacred ecological areas from degradation and destruction represents a tangible expression of the interconnectedness between religion, culture, and the environment, as adapted and practiced within local contexts.

2.5 Integrating indigenous Abaluhyia worldview with scientific approaches in communicating climate change data related to conservation of Kakamega Forest

ASSAR (2016) in the report titled "Communicating Climate Change for Adaptation: Challenges, Successes and Future Priorities," note that historical attempts to communicate climate change primarily involved the distribution of information, rather than enhancing comprehension of adaptation obstacles, promoting awareness of adaptation strategies, fostering dialogue, or inducing behavioral modifications. In recent times, there has been a notable trend towards an increased utilization of stakeholder discourse and a heightened emphasis on the co-generation of knowledge. However, communicators continue to encounter various challenges. These challenges include the need to successfully incorporate scientific information with traditional knowledge,

effectively disseminate this information to individuals and groups who possess different levels of power, agency, and social dynamics, and navigate diverse communication channels, learning methods, and modes of knowledge transmission to ensure that marginalized groups have access to essential information.

ASSAR (2016) further reports that, employing communication strategies that promote conversation and public participation can have dual benefits. Firstly, it can strengthen the comprehension of climate change and adaptation options. Secondly, it can increase the probability of inducing behavioral change. However, it is frequently observed that communication strategies aimed at conveying climate change information to vulnerable rural areas tend to rely on one-way dissemination methods. The involvement of communities in the provision of climate information or the design of particular adaptation tools and advice is infrequent, resulting in limited relevance of these initiatives at the local level. ASSAR (2016) further reports that organization suggests that it is beneficial to promote communication strategies that facilitate dialogue, engagement, and the co-production of knowledge with local populations. One crucial aspect to consider is the use of communication strategies that combine technological advancements with a focus on human interaction.

ASSAR (2016) submits that, there is potential for the development of community radio programs that employ a combined strategy to address the deficiencies in knowledge sharing related to climate change. Radio journalists have the potential to serve as intermediaries, facilitating communication and collaboration between various stakeholders, including communities, scientists, and policy officials. The journalists initially establish contact with the communities and ascertain their wants and worries,

then conveying the localized perspectives to scientists and policy leaders. In addition, journalists play a crucial role in disseminating scientific information and policies to communities, thereby enhancing the accessibility of such content. They effectively communicate potential climate hazards and promote the adoption of adaption measures, so contributing to the popularization of these strategies. This strategy fosters collective learning among stakeholders by promoting communication and the collaborative generation of knowledge.

ASSAR (2016) suggests that, in order for communication efforts to be effective, it is crucial to commence with a comprehensive comprehension of the local views pertaining to climate change threats and adaptation responses. By engaging in dialogue with local populations and prioritizing their specific requirements, the process of co-generating climate information can be enhanced, resulting in increased credibility, applicability, and pertinence. In order to effectively shape social or behavioral change, it is imperative to critically assess and comprehend the scientific and cultural discourses around climate change. The significance of the media's involvement in influencing climate change awareness in policy domains and shaping public discussions necessitates a more meticulous examination of the knowledge and perspectives held by these communicators.

In their publication titled "African's Dilemmas in Climate Change Communication" (Chirisa, Matamanda, & Mutambwa, 2018), the authors discuss the challenges faced by Africans in effectively communicating climate change issues. This work is published in Volume 1. The theory of climate change is a scientific framework that seeks to explain the long-term alterations in Earth's climate patterns. It posits that human activities, particularly the emission of greenhouse gases, are the primary drivers of The assertion is

made within the field of communication that indigenous traditional knowledge is the rightful property of the respective communities or ethnic groups, and is intricately influenced by their cultural practices, customs, and overall way of life. The authors concur with the definition of indigenous traditional knowledge provided by Chanza and de Wit (2015), which characterizes it as geographically distinctive, learned via direct experience through studying the interactions between communities and their environment, and transmitted orally within and across generations.

Chirisa et al. (2018) opine that, indigenous knowledge systems are derived from the accumulated experiences of local communities over generations. These systems are intricately intertwined with the local culture and environment, and are transmitted orally from one generation to the next. According to the authors, it is commonly observed that ownership of these systems tends to be collective, with communities having access to these practices and systems through many means such as stories, songs, folktales, proverbs, cultural values, beliefs, rituals, community rules, local language, as well as the cultivation of plant species and breeding of animal varieties. Indigenous communities possess a diverse body of knowledge pertaining to their traditional practices, encompassing their perceptions and comprehension of climate change and associated phenomena. This knowledge encompasses various aspects, such as the ability to forecast storms or floods by observing atmospheric conditions. Additionally, indigenous communities employ practices aimed at ensuring the sustainability of their livelihoods in the face of climate change, such as diversifying their means of subsistence. Furthermore, these communities develop strategies for survival, coping, and mitigation, with the objective of minimizing or preventing damage. Such strategies may involve relocating to

safer areas. Lastly, indigenous belief systems encompass cultural rituals and ceremonies that play a role in addressing climate-related challenges.

Chirisa et al. (2018) concur with Alvera (2013) and Nyong et al. (2007) in recognizing the significance of indigenous traditional knowledge and practices in facilitating effective adaptation. These practices possess a wealth of cultural context and encompass a suitable and refined knowledge framework. Moreover, they promote equity, efficiency, and environmental integrity. Most importantly, they foster enhanced communication and understanding. Chirisa et al align with Shaw et al (2008) in asserting the existence of three considerations that support the integration of indigenous traditional knowledge systems in the communication of climate change and conservation. The authors propose that the utilization of indigenous traditional knowledge systems enhances community engagement and empowerment in the context of catastrophe reduction. The authors additionally note that indigenous knowledge plays a crucial role in offering essential insights that pertain to the specific local circumstances. This, in turn, facilitates the development of adaptation techniques that are deeply rooted in the local context, hence enhancing their reception and adoption within the local populations. Indigenous traditional knowledge also serves as a non-formal mechanism for transmitting indigenous knowledge, so facilitating the education and dissemination of disaster risk reduction adaptation policies to the wider public.

Chirisa et al (year) cite Alvera (2013) to elucidate that older individuals within communities had a profound understanding of indigenous traditional knowledge. As per scholarly discourse, numerous parallels can be observed between the prognostications derived from indigenous traditional knowledge and those derived from universal

scientific principles. The local community use many natural indicators, such as the lunar position, tree blossoming, bird nest placement, and animal behavior, to forecast the anticipated rainfall levels and the commencement of the rainy season.

Chirisa et al (2018) highlight the vulnerability of indigenous knowledge to extinction due to little utilization by individuals and groups, despite its potential efficacy in mitigating climate change. The authors believe that science is now the prevailing methodology employed, but, it is apparent that science in isolation does not provide an effective means of communicating climate change for adaptation. Consequently, there is a need to integrate Indigenous traditional knowledge into the discourse. It is imperative for these two systems to converge instead of persisting in a state of disconnection.

Chirisa et al. (2018) provide an illustration from the Philippines, wherein many activities, including the observation of animal behavior, celestial bodies, the natural environment, and cultural beliefs and traditions, are employed to forecast climate change-related calamities. The authors also reference Hiwasaki et al (2014) to support their claim that these techniques encompass the utilization of celestial bodies and atmospheric phenomena to predict weather patterns, the observation of animal behavior as an indicator of impending rainfall and storms, and the establishment of early warning systems employing conch shells. This demonstrates the potential for using indigenous knowledge.

Chirisa et al. (2018) provide a comprehensive analysis of the utilization of indigenous knowledge and traditions in Zimbabwe for the purpose of predicting and forecasting climate and weather-related phenomena. According to scholarly findings, there exist numerous parallels between the forecasts derived from indigenous traditional knowledge

and those derived from universal science over the year of 2012/2013. However, a notable limitation of indigenous knowledge is in its inability to provide precise timelines for the manifestation of certain climate phenomena.

Chirisa et al. (2018) assert that, older individuals possess a deep understanding of this information, which is progressively being marginalized due to its perceived primitiveness and lack of reliability. The utilization of indigenous traditional knowledge systems has facilitated the communication of climate change impacts for the purposes of adaptation and mitigation. Additionally, these systems have been instrumental in conveying strategies to be employed by subsistence farmers. This has been achieved through comprehensive examination of plant and animal behavior, enabling the prediction of potential climatic catastrophes. According to Chirisa et al. (2018), the authors contend that the changing climate in sub-Saharan Africa has led to alterations in the timing of rainy seasons. Consequently, there is a necessity to adapt agricultural cropping seasons accordingly, as well as to develop methods for predicting and anticipating certain climatic occurrences and disasters, such as floods and droughts. In relation to this matter, diverse indigenous customs are employed by African groups to anticipate and project climatic occurrences.

Ziervogel and Opere (2013) note that, the authors provide illustrations from Zambia and Zimbabwe to demonstrate the utilization of indigenous knowledge indicators, such as fruiting patterns, leaf and weed emergence, and wind movement, for the purpose of weather and climate prediction. Ajani et al. (2013) emphasize the elaborate mechanisms employed by Nigerian farmers to collect, forecast, understand, and make decisions based on their local experiences. Nevertheless, despite the presence of a wide range of

knowledge and expertise about climate and meteorological patterns, there has been a limited integration of this knowledge into national forecasting systems. Farmers have effectively mitigated their susceptibility and adjusted to the dynamic environment and its associated adversities by employing predictive climate models.

Chirisa et al. (2018) observe that, it has been seen in western Kenya that individuals have frequently relied on rainmakers who have provided assistance to local communities in determining the appropriate timing for initiating the agricultural season. The rainmakers are influenced by natural phenomena such as air currents, the blooming and shedding of specific tree leaves, and the behaviors of animals and insects. Nevertheless, in light of the implications of climate change, the rainmakers have encountered challenges pertaining to their ability to accurately forecast weather and climate phenomena. Consequently, they have established partnerships with government meteorologists to enhance their predictive capabilities in the region. In this particular scenario, the utilization of universal science and indigenous knowledge is observed when rainmakers and government meteorologists convene and participate in dialogues, culminating in the collaborative production of a consensus forecast (Guthiga and Nesham 2011). After reaching a collective agreement, the indigenous population communicates the weather forecast to the villages using various methods such as ceremonial rituals, public gatherings, and interpersonal interactions, with a particular emphasis on reaching those who are unable to read or write (Independent, 2010). The community has made notable progress in addressing climate change by enhancing climate change communication. (Chirisa et al)

This study identifies the significance of incorporating the research conducted by Chirisa et al (2018) in promoting the integration of indigenous knowledge into the discourse

surrounding climate change communication. The perspective that traditional knowledge is the rightful property of indigenous people and possesses the potential to improve communication and foster acceptance aligns with the objectives of this study. The proposition put forth by the researchers to incorporate traditional knowledge, which encompasses informal methods of transmitting indigenous information, is in accordance with the objectives of educating and informing the general people about climate change. The research aligns with the proposal to incorporate indigenous knowledge in the communication of climate change. However, this study differs by focusing on the integration of the indigenous Abaluhyia worldview with scientific methodologies in the dissemination of climate change information.

Moser (2010) agrees with Chirisa et al's assertion that a strategy to communication that neglects societal considerations and prioritizes scientific facts and technocratic solutions, without engaging in dialogue with society, is prone to eliciting resistance and opposition. Moser (2010) posits that for communication to have a substantial effect, campaigns must extend beyond mere dissemination of information to actively engage citizens and facilitate significant modifications in behavior on a global scale. In order to comprehend human behavior and their cognitive processes, it is imperative to grasp the underlying factors that drive individuals to take action and construct their perception of reality (Stockholm Environment Institute SEI, 2016). Roncoli, Ingram, and Kirshen (2002) further assert that the combination of scientific forecasts with indigenous traditional knowledge has the capacity to enhance rainfall forecasting by enabling valuable inferences. According to Filho (2008), it is imperative to adopt a comprehensive approach in addressing climate change issues and its connection to environmental

conservation. This implies that the search for solutions to climate change concerns should not be limited to a single perspective, but rather should encompass an integrated approach in expressing these issues. According to Ward (2008), scientists who participated in a workshop on climate change communication expressed dissatisfaction with the perceived lack of comprehension and recognition among the general population regarding the gravity of the climate change problem.

Filho (2008) in his book entitled "Communicating Climate Change: Challenges Ahead and Action Needed," posits that the pursuit of answers to issues associated with climate change cannot be approached from a singular perspective. It is imperative to adopt an integrated approach in order to effectively disseminate knowledge pertaining to the implications of climate change and to effectively address these changes. Communication must be regarded as a reciprocal process in which society actively participates in the development of tactics that impact their everyday existence. Filho's argument is underpinned by the ongoing dissemination of information regarding climate change through scientific methodologies and perspectives. The scientific perspective frequently engenders a sense of detachment among the intended recipients, leading them to perceive the knowledge as disconnected from their own experiences. Consequently, this lack of personal connection diminishes the audience's motivation to take action. This scenario underscores the underlying factors contributing to the lack of desired behavioral changes among populations that receive knowledge regarding climate change.

Filho (2008) indicates that, numerous scientists expressed their frustration with the lack of improvement in public awareness despite the significant progress made in comprehending climate change through more than two decades of research. Hence, it is

praiseworthy to simplify climate data in order to facilitate comprehension and connection for folks at the local level with the messages and information being communicated. According to Filho, this phenomenon occurs due to the fact that community members tend to place greater reliance in their own knowledge as opposed to scientific knowledge, which they regard as too complex. As per the analysis of this academic, effective communication of concerns regarding climate change necessitates the utilization of a language that is comprehensible to local communities and aligns with their worldview. The author posits that the indigenous African worldview presents a unique chance for the local population to cultivate a sense of belonging, leading to a subsequent sense of ownership and ultimately fostering acceptance of communication. This acceptance is driven by a comprehensive understanding of the message and a genuine motivation to adhere to it.

The investigation conducted in cooperation with Filho (2008) criticizes the observation that, despite longstanding endeavors to disseminate information on climate change through scientific means, there persists a significant lack of awareness among the general public. The present study aligns with Filho's perspective on advocating for an integrated approach to effectively communicate climate change. This study is informed by Filho's observation regarding the abundance of scientific communications on climate change that fail to effectively motivate the intended audience to engage in suitable behavioral responses. This project aims to incorporate the indigenous Abaluhyia worldview into scientific methodologies for effectively communicating climate change as it pertains to the preservation of the Kakamega Forest.

Hiwasaki et al. (2014) postulates that, it is imperative to promote a conversation between the scientific community and society to effectively address social concerns and use scientific facts in the communication of climate change as it pertains to forest conservation. Mabon and Wan-Yu (2018) highlight a burgeoning interest in methodologies that foster discourse regarding the societal implications of implementing scientific knowledge pertaining to forest conservation and the consequences of climate change. Consequently, it is imperative that discussions pertaining to forest conservation and climate change encompass a diverse array of perspectives and value systems, as not all individuals may subscribe to a purely scientific justification for undertaking measures related to climate change (Mabon and Wan-Yu Shi 2018).

Shaw et al. (2008) present three key arguments advocating for the integration of indigenous traditional knowledge systems into the development of catastrophe risk reduction programs, specifically in the context of climate change. The authors contend that the utilization of indigenous traditional systems enhances community engagement and empowerment in the context of catastrophe reduction. According to the authors, these systems play a crucial role in facilitating the dissemination of useful information that is relevant to the specific local context. This enables the development of adaption techniques that are deeply rooted within the local populations, hence enhancing their adoption. Additionally, the authors argue that indigenous knowledge offers informal channels for transmitting knowledge, hence serving as a mechanism for teaching and raising awareness among the general population regarding policies related to disaster risk reduction and adaptation.

The views put out by Shaw et al align closely with the findings of this study, since they advocate for the incorporation of traditional knowledge systems as a means of combating climate change. The Indigenous worldview emphasizes the importance of individual engagement in community activities that are rooted in their culture and traditions. Additionally, it recognizes their commitment to environmental conservation through their own practices. This has the potential to facilitate effective communication regarding the impacts of climate change and the preservation of forest ecosystems. The examination of the cultural dimension of the African worldview, which encompasses communication systems like folklore, songs, and various prohibitions (taboos and rituals), plays a crucial role in this study. These cultural elements offer valuable insights into important topics such as conservation and climate variations. This study aims to assess the incorporation of the indigenous Abaluhyia worldview with scientific evidence in the communication of climate change as it pertains to the protection of Kakamega Forest.

The Ministry of Science, Technology and Environment (MOESTE 2015) of the Nepalese government, states that climate change has adversely affected various aspects of the indigenous population's livelihoods, with a particular emphasis on women, property, biodiversity, and the country's economic development. According to MOESTE (2015), the distribution of information regarding climate change adaptation and mitigation has led to the adoption of several indigenous traditional knowledge systems. These systems have demonstrated their effectiveness in supporting climate change resilience within the country. Nepal has implemented measures to construct and enhance social institutions in order to systematically cultivate and advance the utilization of indigenous knowledge. This has been achieved through the facilitation of order and collective action among

various social groupings. Community leaders utilize public events, such as festivals, as a means to effectively communicate pertinent information regarding climate change and new threats (MOSTE 2015).

This study is informed by MOESTE (2015), which clarifies how Nepal uses indigenous traditional knowledge systems to disseminate climate change information. This report acknowledges the difficulties in raising public awareness on climate change. In contrast to the methodology taken in Nepal, this study suggests a combination of the indigenous Abaluhyia worldview and scientific methodologies to effectively communicate climate change in relation to the conservation of Kakamega Forest.

In their study entitled "Climate Change: Integrating Indigenous and Local Knowledge into Adaptation Policies and Practices," Karki, Pokhrel, and Adhikari (2017) elucidate the significance of indigenous knowledge as a fundamental basis for formulating communication policies. They argue that the amalgamation of indigenous knowledge with scientific knowledge enhances the effectiveness and feasibility of communication strategies. These researchers acknowledge the significant importance of indigenous and local knowledge systems in the formulation of climate change policies. They propose the incorporation of both knowledge systems in the communication of climate risk management within national policies and plans. It is crucial to acknowledge that local knowledge is accessible and plays a vital role in addressing climate change and natural catastrophes at the community level.

Karki et al. (2017) observes that, policymakers should put dealing with the effects of climate change at the top of their list of priorities. They should also work to combine indigenous and local knowledge with modern scientific knowledge by learning from the

communities that have been adjusting to climate and socio-economic changes for a long time. The authors note that the practice of incorporating diverse knowledge systems that are tailored to specific local contexts has the potential to assist policymakers in formulating adaptation plans that are comprehensive in addressing multiple levels, hazards, and disciplines. This approach can facilitate the development of policies, strategies, and programs aimed at enhancing resilience. According to Karki et al (2017), in order to achieve successful climate change adaptation, it is imperative that the policy process incorporates meaningful discussion between indigenous populations and scientific experts. It is imperative for governments to aggressively incorporate and amalgamate scientific and indigenous knowledge techniques in order to proactively ascertain both present and future threats and hazards.

The study conducted by Karki et al (2017) holds significant relevance in the context of this research. The study aims to promote the perspective of scholars who advocate for the integration of indigenous and local knowledge with modern scientific information in policymaking. This integration can be achieved through engaging with local populations who have a rich history of adapting to climate and socio-economic changes. This study concurs with the assertions that indigenous knowledge serves as a solid basis for formulating communication policy, and its amalgamation with science enhances the resilience and applicability of communication practices.

Karki et al. (2017) highlight the significance of indigenous and local knowledge in Nepal, as it is supported by extensive evidence of indigenous and local traditions that effectively adapt to many forms of changes and challenges. These knowledge systems have the capacity to aid in the development of policies, plans, and programs that are responsive to

climate change. The culturally heterogeneous groups in Nepal have cultivated a substantial reservoir of indigenous knowledge, which include effective strategies for establishing, sustaining, and enhancing their means of subsistence through leveraging natural resources and communal initiatives. Through the accumulation of knowledge over numerous centuries, individuals have acquired a profound comprehension of the intricate organization and operations of the interdependent systems including humans and their surrounding environment. The individuals in question have consistently engaged in innovation and applied their expertise to establish a symbiotic relationship with the natural environment. This relationship enables them to obtain essential resources such as sustenance, water, energy, medicinal substances, construction materials, and other fundamental requirements from their immediate ecosystems. The individual's understanding and proficiency in utilizing their surroundings, as well as their comprehension of the interplay between the environment and their social systems, constitute a fundamental component of their adaptive culture, capacity, and identity. This knowledge exhibits situational specificity and demonstrates adaptability to fluctuations within human-environmental systems. Karki et al underscore the significance of indigenous and local knowledge and practices in facilitating the response of Nepali communities to the pressing and immediate impacts of climate change. Additionally, they possess the capacity to assist individuals and organizations in formulating enduring adaptive strategies, plans, and programs.

Karki et al (2017) acknowledges that, the achievement of an integrated and inclusive approach to managing Nepal's natural, human, cultural, and physical resources necessitates the formulation of a comprehensive strategy. This strategy should aim to

enhance the resilience of community infrastructure, institutions, and systems. The aforementioned task necessitates the methodical recording, assessment, enhancement, and distribution of novel synthesized information and efficacious methodologies that integrate both indigenous and modern sciences. Indigenous mechanisms and practices that have developed within a specific locality are more advantageous in addressing immediate challenges, such as environmental degradation, water scarcity, and flood disasters, compared to relying on external technology and knowledge. By harnessing the ingenuity, capabilities, and expertise of indigenous communities and their institutions, more effective responses to these threats can be achieved, without the need for expensive scientific knowledge and tools.

Karki et al (2017), asserts that local communities have employed their knowledge and practices to adapt to evolving ecological and social conditions throughout the years. Indigenous communities persist in engaging in such actions as a means to mitigate the perils and vulnerabilities brought about by climate change, thereby evolving into indigenous adaptation practices. These approaches are facilitating communities in mitigating disaster risks and developing participatory adaptation strategies to enhance their preparedness and response capabilities in the face of disasters. Indigenous knowledge serves as the fundamental framework utilized by local communities to inform decision-making processes pertaining to community readiness and peer learning. The dynamic nature of indigenous and local knowledge is perpetually shaped by internal processes of innovation and experimentation, which are deeply rooted in local culture, ethos, and values. Additionally, this knowledge is subject to external influences through interactions with external systems and the incorporation of outside knowledge. The

practicality of indigenous knowledge in addressing climate change arises from its integration within local traditions and beliefs, rendering it a valuable resource for individuals to effectively respond to this global challenge.

Karki et al. (2017) state that indigenous knowledge is essential for the swift validation of scientific knowledge. The utilization of external knowledge necessitates a comprehension of the societal framework that can alone be addressed by indigenous knowledge. Indigenous knowledge methods have been recognized for their ability to fulfill the overarching criteria of contributing to both natural resource management and human social development. It is imperative to acknowledge the significant role that traditional social institutions play in leading and guiding people towards the preservation of their cultural environment, in order to facilitate effective communication regarding climate change. The presence of established social institutions within a society plays a crucial role in facilitating the seamless introduction and widespread adoption of novel knowledge, practices, and innovations. The traditional institutions has inherent capabilities in their ability to cultivate and enhance the knowledge base pertaining to matters concerning people's livelihood. There is a pressing need for increased advocacy in support of the integration of traditional informal institutions into the formal institutional framework. This integration is crucial in order to attain enhanced complementarity, effectiveness, and sustainability in the realm of communication.

This study aligns with the perspectives of scholars regarding the incorporation of indigenous and local knowledge alongside modern scientific knowledge in the context of climate change adaptation. Nevertheless, it is important to note that although experts mostly focus on examining the process of adapting to climate change, the objective of

this study is to investigate the potential integration of the Abaluhyia worldview into the communication of climate change. The consensus regarding the incorporation of indigenous knowledge renders the literature suitable for this research. The case study conducted in Nepal, which examines the integration of indigenous and local knowledge in the context of climate change adaptation, aligns effectively with the objectives of the study.

O'Neill (2009) elucidates that, in the publication entitled "An Iconic Approach for Representing Climate Change," the impact of climate change in Benin has necessitated collaboration between local farmers and communities, as well as local research institutions, in the development of early warning systems. Communities have effectively utilized their experiential and local knowledge to adapt to the impacts of climate change. In order to effectively combine indigenous traditional knowledge systems with universal scientific knowledge, Benin has implemented pre-alert committees throughout the nation. These committees serve as platforms for the amalgamation of locally derived knowledge with research-based scientific knowledge. According to O'Neill (2009). The formulation of climate policies in Benin has been influenced by rigorous scientific research on vulnerability and adaptation, as well as the incorporation of traditional knowledge practices from local communities (Netherlands Commission for Environment Assessment, 2015).

This study is aligned with the findings of O'Neill (2009) in terms of the importance of collaboration between the local community and other organizations in solving climate change issues. The research aims to employ a similar technique; but, the research's integration entails incorporating the indigenous Abaluhyia worldview and scientific

methodologies to effectively communicate climate change as it pertains to the preservation of the Kakamega Forest. The work of O'Neill is situated in Benin, whereas the current study is conducted in Kenya.

Tarusarira (2017) asserts that the presence of climate change in Africa is apparent via the escalating frequency of climate-related disasters, which has necessitated the development of climate change policies and communication strategies. The argument put up by this academic suggests that the dissemination of climate change information poses a significant challenge due to the neglect of a substantial body of knowledge. Consequently, this neglect hinders the development of adaption techniques that are not acknowledged or readily understood by local people. As a consequence, these vulnerabilities are exacerbated. It is crucial for climate change strategies in Africa to acknowledge the impact of the African worldview. The incorporation of African religious practices can contribute to the adoption of a more comprehensive and inclusive perspective. The concept of integration discussed here pertains to the recognition and appreciation of individuals' religious views, with the aim of ensuring that their initiatives and activities do not conflict with or undermine these beliefs and associated practices (Tarusarira, 2017).

Dodd (2017) explicates that, cultural worldviews represent underlying assumptions and beliefs about the functioning of the world. Dodd (year) provides further elucidation on the notion that the cognitive beliefs and assumptions that are sacredly guarded within a culture are believed to exert influence on individuals' perceptions of events, interpersonal connections, and natural phenomena. Kalu (2001) posits that indigenous societies utilize proverbs and folk stories of origin as means of expressing their worldviews, hence

serving as vehicles for the transmission of these worldviews. According to Dodd (2017), the concept of worldview plays a crucial role in effectively transmitting accepted norms and cultural restrictions related to environmental conservation within communities. Kaleli (1985) states that, the indigenous African worldview influences Africans' perceptions and interactions with various events, including the difficulties encountered in life. According to Kaleli (1985), individuals of African descent possess distinct existential and ontological beliefs that form the foundation of their overall perspective on the universe.

Wilson (2002) and Bedoe (2009) express that, the objective of conserving and preserving the world and its resources necessitates the implementation of a wide range of solutions encompassing technology, policy, science, and culture. However, there are additional environmental concerns, such as the safeguarding of endangered species and the preservation of forests, which necessitate the consideration of various values. According to Stern (2000), empirical research indicates that personal norms serve as the primary foundation for individuals' overall inclination towards engaging in pro-environmental behaviors. As noted by scholars in the preceding discourse, it is imperative to take into account several significant and varied factors in order to facilitate effective and improved communication of the implications of climate change. The realm of environmental conservation extends beyond a single discipline, as research has indicated that certain fields have been overlooked in the context of addressing climate change. These disciplines possess untapped potential to contribute solutions in effectively explaining the complexities of climate change.

Olusola (2007) explain that, an analysis of the manner in which environmental messages are sent reveals a sense of detachment experienced by the intended recipients of these

messages. One explanation for this phenomenon is that the messages are conveyed using scientific terminology, which is not readily comprehensible to the majority of individuals. The linguistic characteristics employed in packaging design convey a sense of foreignness and exclusivity in their messaging. Hence, this study aims to address the communication deficit arising from communications that create a sense of alienation between the intended audience and the messages directed towards them. This project aims to incorporate the indigenous Abaluhyia worldview with scientific facts in order to effectively communicate climate change as it pertains to the conservation of the Kakamega Forest.

Summary of Literature Review

The existing body of research highlights the observation that the consequences of climate change in relation to the preservation of Kakamega forest persistently materialize within the nation, so establishing it as a matter of national significance. Effective communication regarding climate change and conservation is crucial to elicit an appropriate response from the concerned audience. Scholarly literature has extensively examined the subject of climate change, with researchers documenting valuable insights pertaining to both climate change itself and the preservation of forest ecosystems. There are ongoing endeavors to convey information about climate change, although these efforts predominantly emphasize scientific methodologies. The literature also demonstrates that indigenous groups have developed techniques to effectively communicate and establish practices for the conservation, preservation, and management of forests, so contributing to the mitigation of climate change. Indigenous cultures employ several ways to facilitate a harmonious coexistence between human communities

and their surrounding environment. This assertion is based on the premise that the well-being of humans is intricately linked to the natural environment. Academic scholars advocate for the incorporation of indigenous knowledge systems with scientific approaches to enhance the communication of climate change issues pertaining to the preservation of forest ecosystems.

2.6 Theoretical Framework

The research was based on the Worldview Intercultural Communication Theory proposed by Carley H. Dodd in 2017.

According to Dodd (2017), the theory postulates that one's worldview plays a significant role in shaping the manner in which culture impacts communication, cultural behavior, and the interpretation of events. According to the theory, it is posited that the cognitive concepts and assumptions that are considered sacrosanct and sheltered inside a culture have an influence on individuals' perceptions of events, relationships, and natural phenomena. The aforementioned premise was utilized to analyze the methods by which the indigenous Abaluhyia worldview conveys the need of forest conservation.

The notion that posits the potential of a worldview to reveal profound layers of a culture's cosmic ideology and its ramifications for individuals was employed to evaluate the utilization of the indigenous Abaluhyia worldview in the preservation of the Kakamega Forest. This principle encompasses a quasi-metaphysical notion that has the capacity to shape cognition, behavior, and perception in relation to both oneself and others. It embodies a profound system of beliefs that reflects a culture's underlying assumptions,

elucidating functions that extend beyond individuality and possess a greater foundational significance than societal norms, rules, and values.

Dodd (2017) further emphasized a principle that posits the notion that worldview serves as a fundamental interpretive framework for a culture's perception of reality, with significant implications for communication. The principle was implemented with the aim of promoting scientific methodologies in the dissemination of climate change information pertaining to forest protection as a whole. Cultural worldview components primarily center around perceived life structures that are thought to elucidate circumstances and influence one's thoughts, speech, and actions.

The utilization of the principle that acknowledges the influence of worldviews on communication, particularly in relation to time urgency, developmental processes, and acceptance or resistance towards change, played a crucial role in the formulation of scientific methodologies for effectively conveying climate change. Furthermore, it portrays ideas and acts as being influenced by either spiritual or secular factors.

The concept of worldview is centered on the notions of individual identity and collective affiliation. The experience of belonging gives rise to cultural responsibilities and corresponding anticipated conduct that is deeply entrenched in intrinsic mythological convictions. This principle facilitated the assessment of the incorporation of the indigenous Abaluhyia worldview with scientific methodologies in the dissemination of climate change information pertaining to the preservation of the Kakamega Forest. This principle can be subdivided into recommendations pertaining to behaviors related to obligation and expectation.

The theory posits that cultural worldview and communication serve as a means to enhance comprehension of culture and effectively address the complex dynamics of diversity. In a similar vein, cultural communication outcomes such as adaptation, flexibility, empowerment, resilience, communication initiative, and innovativeness are elucidated. This comprehension leads to a heightened state of receptiveness and the ability to attain equilibrium and coherence, a stance that aligns well with the objectives of this investigation. The study's objectives were illuminated and explained by utilizing the principles outlined in the theory of intercultural communication within a worldview framework. Worldviews serve as effective tools for explaining climate change in the context of forest conservation, facilitating comprehension and fostering a sense of responsibility that ultimately promotes the adoption of relevant behavioral changes.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter provides an overview of the research methods employed in this study to collect data pertinent to the research inquiries. The provided information encompasses a comprehensive overview of the study's design, including details regarding the study's location, target population, sample composition, sampling techniques employed, research instruments utilized, considerations of validity and reliability, processes for data collecting, methods of data analysis, and ethical considerations taken into account.

3.1 Research Design

The research utilized a descriptive survey design incorporating both qualitative and quantitative research methodologies. The quantitative strategy involves the utilization of a survey to collect primary data from individuals employed as foresters at Forest stations, Kenya Wildlife rangers responsible for safeguarding the forest against illegal extraction of forest resources, and personnel from agencies engaged in climate change communication. The survey was deemed suitable as it facilitated the gathering of data pertaining to the scientific methodologies employed in conveying climate change, as well as the indigenous Abaluhyia worldview regarding the communication of conservation efforts in the Kakamega Forest. The selection of the survey methodology was aligned with Sukamolson's (2007) assertion that survey research involves employing systematic sampling techniques and a well-designed questionnaire to assess the characteristics of a population, utilizing statistical tools for analysis. Cresswell (1994) further affirms the

choice of the survey technique in the views that, a survey is an ideal method due to its capacity to extrapolate demographic features from a limited sample of individuals.

The study employed a descriptive design to effectively describe the people's concerns and beliefs of climate change, as well as their perceptions, practices, attitudes, and behavior towards the conservation of Kakamega Forest, as reinforced by previous research conducted by Osoo and Onen (2008) and Orodho and Kombo (2002). The respondents' depiction of their concerns, behavior, attitude, and practices around the communication of climate change further align with Nassaji's (2015) assertion that descriptive research design aims to provide a comprehensive account of a phenomenon and its attributes. The manner in which communication regarding climate change and the conservation of Kakamega Forest is conducted reveals a notable disparity between the tactics employed and the concerns, attitudes, behaviors, and perceptions of the respondents. The participants also provided accounts of the conduct exhibited by the people residing near the forest following the dissemination of information regarding climate change, specifically in relation to the preservation of the Kakamega Forest.

This study investigated the potential integration of the indigenous Abaluhya worldview into the communication of climate change facts pertaining to the conservation of Kakamega Forest. The acquisition of data from important respondents, which included two ecosystem conservators, members of the Community Forest Association, and the local administration, was crucial for the study. The utilization of an exploratory research strategy was deemed appropriate, as held by Burns and Groove (2001), who assert that exploratory research is employed to get novel insights, uncover fresh ideas, and enhance understanding of the issue.

Interviews were utilized as a means of exploring the participants' environment in order to gain a comprehensive comprehension of the current state of climate change, its persistent nature, and the perceptions and responses of respondents in their natural contexts in relation to the findings of Gay et al. (2007). The utilization of both qualitative and quantitative methodologies in this study facilitated the achievement of complementarity, comprehensiveness, and the fulfillment of the study's aims and objectives, as supported by Bryman (2006). Cresswell and Clark (2007) uphold that, the utilization of a mixed methods approach promotes the incorporation of diverse perspectives by integrating both inductive and deductive reasoning, hence facilitating the resolution of research inquiries.

3.2 Study Area

The research was carried out in the area adjacent to Kakamega forest, situated within Kakamega County. The forest adjacent areas are those falling within a five-kilometer radius from the forest boundary. According to the County environment conservator, the region bordering the forest in Kakamega county has been partitioned into three sections, specifically Municipality, Ileho, and Shinyalu. The aforementioned divisions are further subdivided into distinct zones, specifically Shinyalu, Murhanda, Bukhungu, Kambiri, and Ileho-Cherobani. The divisions are established with the objective of effectively managing forest resources, and their delineation is informed by the positioning of forest stations. The aforementioned zones are situated within the Sub counties of Shinyalu, Lurambi, Malava, and Navakholo in Kakamega County.

The selection of the study region was based on its proximity to Kakamega forest, as well as the fact that the target population for the study resides in that particular location. The

target population in question supplied the pertinent data that was utilized in addressing the objectives of the study. The primary economic activities conducted within the study region encompass agriculture, commerce, charcoal production, and livestock husbandry. The succeeding pertinent sections will examine the many ways in which these economic activities have been discovered to have an impact on climate change.

3.3 Target Population

The target population for this study was the Forest adjacent population together with groups that were consciously working together towards conservation of Kakamega Forest. The study targeted the group of people who were likely to consume the scientific data. Thus the target population comprised of the 2000 registered members of the Community Forest Association, alongside other additional supportive respondents who included all employees of the Kenya Forest Services and Kenya Wildlife Services, local administrators, employees of Nature Kenya, ADS, AGRA agencies, and the Ministry of Agriculture who are involved in activities related to Kakamega forest. Members of the Community Forest Association must be people residing in close proximity to the forest within Kakamega County thus the reason for their inclusion. The Abaluhyia community who live adjacent to the forest played a crucial role in this study as it aimed to assess the potential integration of the indigenous Abaluhya worldview with scientific methodologies in order to improve the communication of climate change. The focus of this study was intentionally directed on individuals residing in the community located in close proximity to the forest, namely inside Kakamega County. The participants in this study were deliberately chosen based on their suitability to supply the necessary information.

3.4 Sample

The study sample had 286 participants who were selected from various groups, including members of the Community Forest Association, personnel of the Kenya Forest Services, Kenya Wildlife Services, non-governmental organizations (NGOs), and the local administration. The determination of this particular sample size is based on the findings of Kathuri and Pals (1993), who suggest that a minimum sample size of one hundred participants is adequate for a significant sub-group in survey research. The Mwileshi Community Forest Association served as the sampling frame. The choice of a sampling frame aligns with the perspective of Cresswell (1994), who asserts that issues about access emerge when conducting research, and the researcher may consider the availability of sampling frames that encompass prospective respondents within the community. Turner (2003) further states that, the function of a sampling frame is to establish a mechanism for selecting specific individuals from the target population to be interviewed in a research study.

The study sample consisted of 200 respondents selected from a population of 2000 registered members of the Mwileshi Community Forest Association. A total of two hundred individuals constituted 10% of the overall population of registered members within the CFA. A decision was made to allocate ten percent of the CFA members for logistical convenience, as it was seen that these individuals resided in geographically dispersed locations, posing difficulties in reaching them. The sample included key individuals such as the regional Forest Conservator, the County Forest Conservator, and twelve Forest Officers. These officers were selected to represent all four forest officers from Kakamega Forest station, three from the regional forest office, three from Isecheno

Forest station, and two from the Malava area of the forest. The sample consisted of a total of eight KWS rangers, six personnel from nature Kenya, four from KALRO, four from AGRA, four from ADS, four from the Ministry of Agriculture, and two local administrators from Shibuye and Murhanda sites. A total of forty participants were divided into five focus group discussions (FGDs), with each group consisting of eight individuals.

3.5 Sampling Procedures

The research utilized a combination of probability and non-probability sampling techniques to identify and include participants in the sample. The participants in this study were selected from a pool of individuals affiliated with several organizations, including the Community Forest Association, Kenya Forest Services, Kenya Wildlife Services, Nature Kenya, Anglican Development Services, AGRA, Ministry of Agriculture, and the local administration.

The records of the of the 2019 population census do not have data on the forest adjacent community neither does the regional Forest office have this data. The lack of data by the population census records thus necessitated the utilization of a sampling frame. This decision was in sync with Kozak (2008) who states that, the utilization of a sample frame containing a mailing list can be justified in cases where the complete population size is unknown. Cresswell (1994) further qualifies the suitability of a sampling frame by stating that, issues about access often emerge when conducting research, and the researcher may consider the availability of sampling frames that encompass prospective respondents within the community.

The Mwileshi Community Forest Association in Kakamega County was purposefully selected as a sampling frame to be representative of the community that lives adjacent to the forest through the use of a purposeful sampling technique. The decision to utilize the CFA register as a sample frame was based on the requirement that individuals must be belong to the forest adjacent community in order to become a member of the CFA. Furthermore, the CFA actively promoted participation from all individuals residing in the neighboring forest community, thereby establishing the register as a representative sample of the population.

At the commencement of 2022, the Mwileshi Community Forest Association had a membership of 2000 individuals who had successfully completed the registration process. Subsequently, the organization proceeded to hold its leadership elections in the month of April 2022. Simple random sampling was employed to select a total of 200 respondents from the pool of 2000 registered members within the Community Forest Association. According to Kerlinger (1986), the aforementioned figure represented 10% of the total number of registered members in the CFA. Kerlinger further asserts that a sample size should ideally range between 10% and 30% of the entire population under consideration. The simple random sampling method involved assigning a unique number to each individual in the sample frame, storing these numbers in a container, and then selecting the necessary numbers at random (Mugenda & Mugenda, 2003). After carefully choosing a sample of 200 participants, the researcher proceeded to establish communication with the leadership of CFA in order to establish contact with the selected respondents. The researcher utilized a simple random sampling technique to choose the sample from the target population in order to mitigate any biases. This approach ensured that every

registered member of the CFA had an equal opportunity to be included in the sample (Kothari, 2005).

Purposive sampling was utilized to choose the County Forest Conservator and the Regional Forest Conservator as key informants because each of those offices are normally held by a single person. The rationale behind the selection of these important informants was based on their possession of specialized expertise in the study field. The additional primary sources of information encompassed the local administrative personnel, namely the chiefs, and the elder members of the CFA. The utilization of purposive sampling facilitated the researcher's inclusion of respondents who possess a wealth of expertise regarding forest conservation and climate change. This was done in order to conduct a comprehensive analysis aligned with the study's aims, as suggested by Osoo and Onen (2008). The research study utilized purposive sampling to pick a total of twelve Forest officers from the Kakamega County Forest region. A purposive sample method was employed to choose a group of eight Kenya Wildlife Service Rangers, as indicated and relayed by the foresters responsible for overseeing the forest stations. The researchers employed purposive sampling to choose a total of six employees from Nature Kenya, four from KALRO, four from AGRA, four from ADS, and four from the Ministry of Agriculture. The selection criteria were based on the employees' availability and their specific field of work. The sample consisted of two local officials (chiefs) who were selected as key respondents due to their possession of the requisite information.

Focus group discussions (FGDs) were chosen as an appropriate method for this study based on Berkes' (2004) assertion that the connection between individuals' perceptions and their socio-cultural context is crucial for decision-making regarding natural

resources. This is because people often form their ideas, mental frameworks, and interpretations based on their immediate environment and experiential knowledge. Purposive sampling was used to pick participants for the focus group talks. This method involved considering factors such as the availability of individuals, their geographical proximity, and their possession of relevant information. The participants of the Focus Group Discussion (FGD) were selected from the following geographical areas: Shinyalu, Murhanda, Bukhungu, Kambiri, and Ileho-Cherobani. The selection of the five administrative zones was deliberate in order to promote inclusivity of the community members, account for heterogeneity, and encompass a wide range of perspectives. This approach also aimed to mitigate selection bias, which can arise when certain individuals within a population are more likely to be included in a sample than others, as noted by George (2021). The study included five Focus Group Discussions (FGDs) that were selected from the five administration zones. Each focus group discussion (FGD) consisted of eight participants, resulting in a total of forty respondents throughout the five groups. The determination of group sizes was informed by the suggestion put forth by Kruegar and Casey (2000) that a group of six to eight people is deemed appropriate for conducting a Focus Group Discussion. The selection of participants for the Focus Group Discussion was conducted using purposive sampling methodology, specifically through the networks established by the CFA administration throughout the respective zones.

Face-to-face meetings were utilized to ensure connectivity and face validity. Each group engaged in talks that lasted for a duration of ninety minutes, facilitated by a moderator and accompanied by a designated note taker. The focus groups comprised individuals who provided their informed agreement to participate in the conversation. The

composition of the focus group discussions (FGDs) exhibited heterogeneity, however the participants shared commonalities in terms of their histories and experiences, particularly in relation to their area of residence and the subject matter under discussion. The inclusion of these qualities was important in order to facilitate a comprehensive exploration of both western scientific and indigenous worldviews in connection to the research challenge. According to Gentles et al (2015), the primary objective of sampling in qualitative research is to obtain data that is valuable for comprehending the intricacies, nuances, and contextual aspects associated with a certain occurrence.

3.6 Research Instruments

The researchers devised questionnaires, interview schedules, and focused group discussion guides. The aforementioned instruments were utilized to gather primary data pertaining to the indigenous Abaluhyia worldview in the context of conveying climate change data as it relates to the conservation of Kakamega Forest. The choice of these instruments was determined by the type of data that needed to be gathered and the goals of the research. The implementation of diverse instruments for distinct participants in the research was conducted to facilitate triangulation. The aforementioned instruments were distributed with individuals affiliated with the Community Forest Association, as well as key informants and personnel from diverse agencies with a vested interest in the dissemination of information pertaining to climate change. The instruments underwent pre-testing on a sample of individuals who were not part of the intended demographic. The process of pre-testing was crucial in ensuring the establishment of clarity of meaning and suitability of items inside the research instruments.

3.6.1 Questionnaires

Primary data was collected from forest officials, workers from Nature Kenya, Anglican Development Services, Ministry of Agriculture personnel, and Kenya Wildlife Services rangers that are employed in Kakamega Forest. This was achieved through the utilization of questionnaires that consisted of both closed and open-ended questions. The data gathering device under consideration comprises a series of typewritten or printed items arranged in a predetermined sequence on standardized forms. The participants provided written responses to the survey items. The surveys were designed to gather information regarding the strategies employed in communicating climate change in relation to the conservation of Kakamega Forest, as well as the resulting outcomes. The questions were designed to ascertain whether climate change is communicated, by who and whether the indigenous Abaluhyia worldview is utilized in the communication of climate change. The utilization of questionnaires was deemed suitable due to the fact that the participants possessed the ability to read and write, enabling them to effectively articulate the required information in written form.

3.6.2 Interview Schedules

The researcher developed interview schedules, both structured and unstructured, in accordance with the research topics. These schedules were utilized to conduct interviews with various individuals, including members of the Community Forest Association, local elders, regional and County ecosystem conservators. The utilization of interview schedules facilitated the acquisition of primary data from participants who were

considered to possess comprehensive knowledge on the subject matter. The objective of the interview schedules was to investigate the existence of communication efforts regarding climate change, the methods employed by the indigenous Abaluhyia community to convey the importance of forest conservation based on their worldview, the strategies utilized by the indigenous Abaluhyia community to preserve the forest, and the feasibility of incorporating scientific approaches into the indigenous Abaluhyia worldview to effectively communicate climate change as it pertains to the conservation of Kakamega Forest. The utilization of interview schedules in this study was deemed suitable due to their capacity to facilitate the collection of comprehensive information, as enabled by the flexibility in questioning. Additionally, they allow the opportunity for follow-up inquiries aimed at elucidating aspects that may be less comprehended.

3.6.3 Focus Group Discussion Guide

The researcher created discussion guides specifically tailored for focus group discussions (FGDs), which were afterwards utilized by participants to facilitate the conversations. The primary objective of these discussions was to gather information pertaining to practices, experiences, and attitudes related to the communication of climate change. Additionally, these discussions served to address any ambiguities that may have arisen from the questionnaire and interview responses. The purpose of each person providing an introduction was to establish a favorable atmosphere and influence the dynamics of the group. This was done with the intention of influencing the responses of the participants, hence enhancing the likelihood of obtaining diverse and more truthful replies. This approach aligns with the recommendations put out by Kamberelis & Dimitriachs (2005).

The acquisition of data pertaining to the incorporation of the indigenous Abaluhyia worldview into the communication of climate change was accomplished.

3.7 Validity

Validity refers to the extent to which a test accurately measures the specific construct it is intended to assess, and the resulting findings effectively represent the phenomenon being investigated. Validity in qualitative research refers to the extent to which interpretations of data are shared and understood by both the participants and the researcher (Mvumbi & Ngumbi, 2015). The research utilized a diverse group of participants to collect data and utilized a combination of quantitative and qualitative methodologies to triangulate both the data and methodology, so enhancing the validity of the study. According to Olsen (2004), triangulation in the field of social science refers to the integration of several data sources or research methods in order to ensure the validity of findings by including numerous perspectives. In order to establish the validity of the study, the researcher meticulously developed objective study tools. These instruments were subsequently subjected to expert evaluation to determine their appropriateness. Once deemed suitable, the instruments were employed to meticulously gather accurate data. According to Oso and Onen (2005), validity refers to the degree to which research instruments effectively assess the targeted constructs and enable appropriate interpretation and generalization of research findings to other groups.

3.8 Reliability

The reliability of a research instrument is defined as its capacity to consistently produce the same results when tested multiple times (Mugenda & Mugenda, 2003). The reliability

of the research instruments was established by conducting pre-tests among members of the Aluora Makare community-based organization in Wang'Chieng ward of Homa-Bay County. The Aluora Makare community organization was chosen for its involvement in advocating for climate change and the preservation of the Lambwe Forest in Homa Bay County. This selection aligns with the recommendation made by Kathuri and Pals (1993) that pre-test participants should possess similar characteristics to those selected for the study. The researchers employed purposive selection methodology to carefully choose a sample of twelve individuals from the Aluora Makare community organization for the purpose of conducting a pre-testing phase. The purpose of doing pilot testing was to identify any potential faults and challenges that respondents may encounter while replying to the items. The findings from the pretest were utilized to enhance the content of the interview schedules and questionnaires. Thematic analysis was conducted on the data collected from the pre-test.

3.9 Data Collection

The data collection process includes the utilization of interview schedules, questionnaires that required written responses, and Focus Group guidelines. Interview plans are widely utilized as data collecting instruments in research studies. These schedules facilitate the collection of data by means of structured and guided dialogues with individuals participating in the study. The research employed interview schedules that required respondents to provide oral-verbal responses during face-to-face interviews. The main respondents consisted of individuals who held important roles in the ecosystem conservation, such as ecosystem conservators, members of the Community Forest Association, and local elders. The primary data regarding the communication strategies

employed for climate change, the utilization of the indigenous Abaluhyia worldview in forest conservation communication, and the potential integration of the indigenous Abaluhyia worldview with scientific approaches for communicating climate change in relation to forest conservation was obtained through the utilization of interview schedules. Interviews were considered suitable as a research method due to their ability to enable study participants to provide a verbal account of the phenomenon using their own unique perspectives. Interviews also provide researchers with the opportunity to pose further inquiries in order to gather additional data and improve the comprehensibility of the participants' responses.

Primary data on tactics used in conveying climate change was obtained by distributing questionnaires to forest officers, Kenya Wildlife Service (KWS) rangers, and personnel of relevant agencies. The surveys included a combination of closed-ended and open-ended inquiries, facilitating the participants' ability to express their thoughts and provide detailed explanations pertaining to the topic under investigation.

The researcher facilitated focus group talks by employing a discussion guide that had been produced in advance. The participants of the focused group discussion were chosen from the local community residing in the five administrative zones of Kakamega Forest. Each focus group consisted of eight participants who exhibited heterogeneity. The primary data collected through focus group discussions (FGDs) provided insights into the strategies employed in communicating climate change in relation to forest conservation. The FGD participants shared information on the methods used by the Abaluhyia people to communicate about conservation efforts, as well as their perspectives on the potential benefits of integrating the Abaluhyia worldview into climate change communication.

3.10 Data Analysis and Presentation

The data collected from interviews conducted with key respondents and members of CFAs was analyzed to assess its comprehensiveness and accuracy in respect to the objectives of the study. The interview responses underwent a process of coding, organization, categorization, and subsequent generation of themes. Caulfield (2022) asserts that the utilization of thematic analysis proves to be a valuable method for eliciting individuals' perspectives, viewpoints, cognitive frameworks, personal encounters, and ethical principles via the means of interviews or surveys. The analysis of the data revealed several key themes, including the respondents' understanding and familiarity with climate change, their perspectives and attitudes towards its communication, and the potential for incorporating the indigenous Abaluhyia worldview in communicating climate change as it pertains to the conservation of Kakamega Forest. Subsequently, the data was organized in a manner that revealed the emergence of patterns among the variables. The themes were systematically analyzed and discussed in relation to the findings, which were presented in the form of narratives.

The quantitative data collected through surveys was subjected to analysis through the process of coding, arranging, and summarizing. The presentation of categorical data, including the respondents' gender, level of education, and distribution per sub-county, was displayed in tabular format. Additionally, the variation in respondents' age was visually represented using a bar graph. The numerical findings were given in the form of

percentages and frequency distributions, which were developed utilizing the Statistical Package for the Social Sciences version 26.

3.11 Ethical Considerations

According to Marshall and Rossman (2011), it is desirable for a research study to adhere to sound research methodologies and demonstrate ethical awareness. The researchers additionally argue that the utilization of ethical practices by the researcher enhances the credibility of the investigation. The researchers gained permission from the National Council for Science and Technology (NACOSTI) to perform their study. Approval was requested from the Forestry Department in Kakamega County. The participants were informed of the study's objectives prior to their engagement in the research. The researcher utilized the principle of openness and ensured that participants provided informed consent, which was contingent upon their possession of sufficient understanding regarding the study. The researcher exhibited a strong commitment to upholding human dignity and ensuring the maintenance of anonymity throughout the course of the study. The participants' anonymity was safeguarded by explicitly instructing them not to reveal their personal identities.

CHAPTER FOUR

APPROACHES USED IN COMMUNICATING CLIMATE CHANGE RELATED TO CONSERVATION OF KAKAMEGA FOREST

4.1 Introduction

This chapter responded to the question that sought to establish the approaches that are used in communicating climate change that is related to conservation of Kakamega Forest. It is apparent that climate change continues to affect humans, plants and animals, hence the need to communicate about it. The chapter sought to establish whether communicating climate change goes on, how often the communication is done, who does it and what scientific approaches are used in communicating. The primary data obtained from respondents is presented using both qualitative and quantitative approaches.

4.2 Demographic characteristics of the respondents

This section describes the characteristics of the respondents. This was important in providing background information of the participants who took part in the study. Data was collected from the following categories of respondents: Ecosystem conservators, Community Forest Association members, Foresters from the Kenya Forest Services, KWS rangers, employees of agencies that are concerned with communicating climate change, the local administration and elders from the forest adjacent community. The study considered it relevant to describe the respondents' gender, age and level of education as a prerequisite of determining the certitude of the data which was gathered as indicated in the subsequent section. The demographic characteristics allows for differentiation and segmentation of participants.

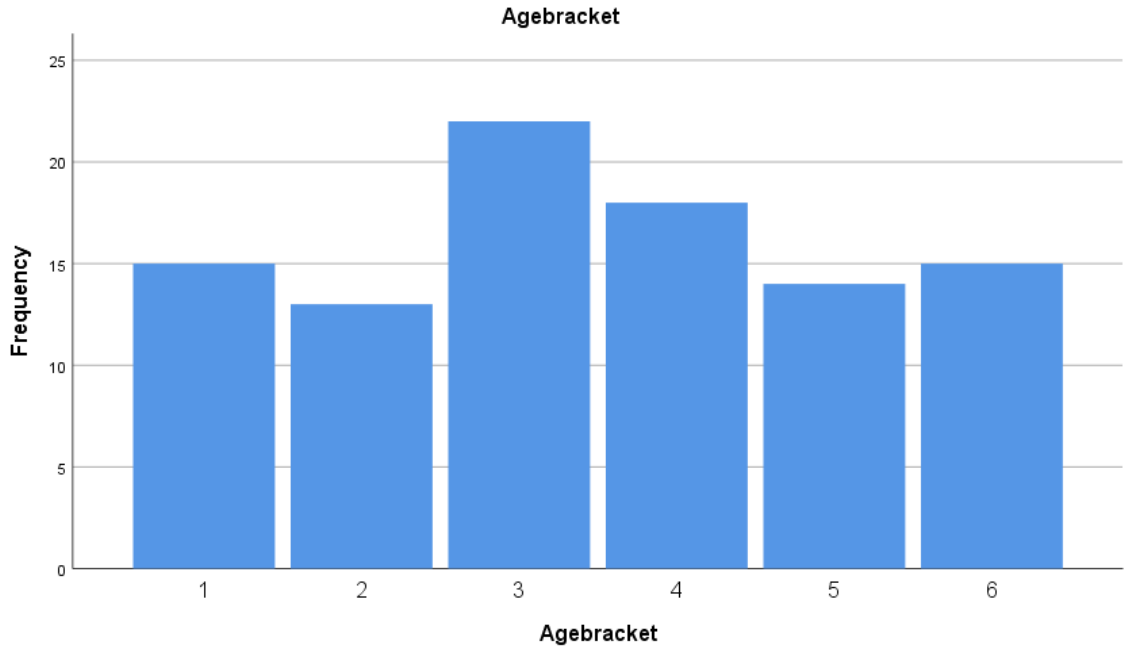
Table 4.1 Distribution of respondents by gender and Sub-County

Sub-County	Female	Male	Total	%
Lurambi	41	48	89	31
Shinyalu	39	47	86	30
Malava	29	31	60	21
Navakholo	22	29	51	18
TOTAL	131	155	286	100

Source: Own compilation from the Research

As shown in the table 4.1, the respondents were drawn from the four sub-counties of Lurambi, Shinyalu, Malava and Navakholo in Kakamega County. The four sub-counties were selected because they border Kakamega Forest. The distribution showed that Lurambi contributed 89 (31%) respondents of the study, Shinyalu contributed 86(30%), Malava gave 60 (21%) while Navakholo had 51 respondents accounting for 18% of the respondents. The variation of respondents per sub-county and gender was caused by the sampling method used to select respondents from the sampling frame for members of the CFA, the forest officers in the forest stations, availability and willingness of the respondents for Focus Group Discussion participants.

Figure 4.1 Distribution of respondents by age



Source: Own compilation from the research

The graphical presentation in Figure 4.1 shows the ages of the respondents within the sample. The ages of the respondents were categorized in to various cohorts using age brackets 1, 2, 3, 4, 5 and 6. Age bracket 1 consisted of 20-29 cohort, age bracket 2 consisted of 30-39 cohort, age bracket 3 was made up of 40-49 cohort, age bracket 4 comprised of 50-59 cohort, age bracket 5 included 60-69 cohort and 70 years and above were in the 6th age bracket. A total of 286 respondents were involved in this study. The results showed that the majority of respondents were in the cohort of 40-49 years representing 22.7% of the respondents. Age bracket 1 consisting of the 20-29 cohort formed 15.5%, age bracket 2 which was composed of 30-39 cohort was at 13.4%, age bracket 4 which included the 50-59 cohort formed 18.6%, age bracket 5 consisting of the 60-69 cohort formed 14.4% while 15.5% of the respondents were above 70 years. Age was deemed relevant in establishing the response to communicating climate change that

is related to conservation of Kakamega Forest. This is because age is a determinant factor in understanding people's worldview which is a basic schema in interpreting one's cultural reality and an essential tool in communication. Age did not only influence the respondent's ability to communicate but also to understand the communicated concepts.

Table 4.2 Education Level of the respondents

Education Level	Frequency	%
Post-graduate degree	3	1.0
Undergraduate	12	4.19
Diploma	47	16.43
Certificate	62	21.67
Secondary	47	16.43
Primary	75	26.22
No formal education	27	9.44
Others	13	4.54
Total	286	100

Source: Own compilation from research

As indicated in the table 4.2, levels of education of the respondents were varied between having no formal education, to primary school, secondary school, certificate, diploma,

undergraduate and post-graduate. The findings showed that 3 respondents representing (1.0%) had post graduate degrees, 12 respondents representing (4.1%) had attained degrees, 47 respondents representing (16.5%) had diplomas, 62 respondents (21.67%) had certificates, 47 (16.5%) respondents attained secondary education, 75 respondents (26.5%) had primary education and 27 respondents representing (9.3%) of the participants had no formal education. Thirteen participants representing (4.54 %) of the respondents had done adult education. The study considered the levels of education of respondents as important in gauging the ability to understand the subject of the study. This notion is endorsed by the view that worldview can shape perception, cultural behaviour and influences their communication skills and how they interpret events such as climate change and conservation of Forests.

4.3 Impacts of Climate Change related to destruction of Kakamega Forest

It was imperative that this study identifies the impacts of climate change which necessitated communicating climate change. On the 8th of February 2022, the researcher held an interview with the Regional Ecosystem Conservator who was a key respondent acknowledged that deforestation, burning forest materials for energy and agricultural practices have led to climate change within the hinterlands of Kakamega Forest and the region at large. In this key respondent's view, the change in climate has had negative impacts in the region surrounding Kakamega Forest. The Regional Ecosystem Conservator pointed out that it is important to conserve the forest for a better climate. Arora et al (2012) support the primary respondent's perspectives, as they say that forest ecosystems exhibit high efficacy in mitigating greenhouse gas emissions, sequestering

carbon in soil, and enhancing the resilience of both human populations and ecosystems against the adverse consequences of climate change.

The Regional conservator pointed out that people cutting down trees to convert forest land to farmland and pasture play a leading role in destruction of the forest as well as local environments. As a consequence of destroying the forest, Carbon dioxide that would normally be stored by trees is released into the environment causing greenhouse gas emissions. Destruction of the forest interferes with nature's ability to keep emissions from the atmosphere and to conserve the ecosystems.

The Regional Ecosystem Conservator (REC) provided clarification that the effects of climate change have been discerned and witnessed through unpredictable and severe meteorological phenomena, including elevated temperatures, extended periods of drought, alterations in precipitation distribution, as well as occurrences of floods and storms. The primary respondent elaborated on the fact that the consequences of climate change have a significant influence on the livelihoods of both human and ecosystem communities. Hence, it is imperative to effectively communicate the concept of climate change as a first step towards comprehending its ramifications in the context of conserving the Kakamega Forest.

The Conservator's views are consistent with Moser (2010) work in the assertion that the consequences of climate change have been acknowledged as potentially far-reaching and significant on a global scale. The primary respondent contends with Moser (2010), in the argument that the consequences of climate change have the potential to jeopardize the life support systems of several species, perhaps leading to a large decline in human populations and posing problems and detrimental effects on societal systems. A paper

compiled by the Evangelical Alliance of Papua New Guinea (2005), also confirms that the world continues to be spoiled and degenerated before our eyes. As a result, there are dramatic and detrimental changes such as the dwindling forests, eroded and infertile soils, frequent floods, polluted and diminishing water supply and reduced number of game life.

Primary data gathered from participants indicated that 100% of the questionnaire respondents acknowledged that impacts of climate change had been experienced within the environs of Kakamega Forest. On the flipside, 86 % of the interview respondents said that they had experienced impacts of climate change. Questionnaires responses revealed that that the impacts of climate change that have been experienced included drought, floods, intense rain, hotter temperatures leading to loss of plant species, outbreak of pests and livestock disease.

Questionnaires were administered to professionals from the Kenya Forest services, rangers from Kenya Wildlife Services, employees of Nature Kenya, Anglican Development services, AGRA and the Ministry of Agriculture while the interviews included participants from the local community who had varied education levels and different professional backgrounds. The variation between the questionnaire and interview responses is attributed to different levels of education which may have influenced peoples' worldviews and a nonchalant attitude towards the events around them. The noted variation in respondents' opinions is validated by the notion that claims that worldview can affect communication in matters such as time, accepting or rejecting change.

Interviews indicated that 86% of the respondents acknowledged being aware and having experienced some impacts of climate change. Eighty seven percent of the respondents of

the interviews cited reduced rains and prolonged dry seasons as the impacts that had commonly been experienced whereas (2%) mentioned high temperatures and strong winds. Drying rivers and streams as well as recession of water volumes in rivers were identified by (15%) of the participants as the impacts that they had witnessed. Some of the rivers that had been affected by recession of water included Nambirima, Musingu, Yala and Isiukhu rivers. Periodic heavy rains and hailstorms were also mentioned by (11%) of the respondents as impacts of climate change that had been experienced. Interview respondents explained that rivers mostly had their source in the forest and therefore a change in climate had immediate and adverse impacts on them. Responses about the forest being the source of the rivers were affirmed by the REC who explained that trees collect, filter and retain water then subsequently release it slowly in to streams and rivers. The trees also regulate how water flows on the ground. Therefore, destruction of trees has diverse effects on the environment and consequently on the climate.

Migration of harmful pests into farms as well as disease eruption as an impact of climate change was pointed out by (2%) of the respondents. Consistent with the views of these respondents, the REC elucidated that temperature rise and increased carbon dioxide in the atmosphere as a result of deforestation tends to impact the reproduction, spread, increase in the population and migration of insect pests. These pests include locusts, burying beetles, ticks, mites, grasshoppers and dragon flies. Climate changes are able to lead to the expansion of insect pests' distribution, accelerate the increase in their numbers and invigorate their movement. Increased temperatures increase the risk of incursion of migratory pests as well as the buildup of incidences of insect transmitted plant diseases.

Heavy rains and flooding were identified as impacts of climate change by 17% of respondents. Large volumes of carbon dioxide in the atmosphere supercharges the greenhouse effect causing the temperature to rise. One of the interview respondents explained that as the atmosphere becomes hotter due to heavy presence of carbon dioxide, the hot air holds more water vapor resulting in to intense rainfall. The large volume of the rain water cannot all be soaked in the soil on the ground fast enough thus resulting in to flooding as well as soil erosion. The respondents indicated that the floods also caused cholera, vector borne diseases such as malaria and destruction to both human and plant life. The respondents' acknowledgement that they have experienced the aforementioned impacts of climate change is rationalized by the notion that worldview facilitates basic interpretation schema of a culture's reality.

Consistent with the aforementioned perspectives of the respondents, Riede et al (2017) concurs that although there is a continuous expansion of knowledge regarding the physical science foundation of climate change and its consequences, there is currently a lack of comparable comprehension regarding the societal complexities of global climate change and the implementation of effective strategies to respond or anticipate accordingly. Orlove et al. (2015) expands upon the assertions made by Riede et al. regarding the value of indigenous knowledge in the field of climate science. These authors argue that indigenous knowledge contributes to a better understanding of climate impacts at the local level, which is often overlooked by scientifically advanced models that tend to provide a broader perspective. Additionally, indigenous knowledge can inform effective strategies for both mitigating and adapting to climate change. Hence, it can be inferred that the cultivation of cultural perspectives and effective communication

serves as a means to enhance comprehension and address the complexities inherent in diverse societal dynamics.

While respondents acknowledged having experienced impacts of climate change, the continued occurrence of these impacts are a clear testament that people's actions do not contribute to reversing climate change. This then necessitates communication that draws attention to members of the forest adjacent community on what can be done to help reverse the impacts of climate change. Thus, communication has to be done in an effective manner to attract the attention of the audience.

4.4 Efforts made to communicate climate change

Focus was put on finding out whether any efforts have been made to communicate climate change. In an interview with the Regional Ecosystem Conservator who was a key respondent held on 14th February, he pointed out that the main mandate of the Kenya Forest Services is communicating conservation of the forest, its management, development and mitigation of climate change. This key respondent pointed out that conservation and management of the forest being the main concern of KFS mandate, Forest conservators and officers are therefore charged with the role of communicating to the forest adjacent community about conservation, management and development of Kakamega Forest for attainment and maintenance of a good climate.

The REC explained that in carrying out their mandate, KFS targets to communicate conservation and management of the forest as well as climate change mitigation to the forest adjacent community. KFS also sought to communicate to learning institutions such as colleges and schools about the importance of conserving the forest. In these

institutions of learning, KFS seeks to initiate greening projects for tree growing and their maintenance.

The key respondent is in agreement with Evans et al (2008) recommendation which states that in response to climate change, it is necessary to communicate to communities to enable them to adapt to it. In a bid to emphasize the urgency of communicating climate change impacts, Moser (2010) states that emerging evidence and the specter of serious impacts of climate change made the task of raising public awareness, increasing understanding and engagement and advocating for policy change necessary. The scholar says that communicating climate change has moved beyond whether or not climate change is happening and caused by human activities.

Nerlich et al (2009) adjoins by stating that since most governments agree that climate change is inevitable, efforts in communicating it should change from persuading people that climate change is happening to persuading people to adopt practical measures to deal with it. The scholars are in agreement that it is necessary to communicate climate change, however Nerlich et al (2009) go further to point out that the task of communicating climate change goes beyond just making people aware. The scholars advocate for enhancing the effectiveness of communicating climate change. The local community adjacent to forests can be capacitated effectively through their own worldviews which have the capability of changing their behaviour as well as interpreting events. These scholars indicate how important communication is in addressing climate change.

Thus, in order to improve people's response to the impacts of climate change, it is necessary that the community understands the cause of climate change and their role in

its mitigation. This can be achieved by effective communication about climate change. Only then would the process of reversing impacts of climate change be attained.

On the 14th February 2022, the County ecosystem conservator pointed out that, climate change management and mitigation depend on conservation of the forest. For conservation of the forest to be attained, it is necessary that communication is done effectively. This key respondent explained that in order to attain effective communication of climate change, there is the need for collaboration and cooperation with the forest adjacent community and the Kenya Forest Services. In the key respondent's view, collaboration and teamwork would enhance communication for conservation and sustainable management of Kakamega Forest for the attainment of a better climate. However, the CEC pointed out that collaboration between KFS, KWS and the forest adjacent community has continued to face challenges. The communication by the KFS seems to be at cross-purpose with the worldviews of the local community, a situation that hinders seamless utilization of the communicated information.

The perspectives of the CEC regarding the obstacles encountered in collaborative efforts align with the assertions made by Moser and Dilling (2012), who argue that in order to effectively communicate climate change, it is imperative to promote public engagement. According to these scholars, the communication of climate change encompasses three dimensions: cognitive, affective, and behavioural. In this context, individuals are required to engage in mental processing and acquire comprehension of the issue. They should also experience an emotional reaction, such as interest or concern, and actively respond by modifying their behaviour in terms of climate and forest conservation. According to Moser and Dilling (2012), it is important to note that science cannot enforce action, but it

has effectively demonstrated that climate change is indeed occurring and primarily attributed to human activities. Moreover, this phenomenon poses substantial risks to both human and environmental systems. Accordingly, Moser and Dilling (2007) assert the significance of public participation in the process of taking action, whether by feedback, support, or tacit agreement. Furthermore, they underline that the successful implementation of action necessitates the active involvement of the public. Therefore, communication serves as a crucial mechanism for establishing a connection between scientists and the general public, thereby possessing the potential and responsibility to actively facilitate public involvement in addressing climate change.

The CEC's views are in harmony with those of Moser and Dilling's on the need to engage the audience in communicating climate change that affects them which cannot be overstated. The communication about climate change needs to provoke the audience's conscience for them to respond to the communication appropriately. Participation by the audience would enhance understanding of the communication.

Results of the study revealed that communicating climate change goes on. It emerged from primary data that 154 respondents representing (63%) had received communication about Climate change while 92 respondents representing (27%) said they had not received communication about climate change. The 154 respondents who acknowledged having received communication included 44 questionnaire respondents and 110 interview respondents. The results confirmed that communicating climate change takes place and many people have received the communication. However, the 27% respondents who claimed that they have not received communication on climate change alongside the poor response by the target community to the communication is an indication that

communication strategies need to be reviewed with an aim of reaching more people and making it more effective. The scenario in which people get communication on climate change but do not respond to the communication appropriately validates the claims that worldview influences how people think and perceive the cosmos and its implications for one's life.

Focus was put on finding out from the respondents where communication of climate change that is related to conservation of Kakamega Forest took place. The County Ecosystem Conservator pointed out that the chief's barazas, funerals, church services and places where people gathered for varied events were the places that were targeted for communicating climate change. The mentioned places where communication took place are limiting to reaching all members of the target audience. The chances of people missing to be present in all the mentioned places are high thus the need to employ strategies that would include most of the target audience.

Study results revealed that communicators of climate change most often included the local administrators such as Chiefs, Kenya Forest Services workers, workers from non-governmental organizations, leaders of the Community Forest Associations and occasionally County Government officials. However, an elder who was a key respondent observed that attendance at the Chief's baraza is usually limited to a few people who seek help for various challenges consequently limiting the number of people who receive communication on climate change there.

In the same breadth, results of the study revealed that some respondents had received communication from more than one source. One hundred and twenty interview respondents indicated that they had received communication about climate change from

the Kenya Forest Services staff, CFA leaders and the local administration at the chief's barazas. Forty two respondents indicated that they received communication about climate change from Anglican Development Services, Kakamega (ADS). Thirty four respondents indicated that they got communication from Nature Kenya, 17 respondents from KALRO, 25 respondents from Ministry of Agriculture, 2 claimed to have received it from MMUST, 4 from AGRA- Alliance of Green Revolution and 1 respondent had received communication from Kenya Scouts Association.

Enumeration of the communicators of climate change by respondents drew attention to the fact that, communicating is mainly done by professionals save for the leaders of the CFA who volunteer to do the communication after some induction. The observation that a majority of communicators had professional qualifications provides supporting evidence of the western scientific approach in communication. According to Weart (2003), the communication of climate change issues tends to be limited in scope, primarily emphasizing scientific discoveries. According to Hiwasaki et al (2014), there is a consensus that the communication of climate change information is commonly viewed as a technical and scientific endeavour. This perception entails the involvement of experts who are responsible for interpreting and transmitting information pertaining to climate variability and trends.

The western scientific methodology employed in the communication of climate change poses a challenge to comprehending and effectively responding to climate change information. When the listener perceives and holds the belief that the transmitted information is abstract, it consequently hinders its reception. The utilization of the western scientific methodology and the lack of acceptable response from the audience

substantiate the notion that one's worldview plays a significant role in shaping the manner in which culture impacts communication, cultural behaviour, and the interpretation of events.

The comprehension of climate change communication is impeded by western scientific methodologies, highlighting the need to establish a connection between western scientific knowledge and the perspectives of the intended recipients. Dupar (2019) suggests that effectively addressing the challenges associated with comprehending the communication of climate change necessitates the establishment of connections across the realms of scientific research, policy-making, and civil society. The scholar observes that successful interactions enable scientists to validate their findings via the lens of individuals' experiences. Moreover, these interactions play a crucial role in guiding scientists' research towards addressing the most urgent climate-related inquiries that have a direct impact on people's lives. Efficient interactions stimulate proactive involvement spanning from the local community level to the realm of policy-making.

FGDs elucidated that communicating climate change was done at chief’s barazas, funerals and during church services. However, FGDs revealed that barazas are not held daily but depend on the local administrators work programs and needs and reports from the members of the community. Consequently, communicating climate change during the chief’s barazas is dependent on such opportunities. This then results in the challenge of time and frequency in communicating climate change. FGDs indicated that the time accorded for communicating climate change that is related to conservation of Kakamega Forest in funerals, church services and any other forum is quite little since it is often not the core agenda in these gatherings. The communication is then not treated with the

urgency and seriousness that it deserves. The need for the elements of time accorded and frequency in communicating climate change are justified in the view that worldviews can affect communication in matters such as time, accepting or rejecting change.

In harmony with the respondents' views that the frequency in communicating climate change is not adequate, Stern (2007) reiterates the fact that a sound understanding of climate change is needed in order to have an effective global response to this challenge. Thus, the scholars subscribe to the position that communicating climate change should be broad enough to raise awareness, ensure understanding, causes and aim at receiving a positive response. Therefore, it is apparent that people's different ways of perception have to be infused into the scientific approaches in communicating climate change if any strides are to be attained toward the goal of sustaining the human environments.

Owing to the critical state of changing climatic events, it is crucial that the communication strategies employed reach the core of the audience. Thus, in consistency with the study results, Nerlich et al (2009) add that despite the topic of communicating climate change becoming more salient in society, gas emissions continue to increase both globally and domestically. The society continues to be vulnerable to climate variability. These scholars in view of the respondents positions also question the effectiveness of current efforts in communicating climate change in response to this communication. Evidently, there is need to engage on efforts to make communicating climate change effective. This would be made possible by considering the local people's experiences and understanding of climate change as well as paying attention to the frequency in communication.

Table 4.3 Frequency in communicating climate change

Likert's scale	Frequency	%
Very often	**0**	**00**
Often	**53**	**21.41**
Uncertain	**11**	**4.52**
Rarely	**136**	**55.34**
Not at all	**46**	**18.73**
Total	**246**	**100.0**

Source: Own compilation from the study

Data collected from interviews and questionnaires seeking to establish how often climate change is communicated revealed that 136 respondents representing (55.34 %) indicated that communicating climate change is rarely done. Thus, the majority of respondents contended with the fact that communicating climate change is rarely done. Fifty three respondents representing (21.41%) stated that climate change is often communicated. Forty six respondents accounting for (18.73%) said that climate change is not communicated at all. Eleven respondents representing (4.52%) said they were not certain whether it is done or not. The varied statistics about the frequency in communicating climate change is an indication of the gaps that exist in communicating climate change. No respondent indicated that communicating climate change is done very often. The 23.91% (59) respondents who indicated that communicating climate change is often done

represent those with higher levels of education which draws their interest to the issue and are also able to understand the scientific communication as well as the impacts of climate change. The 19.56% who claimed that climate change is not communicated shows that communicating climate change has not reached the whole audience which is targeted.

The study further sought to find out from respondents whether they had understood the communication about climate change that is related to conservation of Kakamega Forest. The study revealed that 86 (34.78%) respondents indicated that they had understood the communication while 160 (65.22%) respondents said that they did not understand the communication. It emerged from the study that a large percentage of the participants who had received communication about climate change did not understand it. Further examination revealed that the language and the terms used during communication were not explicable to them. This scenario spelt gaps in the effectiveness in communicating climate change that is related to climate change and it justifies the notion that claims that worldview is a basic interpretation schema of a culture’s reality within communication implication.

In consistence with the results of the study which indicate that the majority of the participants claim that they did not understand the communication about climate change, In a bid to emphasize what needs to be done for effective communication, Dupar (2019) submits that, successful communication and engagement strategies involve integrating individuals' own experiences with climate change alongside scientific research and analysis. This approach enables individuals to better comprehend the occurrences happening in their surroundings. The author acknowledges the viewpoints of the study participants, highlighting that the progress in technology and the decreasing expenses

associated with information technology have created fresh prospects for individuals to contribute to the identification of climate threats and stimulate discussions regarding solutions for adaptation and mitigation. According to Dupar (2019), an effective approach for addressing climate change involves the dissemination of information to the community and active engagement with community members. This process facilitates the acquisition and compilation of their pertinent knowledge on the subject. The findings of Gardiner and Stern (2002) and Sterman (2008) contribute to the existing study by elucidating that although there is a moderate correlation between knowledge of climate change causes and appropriate behavioral response, a more profound comprehension of climate change enhances audiences' ability to grasp the magnitude of the necessary response. The scholars' endeavor to highlight the inadequacy of current communication practices and hence underscore the imperative for a shift in approach.

The results of the study revealed that employees of Kenya Forest Services, as well as other agencies that are concerned with climate change and conservation of Kakamega Forest carry out their mandate of communicating using the western scientific approach. The respondents' views were informed by the fact that their training is based on scientific and technological knowledge. The western scientific language often does not find practical translations in local languages. The KFS workers are mostly non-locals, they come from various parts of the country and also belong to different ethnic communities other than the one of the people who live adjacent to the forest. Therefore, they are not able to communicate in the language of the community that live adjacent to the forest. The respondents decried the use of scientific words in communicating climate change and in their opinion, it was the basis of ineffective communication of climate change. This

understanding is validated by the view that people's worldviews shape their cultural behavior as well as influencing how they communicate.

Chirisa et al (2018) state that the primary mode of communication regarding climate change is through the utilization of scientific information. This approach predominantly centers on the dissemination of scientific findings, synthesis of data, and occasionally incorporates proceedings from prominent conferences and policy meetings. Chirisa et al (2018) also recognize the emphasis on scientific perspectives in their assertion that the communication of climate change information is frequently regarded as a technical and scientific endeavor, necessitating the expertise of individuals to interpret and disseminate data pertaining to climate fluctuations and patterns within a specific geographic area. Both the respondents and Chirisa et al (2018) present a depiction that highlights the need for a shift in the communication strategy employed for addressing climate change.

The perception of the communicators needs to shift and accommodate the targeted audience's experiences and language. The belief that climate change matters can only be explained in technical scientific terms calls for interrogation. The science-based approach may not be achieved the expected change in behaviour with regards to climate change. Science is complex, especially to the illiterate and semi-illiterate majority at the grassroots.

Huxley (2018) and Chirisa et al agree that scientific terminology is intricate and can pose challenges in comprehension due to limitations in understanding. The primary issue of the authors revolves around the potential inaccessibility, overwhelming nature, and lack of engagement associated with the presentation of climate change solely through predictions and graphs, without the inclusion of corresponding solutions to address the

resulting impacts of climate change. These academic researchers raise inquiries on the efficacy of utilizing scientific outputs as the primary means of disseminating information about the impacts of climate change to the general people. Huxley contemplates the feasibility of effectively communicating scientific information on climate change in a manner that is easily comprehensible, while also integrating optimistic narratives that motivate individuals to take proactive measures. The academic scholar raises inquiries regarding the significance of religion in the dissemination of evidence pertaining to the impacts of climate change.

The scholars' opinions on the technicality and complexity of western scientific approaches does not aid in enhancing understanding and effectiveness of communicating climate change. The need to ensure that the audience understands the communication on climate change cannot be overemphasized. Thus, this study contends with the view that scientific communication needs to be presented in ways that inspire hope and action. The need to involve religion in communicating climate change enables the capturing of the community's worldview which the people would relate with.

Climate change communicators must employ a systematic approach to categorize units of communication, so facilitating the breakdown of complex material into comprehensible levels. Nisbet (2009) emphasizes the significance of effectively deconstructing climate change information. According to the author, communication should not be limited to the mere transmission of factual facts on a particular subject. Instead, it should involve a collaborative process of meaning-making between the speaker and the listener. Hence, it is imperative for science communication to effectively engage with the values, interests, and worldviews of its intended audience. In their study, Nerlich et al. (2009) examine the

significance and challenges associated with engaging diverse audiences in discussions on climate change through the utilization of different communication methods and strategies. The ideas put out by experts emphasize the importance of communication that is capable of effectively addressing the interests and worldviews of the audience, as well as employing diverse techniques in response to climate change.

4.5 Approaches used in communicating climate change.

The study sought to find out what approaches the communicators of climate change employed. It emerged from the study that verbal communication, written communication and communication through participation which are delivered by the use of information communication technologies were employed in communicating climate change. The Information Communication technology devices used included telephones, radio, television and the wide internet. In relation to approaches used in communicating climate change, Moser (2010) observes that a number of developed countries have launched top-down climate change and communication campaigns pursuing education awareness raising and behaviour change. This scholar acknowledges that it is crucial to ask about how to communicate climate change since it involves less certainty and immediacy and also has the potential for far graver implications.

The communication approaches identified by the participants of this study align with those utilized in various regions of Africa and Asia, as supported by ASSAR (2016). ASSAR's findings indicate that the main channels employed to disseminate climate information to vulnerable communities consist of television, mobile phones, online platforms, printed media, public demonstrations, and community fora. According to

ASSAR (2016), it is suggested that the evaluation of the relative efficacy of these communication channels should be conducted in conjunction with the examination of factors that influence and facilitate social and behavioral change, including the nature of the information being disseminated, the intended recipients, and the prevailing social environment. The social environment in question encompasses various components, including cultural factors, gender norms and obligations, traditional practices, and religious distinctions.

Assar (2016) suggests that addressing the deficiencies in climate change communication requires the utilization of channels that facilitate the audience's ability to convert the provided information into practical formats. This recommendation is based on the necessity to influence the audience towards adopting suitable behavioral changes. Additionally, it takes into account the significant disparities in climate information accessibility among different groups of individuals, both within and between populations. Furthermore, it acknowledges that access to technology, particularly in the context of mass media strategies, plays a crucial role in disseminating climate information. The efficacy of climate communication within communities is significantly impacted by power dynamics and gender considerations, which play a crucial role in determining the extent to which community members are able to disseminate their knowledge and engage in educational endeavors.

4.5.1 Communicating Climate change through verbal communication

An interview with a CFA leader indicated that the various agencies which are involved in communicating climate change mostly employed a verbal communication approach. However, the respondent noted that the verbal communication had a basis in scientific

research and terminologies of climate change. The western scientific base was an obstacle to clear understanding of the communicated information. The agencies that were involved in communicating climate change included KALRO, Nature Kenya, Kenya Forest Services, Kenya Wildlife Services, Local administration through the chiefs, Ministry of Agriculture, Alliance for Green Revolution and Anglican Diocese services. Majority of interview respondents indicated that they had received verbal communication about climate change from various agencies. Some of these agencies used projectors and screens during communication.

A look at the agencies engaged in communicating climate change indicates that they are science-based research entities. Therefore, it follows that the information communicated is scientific and will more or less be technical. Such a scenario does not promote understanding especially of the rural majority. Carmi et al (2015) asserts that research investigating the effects of science communication on the general public has revealed that an enhanced understanding of a particular matter does not necessarily result in the adoption of suitable actions. These experts emphasize the importance of addressing the specific communication needs of the most vulnerable audience, who face communication gaps, in order to ensure a high-quality community response.

In accordance with the findings of research suggesting that the communication of climate change should be grounded on scientific principles, Huxley (2018) emphasizes that scientific outputs frequently serve as a means of conveying information about climate change. Cavarlho et al (2010) and Sterman (2008) concur with the aforementioned perspective by asserting that climate change communication has predominantly catered for an elite audience, neglecting the need of public comprehension, and instead

prioritizing scientific competence in the pursuit of climate solutions. It is asserted that science communication frequently serves as a means to enhance the audience's awareness, viewpoints, or scientific knowledge pertaining to climate change. The scholar's perspective underscores the necessity of reevaluating communication.

The interview results of the study revealed that 40 (26%) respondents had received verbal communication on climate change from Nature Kenya, 14 (9%) respondents received the communication from KALRO (Kenya Agricultural and Livestock Research Organization). The respondents who received verbal communication at the chief's barazas in conjunction with Kenya Forest Services were 106 accounting for 69%. Eleven respondents indicated that they had received the communication from KWS while 5 respondents received from the Ministry of Agriculture. Five respondents indicated that they had received the communication from AGRA and 5 from ADS. Results showed that the majority of the respondents had received verbal communication from the KFS in conjunction with the chief during barazas. Respondents of the study confirmed that the agencies mentioned had delivered verbal communication on climate change that is related to Kakamega Forest. Two respondents pointed out that they had received verbal communication about climate change from speeches during funerals and meetings in the community.

According to Kahan, Jenkins-Smith, and Braman (2011), numerous research has demonstrated that individuals tend to place greater faith in communicators of climate change who possess similar origins or life circumstances with them. This view highlights the significance of the verbal communication technique employed in underwriting climate change discourse. In the realm of communications strategy, it is imperative to

ascertain individuals who possess the capacity to instigate change and influence opinions, and who are recognized and relied upon by the intended recipients of the message. According to the SEI (2016), the communicators should possess the ability to fulfill multiple roles, including serving as primary conveyors of information, secondary facilitators of understanding, and advocates for transformative initiatives. This statement challenges the prevailing perspective that the primary obstacle to taking action on climate change is a lack of information. The foregoing views by scholars about the need to communicate in a way that can instigate behaviour change validates the objective of this study.

Interviews revealed that members of the Community Forest Association are expected to participate in communicating climate change and promoting conservation of Kakamega Forest. Kenya Forests Services engages and charges members of the CFA to communicate climate change that is related to conservation of Kakamega Forest to the forest adjacent community. The County Ecosystem conservator who was a key respondent confirmed that CFA members are not only charged with the responsibility to promote conservation of Kakamega Forest, but also to sensitize the community on the impacts of climate change as well as the dangers posed by destroying the forest and its contribution to climate change. The key respondent clarified that CFA members were engaged owing to the fact that they belong to the forest adjacent community and therefore, they understand and they can communicate in the local language.

The strategy employed to involve the members of the CFA in the communication of climate change aligns with the assertion made by Nerlich et al. (2009) that effective communicators must ensure that the message is meaningful and resonates with the values

that hold significance for the intended audience. By actively including the members of the local community in the process of conveying climate change, it is possible to enhance the audience's comprehension and perception of its relevance. Nerlich et al (2009) advocate for an alternative method that emphasizes the need of effectively engaging individuals on an affective and emotional level. This approach involves exploring non-expert climate perceptions from a bottom-up perspective, rather than relying solely on top-down expert understandings. These scholars propose that climate change communicators transition from employing one-way communication methods to engaging in dialogue and reflective engagement.

However, regardless of the CFA engagement in communicating climate change, it is apparent that effectiveness of the communication has not been realized. This is as a result of the community not relating with the communicated message since they have not owned and embraced it. The messages need to be broken in to the worldview of the audience and the scientific data made relevant to the values and understanding of the community.

Both interview and questionnaire respondents consented that public barazas were mostly used in communicating climate change in relation to conservation of the forest. The respondents clarified that during such meetings, communicators verbally communicated that indeed climate change goes on, and the need and importance of a joint effort in the sustainable management of the forest for mitigating climate change for the benefit of the forest adjacent communities. The communication emphasized about the impacts of climate change, adaptation strategies and the importance of the forest in the journey of

tackling climate change. However, the approach taken in communicating climate change was inclined towards communicating scientific findings concerning climate change.

The researcher held Focus group Discussions with members of the forest adjacent community at Isecheno Forest station, Murhanda forest area, Ileho-Cherobani, Kambiri forest areas and Lurambi/Kakamega Forest station. It emerged from FGDs that members could identify some impacts of climate change in the region and therefore it was important to communicate information that aimed at mitigating climate change. It also emerged that some members in the FGDs understood the relationship between climate change and destruction of the forest. However, there was a group who were unable to relate climate change and conservation of the forest. This group required communication that was simple and related to their worldview. FGDs pointed out that CFA members are charged with encouraging members of the community to minimize the human activities in the forest. Preservation of forest resources was emphasized for mitigation of climate change.

Focus Group Discussions revealed that communicating climate change was mostly delivered through verbal communication. However, FGD respondents indicated that professional climate change communicators use scientific expressions when communicating climate change. Upon inquiry about the technical jargon that was difficult to understand, FGDs identified expressions such as greenhouse gas emissions, carbon sinks, sustainable development and carbon dioxide. FGDs voiced the view that scientific expressions often do not have an equivalent in the local language such that even an attempt to translate would be difficult. As a result, the communication is often not well comprehended and understood. The observation of the FGDs that scientific language

obscures understanding of the communication on climate change validates the notion that worldview affects communication and can improve understanding.

The notion expressed by FGDs that communicating climate change is done verbally is reinforced by Dupar et al (2019) in the view that the communications must be tailored to meet the specific concerns and needs of the audience. The audience's knowledge and values must be understood. The language used must resonate with the audience and evolve their understanding of and contributions to the issue. Yet knowledge and values of the audience are passed on through oral tradition. The language used is often verbal and if it resonates with the audience then it would enhance communication.

Aligned with the research goal of effectively communicating climate change, Moser (2010) opines that the significance of trust cannot be overstated in the context of effective communication on climate change. The author highlights that a notable hindrance to public involvement with climate change is the absence of trust in messengers, particularly scientists. Numerous studies have demonstrated that trust plays a significant role in moderating individuals' interpretation of transmitted facts and their level of worry. The trust that Moser gives as a requirement for effective climate change communication can only be attained if communication approaches resonate with values and language of the audience. Consequently, the need for verbal communication that enables understanding.

4.5.2 Communicating Climate Change through written communication

Questionnaire respondents indicated that climate change is often communicated in the daily newspapers, magazines, conference papers, journals and books, however, the communication in these media often targets to communicate to the larger society as

opposed to location specific audiences. The respondents went on to elucidate that written communication is often general and often addresses climate change caused by both anthropogenic and natural causes. Therefore, the communication does not specifically address the local community's concerns. Readership of these media is often done by academic scholars who form a small percentage of the target audience.

REC decried the fact that, reporters often treat climate change news as general news stories and this limits the effect it should have on the consumers of the news. The REC expressed that numerous researches have been done in the area of climate change but the results have not reached the general public but instead they lie on shelves in libraries of learning institutions. The poor reading culture was also pointed out by this key respondent as a hindrance to communicating climate change using written communication. The respondents' views about the written communication present a hindrance in the effort to communicate climate change that is related to conservation of Kakamega Forest. This is caused by the general nature of the communication and also because it addresses other causes of climate change only other than addressing destruction of the forest.

The study sought to find whether respondents had read about climate change from the newspapers, books, magazines or conference papers. Results of the study revealed that only 21 respondents had read about climate change in the daily newspapers. Twenty-six respondents acknowledged to have read about climate change in books, magazines and journals. The study ascertained that the twenty-six read about climate change in the various platforms because it was in line with their duty. Respondents acknowledged that they are aware that climate change information is occasionally found in Newspapers and

other written material but they do not read it nor take a keen interest. Thus, whereas communicating climate change is done using written materials, this approach in not very effective because of access by the audience and lack of interest in reading the climate change information. Respondents observed that the reading culture is low among the majority of respondents.

A Forester observed that in relation to low education levels among members of the Forest adjacent community, readership of literature about climate change was low and therefore, communication was hampered. The illiterate and semi-literate members of the community were not able to understand how forests act as carbon sinks, and how an invisible gas, such as carbon dioxide can affect rainfall and climate regulation.

In correspondence with the study results, Antilla (2005) observes that research shows that newspapers are the most popular source of information about climate change for reporters. Moser and Dilling (2007) further explain that many communicators are primarily concerned with the message they want to convey over who they are trying to reach with it. Trying to better understand the audience will reveal what media, issues and language resonates with the individuals and groups, which values are important, what aspirations they have as well as preexisting knowledge of climate change, common metal models and possible assumptions. Moser's views find a basis in the understanding that worldview revolves around personal identity and group belonging which awakens cultural obligations which give guideline on the expected behavior.

4.5.3 Communicating climate change through community participation

The County Ecosystem conservator indicated that in the effort to broaden the scope of communicating climate change and conservation of the forest, the government through Kenya Forest Services came up with a Participatory Forest Management (PFM) initiative that is provided for under the Forests Act 2005. This initiative birthed the concept of Forest Community Associations. This was an effort to promote participation of community members in communicating management and conservation of the forest, in order to mitigate climate change. The participatory initiative was meant to promote engagement of the forest adjacent community and cultivate in them a sense of ownership of the forest. The participatory forest management strategy that was highlighted by this key respondent finds a basis in the notion that utilization of the worldview of the local community can unlock people's ideas and perceptions of their world and the implications of their actions on the environment.

One of the leaders of the CFA who was a key respondent pointed out that the Participatory Forests Management (PFM) initiative provides for a mutual agreement between Community Forest Associations (CFAs) and the Kenya Forest services on communication, conservation and sustainable management of the forest biodiversity for the benefit of the forest adjacent community. In the PFM, Community Forest Association members are mandated together with the KFS workers to communicate climate change and its impacts in relation to conservation of Kakamega Forest. However, there is no government capitation allocated for the implementation of this initiative, thus, members of the CFAs give voluntarily services. As a result, the CFA members are not highly motivated to give their time and commitment fully to the communication because there is

no monetary compensation for the same. This key respondent suggested that the collaboration with the forest adjacent community would enhance conservation and sustainable management of the forest through developing and operationalizing a framework for community engagement on communicating information and improving efficiencies of community-based conservation practices.

The CFA leader indicated that Kenya Forest services have set up initiatives which aim at promoting tree growing in people's private shambas for the purpose of availing timber for the needs of the community. This initiative aims at giving members of the community an opportunity to address and alleviate poaching of timber which is one of the lead activities that destroy the forest. Annual tree planting programs are planned, communicated and initiated by Kenya Forest Services. By promoting this exercise, KFS hopes to communicate that conservation of the forest plays an important role in mitigating climate change. However, interviews revealed that this initiative has not succeeded to a large extent since members of the community have not embraced it. Thus, there is a need to review communication and participation strategies for this initiative.

Interview responses also acknowledged that in the effort to promote participation, members of CFA have been charged with preparing tree nurseries at the forest stations to grow both indigenous and exotic seedlings whereby the grown and maintained seedlings are sold to community members to plant. This initiative aimed at enabling participation of the members of the forest adjacent community by way of them buying these seedlings to plant in efforts to conserve the forest and communicate mitigation of climate change. The study revealed that most of the seedlings were often bought by people who came from

other places to the forest as tourists. Consequently, the aim of this initiative was not achieved as envisaged.

Results of the study revealed that members of the CFA were also engaged as tour guides inside the forest in order to do eco-tourism as a strategy of enhancing communicating conservation of the forest as well as mitigation of climate change. Whereas the engaged tour guides effectively communicated the importance of conserving the forest and its ultimate effect on climate change, the number of tour guides remains very minimal. The respondents also pointed out that most often the people who visited the forest were from areas outside of Kakamega Forest. Therefore, the communication on climate change was received by people who did not belong to the forest adjacent community.

Interviews revealed that some members of the CFA who have the indigenous medicinal knowledge are engaged in identifying medicinal plants that are used as herbs. These indigenous knowledge connoisseurs were engaged in communicating about conservation and management of herbal trees for prosperity. The connoisseurs were also encouraged to educate the community around the forest on the proper ways of harvesting and sustainable utilization of the herbal trees. Participation by the CFA members in the activities of the Kenya Forest Services have a basis on the principle which proposes that worldview revolves around personal identity and group belonging which awakens cultural obligations and results into expected behavior.

According to Lumosi and McGahey (2016), there has been a notable trend towards increased utilization of stakeholder dialogue and a heightened emphasis on knowledge co-generation. However, communicators continue to encounter three significant

challenges. These challenges include effectively integrating scientific information with traditional knowledge, effectively communicating climate change information to individuals and groups with diverse power dynamics, agency, and social dynamics, and effectively navigating various communication channels, learning processes, and modes of knowledge transmission to ensure that marginalized groups have access to essential information.

One key respondent however decried the fact that while the PFM initiative had been put in place to bring about participation by the members of the forest adjacent community, there has not been a legal framework on the inclusion of the Abaluhyia indigenous knowledge in the initiative to communicate climate change. While there are efforts to engage members of the forest adjacent community in conservation and management of the forest as well as communicating climate change, there was no policy formulated to include the Abaluhyia worldview in these efforts. The efforts to enable participation by the community that lives adjacent to the forest in communicating climate change that is related to conservation of the forest without incorporating their worldview in the communication policies are therefore at cross purpose with the view that cultural worldview and communication represent a way to improve understanding culture and enables ability to speak to the heart of diversity of tensions.

According to SEI (2016), there is consensus regarding the importance of involving the target community in communicating climate change. This approach is considered effective in understanding user needs and generating pertinent and actionable information. By engaging with users and addressing their concerns, trust can be fostered in the process. An alternative approach would involve the use of peer learning as a means

to foster connections among individuals who are addressing comparable difficulties. This facilitates the establishment of a community of practice wherein individuals with expertise and practical experience can collaboratively exchange their views and knowledge derived from their respective professional endeavors.

According to Filho (2008), the findings of the study provide support for the notion that communication through community engagement is crucial in addressing climate change. The author argues that the issue of climate change extends beyond the realm of scientists and should be a concern for all individuals due to its broad implications. The climate change discourse necessitates the inclusion of numerous additional stakeholders owing to its consequential repercussions for their interests. Based on contemporary observations, it is evident that subjects including diverse stakeholders, particularly the general public, are more comprehensively grasped when their distinct information requirements are duly considered.

4.5.4 Communicating climate change using electronic media

The study sought to find out what kinds of electronic media are used in communicating climate change. Questionnaire responses from forest officers indicated that the media that is often used to communicate climate change included radio, television, mobile phones and the wide internet. The respondents indicated that the afore mentioned media is technology oriented, thus it can be alienating in itself. This is by way of affordability and availability. It emerged from the study that some agencies which were involved in communicating climate change used projectors to communicate.

Twenty interview respondents acknowledged having received communication on climate change from a local radio station (Abeingo Radio Station). These respondents mentioned that in the radio communication, they learnt about the presence and impacts of climate change and the need to conserve Kakamega forest. The respondents also indicated that they heard the call to plant trees for provision of timber and firewood needs of the community from radio. Distinctly, the number of respondents who got the message on the local radio station is small, an indication that the aim of using the radio station did not succeed to a large extent.

Eight respondents acknowledged to have got communication about climate change on a national radio station. However, the respondents pointed out that communication about climate change on national radio was rarely done. It also emerged from the respondents that the weather forecast was the most common climate communication that was consistently conveyed and most often it failed to meet the accuracy test. It emerged that the forecasts broadcasted often turned out different from what was experienced. The views of the respondents point to development of lack of trust as a result of outcomes that are not consistent with the broadcasts.

Eight respondents from the interviews indicated that they had once or twice heard talks about climate change on television talk shows. However, the respondents indicated that television talks about climate change involved specialists who often discussed diverse climate issues that were not easily understood by the audience. The complexities of the discussions on climate change on television are a hindrance to effectively communicating climate change. None of the respondents acknowledged receiving communication about climate change through short message Service (sms).

The assertions made by Boykoff and Boykoff (2007) and Antilla (2005) support the findings of this study, indicating that there is a growing worry regarding the constraints that exist beneath the surface of mass media effectiveness in communicating climate change. Chari (2016) concurs with the research results, noting that various obstacles in communication within the mass media hinder the effective dissemination of information regarding climate change. These obstacles are particularly prevalent in contexts where illiteracy and limited access to technology serve as barriers to communication. This professor argues that contemporary media approaches aimed at promoting environmental conservation inadvertently isolate communities instead of recognizing them as active participants in the process.

Moser and Dilling (2009) assert that the emphasis on differences in electronic media communication regarding climate change highlights the tendency of climate change communication efforts to frequently presume that electronic media is the most efficacious method for engaging the broad audiences necessary for mobilization. According to experts, the allure of reaching a wide audience via television and the internet tends to overshadow the fact that information disseminated through media channels is often accepted without careful scrutiny, swiftly disregarded, or simply overlooked. Moser (2010) highlights the prevalence of skepticism among audiences regarding the capacity of human beings to influence the Earth's climate, which arises from certain presumptions surrounding electronic media transmission. From the perspective of an ordinary individual, the immediate fluctuations in climate are often viewed as lacking urgency. According to Moser (2010), the effectiveness of internet communication in engaging the audience with information about climate change may be diminished due to the perception

that climate change is not a personal concern. Therefore, it is imperative to investigate methods of effectively conveying climate change that integrate the perspectives and beliefs of individuals. This form of communication pertains to the fundamental concept that posits how a worldview can provide insights into the underlying layers of a culture's belief system on the universe and its impact on an individual's existence.

4.6 Importance of communicating climate change to communities that live adjacent to Kakamega Forest

Focus was put on finding out from the respondents whether it is important to communicate climate change to forest adjacent communities. In line with this inquiry, 219 respondents representing (89%) of the interview and questionnaire participants acknowledged that it was important while 27 respondents representing (11%) said that it was not important. The majority of respondents who acknowledged that it is important to communicate climate change pointed out that this was because they had experienced and had been affected by changes in climate. These respondents also felt the need for acquisition of knowledge in order to mitigate climate change and its effects on livelihoods. Interviews revealed that there was need for change of approaches in communicating climate change information in ways that are all inclusive in order to reach different groups such as women, the youth, the semi-illiterate people and even children. A CFA leader who was a key respondent attributed the low rate of responsiveness to communicating climate change by members of the community to the community's inability to understand the scientific expressions that were being used. Illiteracy was identified as factor that was also hindering the effectiveness of communicating climate change. All people need communication that they can understand. The respondents'

notions are validated by the understanding that worldview and communication represent a way to improve understanding culture. Worldview also facilitates the ability to speak to the heart of diversity of people.

It emerged from the Focus Group Discussions that communicating climate change effectively was important as it would make the forest adjacent community aware about the causes and impacts of climate change. FGDs indicated that communicating climate change would help members of the community understand why they were experiencing climatic variations in the environment. Communication would also educate them about their role in enhancing climate change and its magnitude on their lives.

The respondents further noted that communicating climate change would educate and motivate members of the forest adjacent community on the importance of conserving the forest as well as encourage them to conserve Kakamega forest. FGDs also revealed that effective communication of climate change would initiate positive change in behaviour as a response to the communication. Communicating the magnitude and consequences of climate change to the community can lead to building capacity of the forest adjacent community.

The study revealed that all these approaches that have been used to communicate climate change information were not only based on western scientific data but also used scientific expressions. The communication mostly used scientific terms that were difficult for the audience to understand. Alongside the scientific expressions not being understood, they also serve as discouraging agent for the community that lives adjacent to the forest to

have interest in reading about climate change and subsequently responding to the communication.

In conformity with the views of the study respondents, Moser and Dilling (2007), submit that there is a lack of understanding of the problem of climate change and its possible solutions between science and the target audience. The authors point out that the main message is often lost in scientific jargon. At worst, technical information on scientific debates over minute details beyond the grasp of the non-inducted can be experienced as exclusionary. These scholars recommend that for the communication on climate change to reach the audiences more effectively, the audience itself must become the first concern. These scholars decry the use of technical and scientific information which is beyond the grasp of the local audience and propose the employment of an approach that the audience can relate with.

Focus Group Discussions revealed that erosion of indigenous traditions had resulted in majority of the young people being ignorant of the Abaluhyia worldview and therefore they have no regard for it. Abaluhyia worldview's folktales, taboos, sayings and poetry are not so much at play today. These supported understanding of communication about environmental issues besides making it more meaningful to the local community. The CEC opined that by communicating climate change that is related to conservation of Kakamega Forest, Kenya Forest Services is investing in locally controlled Forestry. This is critical because it helps local people promote a more changeable environment. Therefore, the communication requires Abaluhyia worldview's basic interpretation outline of the cultural reality within communication.

Tarusarira (2013) argues that incorporating the indigenous Abaluhyia worldview in the communication of climate change is crucial due to its significance. According to Tarusarira, African religion operates in symbiotic harmony with other human faculties. Therefore, individuals and organizations striving to combat global warming and promote sustainable development should integrate this worldview into their efforts. The act of communication serves as a means of conveying significance and guidance to individuals engaged in a particular field, while also serving as a wellspring of innovation and ingenuity. The individual possesses the potential to cultivate a sense of self-worth and develop the capability to resist instances of exploitation and subjugation. The presence of African religion contributes to the advancement of society by fostering a heightened sense of self-assurance.

According to Moser (2009), the degradation of indigenous traditions has had a detrimental impact on the communication of environmental issues. Moser further argues that effectively conveying climate change to a specific audience is contingent upon their values, attitudes, worries, and level of knowledge regarding the subject matter. The scholar elucidates that effective communication should also be guided by factors such as the language that connects with individuals, their personal and social aspirations, the channels through which messages are conveyed, the objectives of communication, the intended outcomes, the opportunities for audiences to influence these outcomes, and the obstacles they may encounter in pursuing such actions. According to Moser and Dilling (2007), the communication of technical aspects of climate change from professionals to lay audiences often occurs in a unidirectional manner, lacking opportunities for conversation and the development of a shared knowledge of the issue and potential

solutions. In the same vein, respondents' submissions suggest that the utilization of scientific approaches in communicating climate change may actually impede comprehension. This supports the notion that incorporating cultural worldview and effective communication strategies can enhance understanding of diverse cultures and facilitate meaningful dialogue. There exists a necessity to effectively convey information on climate change in a manner that would augment the comprehension of the community, while also establishing a sense of connection and personal responsibility towards this issue.

4.7 Chapter Summary

This chapter presented a discussion on the western scientific approaches to communicating climate change that is related to conservation of Kakamega Forest. In addressing this objective, it was necessary to look at the demographic characteristics of the respondents and the contemporary scientific approaches in communicating climate change that is related to conservation of Kakamega Forest. The study revealed that communicating climate change that is related to conservation of Kakamega Forest goes on and various agencies have participated in communication. This chapter established that the contemporary scientific approaches that are used in communicating climate change include verbal communication which is based on scientific data and occurs during public meetings such as chief’s barazas, electronic communication through media such as mobile phones, radio, written communication and non-verbal/participation communication. It also emerged from the study that the communication has been received by many respondents, however they seem not to appropriately respond to the communication in as far as changing their behaviour towards climate change and

conservation of the Forest. The hindrance to expected response to communicating climate change was found to be the use of scientific research data that is not easily and clearly understood by the local community.

CHAPTER FIVE

THE INDIGENOUS ABALUHYIA WORLDVIEW IN COMMUNICATING CONSERVATION OF KAKAMEGA FOREST

5.0 Introduction

This chapter examined the indigenous Abaluhyia worldview's approaches in communicating Conservation of Kakamega Forest. Thus, it responded to the following research question: How does the indigenous Abaluhya worldview communicate conservation of the Forest? To do this, the study looked at the following sections: indigenous Abaluhyia worldview and communicating conservation of the Forest and approaches used in communicating conservation of the Forest. To address the approaches used in communicating conservation of the forest, the chapter examined communicating conservation of the forest through songs, wise sayings, folktales and cultural ceremonies.

5.1 Indigenous Abaluhyia worldview's concept of communicating conservation of the Forest.

Focus group discussions affirmed that indigenous Abaluhyia worldview has channels of communicating conservation of the forest as well as climatic events. Through varied communication strategies, indigenous Abaluhyia worldview regulated the interaction between the people who live adjacent to the forest and the forest resources. An elder within the community who was a key respondent made it clear that indigenous Abaluhyia worldview has identifiable ways of communicating beliefs, meanings, ideas and values among themselves. This key respondent explained that the elementary basis of the

Abaluhyia beliefs, values, norms and morals with regards to conservation of the forest remains unique and informs their worldview.

This key respondent explained that there exists an authentic Abaluhyia worldview with an imposing impact on the people's behaviour and relationships with the environment. The respondent elucidated that indigenous Abaluhyia worldview communication strategy is not a disconnected collection of messages but a blend of many practices that are fused with communication systems which can be used to communicate conservation of the forest. This means that the indigenous Abaluhyia people communicated conservation of the forest and expectations on how members of the community interacted with the forest. The communication structures were embedded in their worldview as a result of their experiences with the forest. The indigenous Abaluhyia traditional practices are rooted in the community's values, beliefs and practices which are validated by the tenet that says that worldviews can affect as well as shape how culture influences communication.

The study results lucidly indicate that the indigenous Abaluhyia people have all the time considered the forest to be a significant part of their existence. It is apparent that they have communicated various strategies to conserve the forest in their own worldview. Indigenous Abaluhyia worldview communication strategies influence cultural behaviour and how events are interpreted. The ways of communicating conservation of the forest have withstood the test of time because they touch the very core of the Abaluhyia livelihoods. Therefore, the indigenous Abaluhyia communication strategies for conservation of the forest can go a long way in addressing the menace that is forest destruction. The element of the indigenous Abaluhyia worldview in communicating conservation of the forest finds relevance in the theory that states that worldview revolves

around personal identity and group belonging which awakens cultural obligations and gives guidelines which results in expected behaviour

Consistent with the respondents' views indicating that indigenous Abaluhyia people have their communication approaches that are used to communicate conservation of the forest, Ikuenobe (2014) confirms that Africans have had conservationist values, practices and ways of life which enhance environmental conservation. The scholar acknowledges that African views on and thoughts on ontology, cosmology and religious practices supported their moral attitudes towards the conservation and preservation of nature. The Abaluhyia's communication strategies passed on information through oral tradition as well as lived experiences. Abaluhyia communication approaches to conservation resonate with Chanza and De Wit (2014) in the observation that indigenous knowledge is acquired gradually and progressively in relation with the environment and is orally communicated within and between generations. Thus, these scholars confirm that indeed African worldview enabled and promoted environmental conservation hence conservation of the forest

5.2 Indigenous Abaluhyia approaches in communicating conservation of Kakamega Forest.

An elder in the Abaluhyia community pointed out that the indigenous Abaluhyia worldview used songs, prohibitions, taboos, folklore, cultural ceremonies and wise sayings to communicate conservation of Kakamega Forest. These approaches aimed at communicating to the community that lived adjacent to the forest the significance of the forest to the community and the importance of conserving it. Respondents of the study claimed that scarcity in the application of indigenous Abaluhyia worldview has led to

wanton destruction of forests. Indigenous Abaluhyia worldview played a significant role in communicating conservation of the forest and its resources.

Majority of the interview respondents drew attention to the fact that in the indigenous Abaluhya worldview, forests provided food resources for both humans and animals, shelter to animals and birds and medicine for both humans and wildlife. The forests were therefore a fountain of life and were deemed to be sacred. Respondents revealed that the forests' sacredness necessitated their security thus prohibitions were put in place and communicated to the members of the community. These prohibitions barred them from heedless clearing of the forest for farmland or pasture. It was essential that these approaches are employed to communicate conservation of the forest for its posterity. Indigenous Abaluhyia views on the sacredness of the forest as a fountain for existence and the messages to conserve it find relevance in the theory which states that worldview shapes and influences communication and cultural behavior besides interpreting events.

In agreement with the existence of the indigenous Abaluhyia worldview's approaches and their application in communicating conservation of the forest Tarusarira (2017) upholds that communicating caring for the environment is not something foreign to the people of Africa. This scholar contends that indigenous African knowledge concerning the environment is pro-conservation of natural resources which finds relevance in the indigenous Abaluhyia worldview communication systems. In harmony with the view that indigenous Abaluhyia communication strategies are drawn from their worldview, Chirisa et al (2018) endorse that indigenous knowledge systems are developed from experience which locals gain over centuries and are adapted to the local culture and environment. Therefore, it is imperative that in communicating conservation of Kakamega Forest,

indigenous Abaluhyia worldview is applied since it would provide its knowledge and relatability to the communication.

The indigenous Abaluhyia worldview conservation plans and the strategies used in communicating are intertwined with their religious beliefs. The Abaluhyia worldview is informed by the belief that the forest is God's and its residents are supernatural beings thus validating Tarusasira's (2013) views with regards to the consideration of African religion in communicating conservation of the forest. This is significant because the religious thoughts of a community are extensively informed by their worldview. Therefore, African religion provided the moral and spiritual aspects of the messages communicated about conservation of the forest. African religion's beliefs espoused the careful handling of the environment and its sacredness.

The potential encapsulated by the indigenous Abaluhyia worldview in communicating conservation of the forest is relayed in Tarusasira's (2013) views that African religion's capacity to communicate meaning and direction of how to care for the environment has the potential to enhance the efforts to communicate conservation of Kakamega Forest. African religion as a source of moral values for the community, informs their worldview on how conservation of the forest should be done. Thus, indigenous Abaluhyia worldview should be employed in conservation of Kakamega Forest.

5.2.1 Communicating Conservation of the forest through songs

Focus group discussions revealed that indigenous Abaluhya worldview communicated conservation of the forest through songs. FGDs explained that songs are a traditional way of communicating important messages. Songs were used to raise awareness about the

importance and function of the forest in a way that encapsulated the community's worldview on the forest. FGDs revealed that songs influenced the thought processes and how the members of the community viewed the subject of conservation of the forest in the song. The songs used ridicule to communicate messages that were aimed at discouraging members of the community from destruction of forest resources as well as spelling out the consequences of such actions. Praise was also used in songs to communicate recommended behaviour in conserving the forest. Participants consented that traditional Abaluhyia songs made communication experiences more memorable and awakening. Since the songs were in the community's native language, they largely appealed to the audience. Thus, such songs can go a long way in unpacking the message about conservation of Kakamega Forest to the audiences that are targeted for communication.

Responses from interviews drew attention to the fact that songs are a cultural possession, are participatory and had an entertaining component. These elements gave them the capacity to reach a wide audience across social boundaries. Songs were hence used to communicate messages that celebrated the forest and also stirred up conservational relevant responses. The respondents pointed out that songs provided a chance for social interactions and an appropriate platform to communicate thoughts and perceptions on the importance of conserving the forest. The study results on the use of songs to communicate conservation of Kakamega Forest find relevance in the notion that worldview shapes how culture influences communication and cultural behavior as well as interpreting events.

FGDs also pointed out that during circumcision seasons, there were songs composed and sang. These songs were sung by young girls as members of the community danced to them. These songs ridiculed people for destruction of tabooed trees amongst other issues. Praise was also communicated through songs to encourage the imitates, praise bravery and remind them of the importance of the forest which was their residence until they healed.

The following is the text of a song that talks about the importance of the forest, its ownership and use:

Luhyia Version	**English translation**
Muliru ni kwa Mwami	The forest is God's
Muliru ni bulamu	the forest is life
Muliru ni kwa batata	the forest belongs to our fathers(ancestors)
Muliru ni kwa bana beru	The forest belongs to our children
Mihizi cheru cha indumi	Our cultural traditions and practices
Chiweranga mu muliru	are finished (accomplished) in the forest
Imbula ni bulamu	Rain is life
Khulererwanga na muliru	It is bought by the forest
Muliru ni bulamu	The forest is life
Muliru kukasiza bulimo	The forest makes (prepares) land
Muliru kukhuentsanga zinyasi	The forest gives us medicine (herbs)
Zinyasi zionia bulwale	The medicine cures sickness (diseases)
Mwami yakhana muliru	God gave the forest (created the forest)
Batata beru bamenya mmuliru	Our fathers (ancestors) live in the forest

Khulinde muliru kweru kuno	Let's take care (conserve) of our forest
Khulinde misala mumuliru	Lets take care of trees in the forest

The study's position that indicates the prominence of songs in communicating conservation of the forest by the Abaluhyia worldview finds relevance in Chari's (2016) claims stating that music has always been an integral component of human existence in Africa. In the view of Chari (2016), incorporating music in environmental conservation programs could be one way of resuscitating time-tested environmental conservation strategies that are embedded in people's everyday experience and culture. Chari's views present a reason for this study to fill in the gap of communicating conservation of Kakamega Forest by using songs which are an aspect of the indigenous Abaluhyia worldview. The captivating elements of Abaluhyia songs would enhance the understanding of the target audience as well as validate the understanding that worldview shapes how culture influences communication and cultural behaviour as well as interpreting events.

Consistent with the respondents' views on the use of songs as a medium to communicate conservation of the forest, Chari (2016) further opines that it is acknowledged that indigenous media can influence individual and social change since traditional forms of communication can be effective in dispelling the superstitious, archaic and unscientific perceptions that may act as obstacles to communication. In harmony with the respondents' opinion that songs touch the core of the community's worldview Chari (2016) posits that there is a link between communication and culture. The scholar opines that dialogical communication allows citizens to be actively involved in the identification of problems, the development of solutions and implementation of strategies to address

their problems. Thus, citizens are active agents rather than passive agents of change. The dialogical approach of indigenous media is more suited to communicating climate science issues because it incorporates local knowledge as opposed to mass media which alienates through the linear and patronizing approach.

5.2.2 Communicating conservation of the forest through Prohibitions

Focused group discussions revealed that conservation of the forest was communicated through prohibitions. Prohibitions were actions that forbade or restrained something or actions especially by law or authority. FGDs claimed that the law and authority was drawn from moral teachings whose origin was believed to have been God or the supernatural force. FGDs belief on the provision of law by God is backed by Tarusarira's (2013) claims that it is important for conservation strategies in Africa to acknowledge the influence of African religion. Indigenous religion plays a crucial role in the conservation and therein communication of the same among the Abaluhyia people. Therefore, Tarusasira's (2013) opinion that integrating religion can help in acquiring a less reductive and all-embracing approach is relevant to the indigenous Abaluhyia worldview communication strategies. The scholar recommends that all conservation communicators therefore, have to strive to integrate African religion from its earliest stages in which case integration refers to respect and acknowledgement of the religious beliefs of the people to ensure their communication programs are not contrary to the beliefs of the people.

FGDs explained that the prohibitions that were used to communicate conservation of the forest included taboos and sanctions which were reinforced through repetition. Focus group discussion participants elucidated that the taboos guided the conduct of the

community members towards proper use of forest resources and were critical in ensuring communication of the same. Taboos that surrounded certain trees, birds and animals in the forest are in themselves communication to the community about how they should conduct themselves in relation to exploitation of the forest materials.

An elder indicated that in the indigenous Abaluhyia worldview, taboos forbade people from accessing or harvesting forest resources anyhow. Only certain trees that were permitted by the community could be cut. Prohibitions communicated protection of a variety of tree species that were deemed special which resulted in to conservation and maintenance of the forest. FGDs agreed with the elder on the view that certain species of trees would never be used as firewood since it was believed that they would attract various calamities in the home. A leader of the CFA who was a key respondent stated that it was a taboo to use the *omuseno* tree as firewood since the smoke produced by it would lead to blindness. Blindness was considered a punishment and a curse for committing a taboo by using a prohibited tree as firewood. It was believed that the use of *omurembe* and *omutoto* as firewood would also result into curses and misfortunes. These misfortunes would be manifested by frequent quarrels and disagreements within the homestead. The foregoing situation went against *mulembe* which is translated as peace. The curses brought about to individuals who had used the omurembe or omutoto trees as firewood had ramifications on the larger community. It was also believed that the curses would linger within the lineage.

FGDs stated that destruction of certain species of trees that had medicinal value in the forest was prohibited. If one went against the prohibitions and felled medicinal trees then the consequences would include sanctions from participating in certain communal

activities and punishments meted. These sanctions which were enforced by the community's elders and medicine men were communication in themselves of the importance attached to these trees. An elder who was a key respondent pointed out that cutting of trees such as *Mukumu* (Fig tree) and *Musutsu* (Crotol mestachus) was prohibited since it was believed that such an action would lead to the death of an elder or an important member of the clan of the person who cut it. The key respondent clarified that the *Mukumu* tree had symbolic attachments within the community and even when it was brought down by natural forces such as old age, strong winds, lightning or destruction by insects, many rituals would be performed to avert the death of elders within the community. FGDs further divulged that if one dared to cut the *mukumu*, lightning would strike his home because he would have gone against the community's taboos. The prohibitions on the *Mukumu* tree allowed for the tree to live for many years and attain very large sizes in growth.

A leader of the CFA who was a key respondent explained that when a *murumba* tree was cut, it produced red sap which was the color of blood. The community equated the red colored sap to blood whose imagery was associated with sacrifices. The sight of blood communicated ritual practices and thus the red sap had a spiritual connotation and ritual implication. It was therefore absolutely important that the tree would only be cut when it was absolutely necessary and for one to cut this tree, he had to offer a cow, sheep or goat as a sacrifice dependent on the size of the *murumba* tree to be cut. According to the key respondent, the condition of giving a sacrifice of a domestic animal helped in communicating against the wanton destruction of the *murumba* tree. In case one cut such a tree without giving a sacrifice and then it was believed that death would occur within

his family and the community, and the cutter would be held responsible for that death. The key respondent affirmed that these prohibitions played a very important role in communicating preservation of the trees and subsequently conservation of Kakamega Forest was enhanced. Communication by taboos relates with the understanding that worldview shapes how culture influences communication and cultural behaviour as well as interpreting events.

A village elder intimated that it was believed that if certain trees are taken into a homestead in form of firewood or timber, the home would be "spoilt" "*inzu iononeshe*/*litaala liabiya/ liasasikha*". There are trees that are associated with frequent accidents and certain misfortunes within a homestead and therefore introducing them in the homestead was a taboo. For instance, if the *Mulundu* tree was used as firewood within a homestead, it would lead to very frequent quarrels and disagreements within the family of that homestead. It was believed that the *mulundu* tree had demons which would stalk the cutter to his home where they would cause trouble. Therefore, members of the community were prohibited from cutting the *Mulundu* since people in search of firewood would unknowingly collect from it and yet the consequences for using it within the homestead were believed to be so frightful. The traditional African community are averse to things that are associated with bad luck. The communication process being relayed through prohibitions on the consequences of destruction and conservation of the trees within the forest validates the understanding that worldview can unlock some of the deepest layers of a culture's ideology of the cosmos and its implications for one's life in the society. Worldview influences thinking, perceiving and doing.

In the Abaluhyia community, taboos surrounding conservation of the forest are considered to be actions that are prohibited for religious reasons and are meant to communicate direction and restraint of people's conduct with regards to a community's cultural worldview. Contravention of taboos then leads to retribution. The punishments are believed to be by supernatural beings such as God, ancestors and spirits. The vital place of taboos in relation to Abaluhyia community's spirituality is validated by Tarusarira (2013) in the explanation that since religion is integral to understanding the world and one's place in it, it affects decisions; for instance, whether to participate in any risky but potentially beneficial social action. The scholar argues that conservation and sustainable development cannot be separated, because development themes like land use, economic development and energy security are connected to conservation of the environment. The human development approach includes the spiritual dimension in life, in addition to low levels of material poverty and sustainable ability to meet future needs.

FGD respondents pointed out that before the introduction of hospitals, the community that lived around the forest entirely depended on the forest for their medicine and treatment. Knowledge about the richness of the forest in herbs was communicated orally as well as practically. The key respondent indicated that the forest is rich in herbal trees which in the recent past have been exploited by herbalists and now face extinction. The *murembe* tree was known to effectively heal people who had mumps. It was a taboo to cut the *murembe* since ancestral spirits would punish the cutter. Members of the community were prohibited from using wood from the *murembe* tree as firewood. According to the FGD, all one needed was to run around the *murembe* tree chanting *murembe mbonia, murembe mbonia* translated as "heal me murembe tree" and the

mumps would heal. The taboo that barred people from cutting this specific tree communicated the importance of ensuring the longevity of this species of trees.

FGDs explained that it was relayed and known in the community that *Lingubingu* was used to cure stomachaches while *lubino* was used to treat initiates wounds after they had been circumcised. Thus, it was a taboo to cut the *lubino* tree considering the importance that the Abaluhyia community attached to circumcision. FGDs emphasized that circumcision was considered a very important rite of passage and any medicine that supported the ritual was deemed very important as it mark transition and promoted the continuation of the community's progeny. Any tree that produced herbs relating to human sexuality and propagation of the community was protected and the *lubino* tree fell within that category was therefore considered to be very important. After women had given birth, herbs drawn from *lundua* tree were given to them for their healing and restoration from the birth process. The *lundua* tree also fostered posterity of the community because the wellness of mothers gave them more opportunities to give birth to more children. The communicated importance attached to the afore mentioned trees in relation to the propagation of the community have a foundation in the view that worldview is a basic interpretation schema of a culture's reality within communication implication.

In agreement with the study results, Gumo et al (2012) explain that totems, religious beliefs, sacred rites and taboos provide a structure for defining and communicating acceptable resource use. Their framework is connected to the spiritual world that sanctions these practices. Taken together, these indigenous traditional customs create an environmental balance, which ensures balanced use of animals and plants for food and

other purposes. The scholars opine that taboos direct the philosophy of resource utilization, conservation and environmental protection. To the understanding of the African, a place or a natural phenomenon is declared sacred, either because it is deemed suitable for religious worship or that the supernatural has abolished human beings from being in touch with this sacred phenomenon. Such sacred places or phenomena can never be abused and thus, the biodiversity of the surrounding eco-system becomes protected.

Taboos communicate by offering guidance that regulates the conduct of members of the community. This communication is believed to have emanated from the supreme being, gods and ancestors according to the Abaluhyia beliefs. These taboos spell out how members of the community relate with the environment. This is affirmed by Gumo et al (2012) who explain that taboos in African community influence relationships between human beings. The scholars demonstrate that taboos play the function of communicating natural conservation of environmental resources. By the use of taboos, conservation of natural environmental resource is ensured. The scholars look at how Africans have formulated a variety of taboos associated with plants, animals, snakes, sacred sites, religious specialists and birds. By employing the preceding taboos, some trees and places where trees are found were protected. Gumo et al examine how taboos were employed to promote ecological biodiversity, since animals residing in the ecological niches were conserved and were not disturbed. Therefore, in African spirituality, taboos are employed as techniques to natural environment resource conservation.

A village elder explicated that there were regulations that guided the harvesting of herbs from the forest. It emerged that whenever someone harvested herbs from a tree, it was his or her responsibility to place an egg shell next to the tree or at the spot if a root was

harvested which communicated to the next person to move to an alternative tree to harvest the herbs. The positioning of the egg shells by the root of the tree or adjacent to the trees was clear communication to the next person harvesting to move away to another herbal tree. According to the elder, these regulations allowed the trees to grow and heal from the harvesting thus ensuring continuity and posterity of the forest. The elder further stated that herbalists were also required to administer treatment on the harvested plant. This was done by application of cow dung or chicken waste for the restoration of the plant and to allow for future use. Yet again, if one found cow dung or chicken waste besides a tree or put on the root, it was clear communication that the tree should be allowed to rejuvenate. Thus, regulations and prohibitions on the system of harvesting and ensuring the health of herbal trees is justified in the notion which says that worldview awakens cultural obligations and gives guidelines which result in to expected behaviour.

A leader of the CFA revealed that it was a taboo for women who were menstruating to harvest medicinal plants. It was believed that medicine obtained by such women would lose its value as communicated by the elderly custodians of the tradition. Women were considered ritually unclean during menstruation, thus prohibiting them from harvesting herbs ensured that the community was not contaminated with the uncleanliness. Contamination of the community had a heavy cost in terms of cleansing which involved the loss of domestic animals. Children were also prohibited from harvesting herbs, since they were young and they could easily make mistakes. It was prohibited to harvest medicine from young trees, in order for them to be allowed to grow to maturity. Harvesting of medicine was often limited to leaves, branches, the bark and roots of mature trees. The key respondent drew attention to the fact that, taboos were used to

communicate protection of the forest and the habitation of the animals and birds that lived within the forest. In the bid to protect the forest, collection of firewood was restricted to dead wood, shrubs and cutting of the branches of certain trees. These taboos have slowly been lost and are not practiced today. The loss of taboos has led to aggressive search and harvesting of herbs and resulted in to extinction of some trees. The communication by taboos on the prescription for protection and preservation of herbal trees has a basis in the understanding that worldview shapes how culture influences communication and cultural behaviour as well as interpreting events.

Various CFA leaders were in agreement with the view taboos communicated to members of the community not to interfere with sacred spaces within the forest. These respondents indicated that sacred grooves had shrines for worship and spaces for performing rituals. Sacred grooves provided spaces for ritual cleansing to the members of the community, administration of oaths as well as spaces for secluding initiation candidates. According to the respondents, sacred grooves had trees that were crucial for administration of rituals and they needed to be protected for future purposes. It was a taboo to destroy trees within sacred grooves. Most often, sacred grooves had a river or stream passing through the them, and it promoted the thriving of the plants therein. Thus, prohibitions from interfering with such spaces communicated conservation, protection and sustainability for posterity of the forest. Violators of taboos would face consequences such as fines which would include foodstuff or an animal for sacrifice. Punishment would also be meted to violators of the prohibitions in the community.

Focus group discussions revealed that most birds which lived in the forest are not eaten. Various FGD participants indicated that, community members were encouraged to keep

domestic birds such as chicken, ducks, geese and turkeys for their food. Members of the community were only allowed to eat guinea fowls (*amakhanga*) and quails (*tsisindu*) from the forest. The taboos forbidding the eating of birds such as *Likhungu* (great blue turaco), *Makhule* (Spotted Eagle owl), *ling'ang'a* (Caskit hornbill), *Indits*u (African Crown Eagle) and *inang'ofu* communicated the protection of the birds. Respondents claimed that eating of the birds that had prohibitions would lead to misfortunes of even death. The respondents stated that birds play a role in conservation of the forest in some ways. They explained that birds ate insect pests thus checking on the destruction caused by insect pests. Birds also provided manure for the wellbeing of the of trees in their waste. Dispersion of seeds to various parts of the forest was done through the droppings of the birds thus enhancing and maintain the ecosystem of the forest. Seeds which stick on birds' feathers are also dispersed while they fly around the forest. Hence birds are an agent of conserving the Kakamega Forest. The prohibitions on utilization and lack of it on various materials of the forest communicated their conservation.

The study results are affirmed by Gumo et al (2012), in their view that taboo systems are at the center of life as a whole and major conservation efforts and the control of resources are influenced by religious beliefs and spirituality. These scholars uphold that African spiritualism creates respect and reverence for forests, rocks, mountains and rivers. It also gives an explanation as to why certain places are revered and certain activities tabooed. Chari (2016) expounds that it was a taboo to start a fire in the forest as it was tantamount to murder. In the scholar's view, lighting fires could destroy the flora and fauna in the forest. Thus, environmental conservation practices were intricately interwoven with the traditional African culture.

Tarusarira (2017) acknowledges that prohibitions express how Africans structured their relationship with the environment and fellow human beings. In Tarusarira's view, nature and the environment are part and parcel of life, or one with the people, because there is no separation. In the same vein, natural phenomena such as forests, rocks and bodies of water are respected and revered, acting as vehicles to the spiritual world and having both visible and invisible powers. The scholar contends that living in harmony with the natural world translates to living in harmony with the spiritual world since they are interconnected and co-dependent. Therefore, to destroy nature is to destroy oneself. The basic elements of African worldview are basically belief in God and/or gods, belief in spirits and belief in cultic prohibitions such as taboos and moral violations.

It is evidently acknowledged that prohibitions and taboos contribute to communicating conservation of the forest among African communities. The way the taboos work in communicating conservation endorses the view that worldview can unlock some of the deepest layers of a culture's ideology of the cosmos. Taboos and prohibitions also communicate cultural worldview's implications for life.

5.2.3 Communicating conservation of the Forest through wise sayings

The study revealed that wise sayings such as proverbs or aphorisms were used in communicating conservation of the forest. According to a community elder, these sayings are an integral part of communicating which conveyed daily life lessons and processes. Interviews revealed that wise sayings communicated conservation of the forest through strong imagery and they also expressed the moral attitude of approving or disapproving certain actions with regards to forest materials. Abaluhyia proverbs being products of the

experience of the wise and older people in the community, are memorable and communicate messages of caution, advise and warning with an element of fear which drew the people away from activities that lead to destruction of the forest. Interview respondents indicated that proverbs push people to behave in a certain desired way. The respondent's views are ratified by the view that cultural worldview and communication represent a way to improve understanding culture and enables ability to speak to the heart of diversity of tension.

Focus Group Discussion participants identified some sayings which were used to communicate conservation of the forest. *Muliru ni mwana weru* which literally means that the forest is our child is a proverb that was given to edify the community's close ties with the forest. Respondents explained the forest's value is compared with that of a child and that just as one would care for their child, so should care be extended to the forest. This saying is informed by the benefits that people drew from the forest. *Muliru yuko koo khukulinde* which is translated to mean; this forest my kinsmen, may we protect it. The existence of this saying which implores people to protect the forest is evidence of communication that extoled conservation of the forest. *Ininga yahale ibotsa niyileshera* is translated to mean that a 'pigeon from far eats sparingly.' This saying was meant to caution the community who live adjacent to the forest that it is those nearest to the forest who can destroy the forest more that those who live far away from it.

FGD indicated that there are proverbs that emphasized the forest's role as a haven of food. *Muliru okulila* is a proverb which means that the forest is a source of our food, therefore people are extorted to preserve and protect it from destruction. *Omusala kukhulira khukundi* means that a tree propagates from another tree. This saying was

applied in prohibiting cutting certain species of trees such as the (*olusiola*) ciala which is known to continue propagating once one is planted. Propagation ensured continued forest life and cover. *Muliru ni bulamu* translated to mean that the forest is life. The Abaluhyia people equated the forest continuity to life. The communication within this proverb emphasized how important the forest was perceived in relation to human life. *Khukhutsa khwo Muliru ni mwisho kwo bulamu* which means the death of the forest is the end of life gives a picture of how crucial the forest was considered as a source of life in the Abaluhya worldview. Communicating conservation using wise sayings validates the notion that worldview shapes how culture influences communication and cultural behavior as well as interpreting event.

Gumo et al (2012) assert that for conceptualization of communication to be attained, it should be shared among all people who belong to a community. They affirm that communication is a social setting that is important in understanding the dynamics of people's culture and religiosity. Wise sayings are shared in indigenous communities and they also belong to the social community. The shared values have the potential to influence appropriate behaviour among people who have the same perception of things.

5.2.4 Communicating conservation of the forest using folktales

Focused group discussions revealed that folktales were used to communicate conservation of the forest. Folktales had moral teachings and lessons which were meant to lead the people away from wanton destruction of the forest. The folktales contained aspects such as tests and warnings on the consequences of destroying forest materials.

Folktales contained humour which was used to attract the attention of the listeners and made them memorable.

Key respondents drew attention to the fact that the people who live near the forest have always used the forest as a source of their livelihood. They revealed that monkeys (*Ikhondo*) were initially used as food. However, at some point, these monkeys were slowly becoming extinct, thus, prohibitions were put in place in order to stop them from becoming extinct. In order to enforce this prohibition, children were told in folktales about how a certain person killed a monkey, then when he grew up, his child was also killed. It meant that one who killed a monkey attracted a curse in their lineage in which their children would also be killed because of this action. This prohibition was meant to stop the forest adjacent community from wanton killing of monkeys and the fear to lose one's child enforced the prohibition. However, with the erosion of traditional practices and difficult economic times, poaching of monkeys is on the rise.

It also emerged from the study that the forest adjacent community appreciated the forest as the spring from which all the water came from. According to the key respondent, through folklore, members of the community learnt that the forest was the origin of rivers and streams. This lesson that emanated from folktales formed beliefs that informed generations having been passed down through oral tradition. Whereas the community may not have had a scientific understanding of that belief, it resonates well with the scientific approach that explains that forests are catchments that supply a high population with water for domestic, agricultural and ecological needs. Therefore, through folklore, the importance attached to the forest as a source of water and the need to conserve the forest was communicated to members of the community.

5.2.5 Communicating conservation of the forest using cultural ceremonies

An elder in the community who was a key respondent agreed that indigenous Abaluhyia Cultural ceremonies offered platforms to educate the indigenous Abaluhya about how important the forests were to the community for posterity. Circumcision was one such ceremony as circumcised initiates from some Abaluhyia ethnic groups lived in the forest until they healed. The initiates lived in the forest since circumcision was a rite of passage whose characteristic was seclusion from public interaction. The stay in the forest provided a safe space for initiates to experience the sacred and secret elements of circumcision. While the initiates were living in the forest waiting for complete healing, they were taught about conservation and preservation of the forest for the future initiates as well as for livelihood. In the same breadth, initiates were given teachings that ushered them into manhood and these were considered male secrets and values. It was also to protect them from ritual contamination that would be caused by interaction with females in the community. The respondents stated that, the sacredness of the forest and its role as a home for initiates was treasured. The cultural ceremonies having been an integral part of life of the people was treated with seriousness and the communication shared would be held with equal seriousness. Thus, the forest's significance called for its conservation in the strictest sense and communication of the same was espoused in their worldview. The significance of conserving the forest finds relevance in the tenet that states that worldview revolves around personal identity and group belonging which awakens cultural obligations and gives guidelines which result in to expected behaviour.

The study results are in concurrence with Gumo et al (2012) in their observation that communication is deeply rooted in human behaviours and structures of African society

and that it is difficult to think of social or religious behavioral events that lack communication. These scholars ratify that to Africans conservation values and practices do not come from law enforcement but from both spiritual and social responsibility. This responsibility is drawn from the desire to survive in an attempt to evade punishment from the spiritual world.

Chanza (2016) emphasizes that indigenous knowledge as a concept, defines knowledge that is location specific, acquired in situ, through progressive study of the community's interaction with the environment and orally transmitted both within and between generations. Through traditional resources management regimes, indigenous knowledge can be used to translate climate governance into practice. Chari (2016) adds that proverbs, song, dance, drama and street theatre are modes of communication that are embedded in the social, cultural and psychological fabric of the common man. The scholar adds that these modes of communication resonate with the everyday experience of the audiences in Africa. The scholar points out that the immediacy, impersonality and diversity are some of the prized attributes that make indigenous media more appropriate for disseminating climate change issues particularly in regions characterized by high levels of illiteracy and linguistic diversity.

Tarusarira (2013) acknowledges the finding of the study by explaining that nature and environment are part and parcel of life, or one with the people, because there is no separation. Therefore, to destroy nature and environment is to destroy oneself. The author suggests that living in harmony with the natural world translates to living in harmony with the spiritual world as they are interconnected and co-dependent. Thus, natural phenomena such as plants, rocks and bodies of water are respected and revered, acting as

vehicles to the spiritual world, and having both visible and invisible powers. This automatically ensures nature and the environment are protected as well as stifling global warming, thus paving way for sustainable development. Tarusarira affirms that non-living elements, such as rain are deemed sacred and as powerful spirits as they are needed to sustain life, thus at the foundation of the African cosmovism lies a deep reverence and respect for the natural world.

5.3 Chapter Summary

This chapter discussed the indigenous Abaluhyia worldview's approaches in communicating conservation of Kakamega Forest. In addressing the study's objective, the chapter looked at how the indigenous Abaluhyia worldview communicates conservation of Kakamega Forest. The study established that indigenous Abaluhyia worldview has identifiable ways of communicating conservation of the forest. The communication is a fusion of many practices blended with communication systems. The study also established that indigenous Abaluhya worldview communicate through songs, prohibitions, wise sayings, folktales and cultural ceremonies. These approaches have the potential to work in collaboration to communicate conservation of Kakamega Forest. The approaches also offer a platform to communicate.

CHAPTER SIX

INDIGENOUS ABALUHYIA WORLDVIEW'S APPROACHES OF CONSERVING KAKAMEGA FOREST

6.0 Introduction

The chapter sought to establish how the indigenous Abaluhyia worldview was used to conserve Kakamega Forest. To do this, the chapter examined indigenous Abaluhyia Worldview's concept of conservation of Kakamega Forest and its importance. The study also sought to establish the extent of deforestation of Kakamega Forest, activities that cause destruction of Kakamega Forest and the relationship between conservation of the Forest and climate change. It was important to identify the reasons that lead people to engage in deforestation of Kakamega Forest, the effects of Deforestation on climate change in Kakamega Forest and the challenges of conservation of Kakamega Forest in order to justify communicating climate change that is related to conservation of Kakamega Forest.

6.1 Indigenous Abaluhya practices that enhance conservation of Kakamega Forest

Prior to identification of the indigenous Abaluhyia practices of conservation of the forest, it was imperative that the study finds out from the respondents whether the concept of conservation of the forest existed among the indigenous Abaluhyia people. This was essential for the study to examine knowledge and practices that had a basis and potential to be applied in tackling the conservation issue. The study revealed that 183 interview respondents representing (91.4%) acknowledged that the Abaluhyia had regulated ways of conserving the forest while 17 respondents representing (8.6%) did not think that such a concept existed. It emerged from the study that majority of the respondents who

acknowledged that the Abaluhyia people had ways of conserving the forest held that opinion based on the fact that the forest has existed for generations in a healthy state and still exists today because some care was accorded to it though with challenges of wanton destruction today. The respondents revealed that preservation and conservation of Kakamega Forest was considered and occupied an important space in the indigenous Abaluhyia worldview. Conservation as a way of ensuring friendliness to forest resources was given priority owing to the importance the community attached to the forest. To the Abaluhyia community who live adjacent to the forest, the forest was a sacred space on which the community depended for their livelihoods and cultural activities.

Interview that were held between June 2022 and February 2023 revealed that Abaluhyia people who live adjacent to the forest collectively promoted conservation of medicinal trees, special trees that were used for construction of houses and the trees that were found in sacred grooves and worship spaces. A community elder intimated that conservation was a collective venture which was founded on the community's culture and was managed by cultural institutions and rules that were passed on by oral tradition through generations. The indigenous Abaluhyia cultural beliefs of the community that lives adjacent to the forest and the forest are intertwined and therefore inseparable.

Interview respondents pointed out that indigenous Abaluhyia recognize and appreciate that the forest has a spiritual dimension attached to it, thus, the people tended to nurture and protect it. The indigenous Abaluhyia people valued their encounter and experiences of the forest which formed their worldview about it. An elder who was a key respondent opined that, indigenous Abaluhyia culture directed how members of the community related with the forest and its resources consequently allowing the forest to regenerate

and continue to provide its numerous benefits to the community. The understanding of the community who live adjacent to the forest that it is critical to care for the forest since it is a source of livelihood and subsistence are consistent with the theory that states that worldview awakens cultural obligations and gives guidelines which results in to expected behaviour.

Consistent with the respondents' views that indigenous Abaluhyia worldview has beliefs and practices of conserving the forest, Ngara and Mangizvo (2013) observe that there is a growing agreement that traditional establishments provide considerable protection of ecosystems and biodiversity without governmental juridical restrictions. These scholars thus recommend that it is therefore plausible that indigenous customs should be included in conservation and management strategies as they have tacitly proved effective. In sacred areas, indigenous people desist from felling down trees, killing animals, harvesting useful plants within such sites or even entering or passing by, believing that the spirits or deities would be offended and bring harm to the community. The practical reasons for conserving biodiversity include benefits related to food, medicine and other environmental materials supplied by natural ecosystems.

Primary data from interviews held in August 2022 revealed that rules and regulations were conveyed in form of taboos and prohibitions. Taboos and all the prohibitions were born out of people's lived experiences and perception which in turn informed their worldview. Interview responses confirmed that taboos guided the nexus between the indigenous Abaluhya community and the forest. Taboos were used as a guide to both conservation and exploitation of forest materials. In a bid to maintain and conserve the forest, felling of certain trees was prohibited. The indigenous Abaluhyia people

prohibited women from cutting any tree as only men were permitted to cut trees. Such prohibitions went a long way in ensuring conservation of the forest. The key respondent indicated that it was prohibited to cut medicinal trees since they portend life for the community. There were certain trees that could only be cut by designated people in the community, such as clan elders or medicine men. In the indigenous Abaluhyia thought, trees signified livelihood, life and economics.

According to Diawuo and Issifu (2015), the endorsement of taboos in the protection of Kakamega forest is based on the understanding that taboos serve as informal social regulations governing human conduct. Taboos are restrictions or prohibitions that arise from societal norms or strong emotional aversions, and are regarded as sacrosanct and forbidden by individuals. According to these experts, the imposition of limits and regulations through totems and taboos significantly contributes to the preservation of natural resources and the ecosystem. The conventional belief in the spiritual attributes and utilizations of natural resources exerts influence on the preservation and enhancement of the natural environment throughout numerous rural communities.

The use of taboos by the Abaluhyia community as prohibitions to destruction of Kakamega Forest compares well with the Shona case for whom it is taboo for community members to indiscriminately cut down trees as elucidated by Ngara and Mangizvo (2013). This is because the Shona believe that huge trees are homes to spirits. Similar to the Abaluhyia practice of punishing those who wrongfully cut trees from the forest, the Shona people had fines imposed for cutting prohibited trees include paying one whole cattle herd to the chief’s court. Their songs epitomize the cultural importance of tree species. According to popular belief, expansive trees and hills hold significant

importance as sacred burial grounds for rain priests within the Shona community. As a customary practice, the Shona people demonstrate their reverence for the spirits by diligently tending to the surrounding vegetation of these rain shrines. Consequently, the resulting grooves left behind serve as enduring symbols of sanctity and cultural tradition. The indigenous people adhere to cultural customs and beliefs that dictate the preservation of sacred trees on their hills, as guided by their indigenous knowledge systems. As a result, their acquired knowledge significantly contributes not only to the mitigation of soil erosion but also to the facilitation of the natural process of forest regeneration.

The Indigenous Abaluhyia community's deep respect for the forest and their belief that it serves as a dwelling place for spirits and ancestors aligns with the findings of Obasola (2018), who noted that Africans possess a profound awareness of their connection to their immediate surroundings. This awareness is rooted in the understanding that nature and the environment possess a spiritual essence. Consequently, Africans are inclined to foster and safeguard the natural world due to their recognition of the spiritual presence within it. The author posits that it is necessary for individuals within the society to adopt a cultural practice of internal transformation in order to foster the betterment of the community. The author posits that the foundation of conservation should be based on the moral value of individuals, rather than solely on economic benefits. Furthermore, the author suggests that addressing the challenges of conservation and climate change requires a comprehensive understanding of environmental requirements and the responsible stewardship of natural resources, which in turn can foster holistic development.

Focus Group Discussions revealed that in a bid to conserve Kakamega forest, prohibitions were put on felling and use of certain trees. Some of the trees identified as

prohibited from being felled included shikhuma also known as Fagara in the scientific language, Mukumu, mulundu and musutsu (crotol mestachus). Indigenous Abaluhyia people acknowledged that the forest provided security for the community in terms of employment, nutrition as well as spiritual significance. Thus, the trees that had restrictions on their felling largely ensured conservation of the forest. The Abaluhyia were also aware that conservation of the forest ensured protection of animals and birds that depended on the forest for their existence. However, conservation has since been neglected as the forest adjacent community become a threat to the forest.

According to the respondents, the significance of the forest cannot be emphasized enough, and the involvement of indigenous practices in its conservation is crucial. This viewpoint is supported by Diawuo and Issifu (2015), who concur that traditional African societies adhere to environmental ethics that effectively govern their interactions with the natural environment. These researchers argue that African traditional religion and cultural practices throughout various African communities demonstrate a strong commitment to environmental preservation and sustainability. They assert that these activities provide significant contributions to the sustainable management and conservation of natural resources. Taboos and totems serve as fundamental indigenous practices for the preservation of biodiversity in Ghana, mirroring their significance in the conservation efforts of Kakamega Forest. Diawuo and Issifu (2015) highlight the presence of social taboos in all cultures within the country, emphasizing their role as informal institutions that shape human behavior through traditional and religiously dictated norms or taboo systems. Taboos and totems hold significant cultural value within human cultures,

functioning as symbolic artifacts that commemorate ancestral heritage and foster the preservation of natural resources throughout history.

Key respondents observed that the indigenous Abaluhyia people have for a long time used their traditional knowledge of the forest to earn a livelihood while at the same time putting efforts to ensure its preservation. The forest being the place where the forest adjacent community drew their food, wood fuel, medicine, grass for thatching their huts, grazed their livestock and also sites for worship, they recognized the importance of ensuring its continuity. Interview respondents indicated that wanton destruction of the forest was prohibited in the indigenous Abaluhyia tradition. This was actualized through rules and regulations which prescribed how forest resources were to be used.

In conformity with the study results that indicate that indigenous Abaluhyia have used their traditional knowledge to earn a livelihood, Obasola (2013) affirms that the vast majority of the human species still lives within a worldview dominated by the need to find solutions to the environmental crisis. There is recognition that the earth is in danger from human activity and use and change need to be made in order to sustain life on the earth. Obasola (2013) decries the fact that the capacity of the earth to support human and other life has been significantly diminished. The earth continues to lose kilometers of forest and the river basins continue to become smaller from the sediment load from soil erosion. Thus, based on the sentiments of the respondents and the scholar, it is imperative that conservation of the forest is of essence and should be promoted.

Interviews with majority of the key respondents converged on the view that trees found in sacred grooves where worship took place were not cut at all. The preservation and protection of sacred grooves was ensured by taboos. Trees in these spaces were taken

care of and maintained by spiritual leaders and medicine men for the vitality of the sacred grooves. Worship spaces and shrines were protected and preserved for their religious significance in the community. This was informed by the belief among the Abaluhyia community that these spaces were homes of gods and the community's ancestors. The gods and ancestors were believed to be the custodians of the community's existence. The community believed that anyone who dared cut the trees within these sacred spaces ran mad. The conservation strategies presented by the respondents find a basis on the notion that worldview revolves around group identity and belonging which gives guidelines that awaken cultural obligations which result into expected behavior.

Gumo et al (2012) support the study's acknowledgement of the necessity to preserve the forest as a means of sustaining the local community's lives. The authors state that traditional authorities designated specific areas within the forest for sustainable resource utilization and the protection of crucial biodiversity. It is widely acknowledged by scholars that the management, defense, and preservation of such areas are collective responsibilities that fall upon the entire community. The authors note that the primary motivation behind safeguarding these locations stemmed from apprehensions surrounding the potential disturbance of deceased individuals.

Primary data from key respondents indicated that harvesting of medicine/herbs was carefully done by cutting branches and carefully digging out medicinal roots without destroying the trees. That regulation served the purpose of conserving medicinal trees and to a large extent conserved the forest. Planting of indigenous and medicinal trees was encouraged for replenishing, maintenance and continuity. Prohibition from using these trees as firewood or for construction of houses ensured preservation of the forest. Bee

keeping was practiced for preservation of the forest. Honey was used for both food and medicinal purposes. Thus, trees that had honey combs could not be cut anyhow for fear of being stung by the bees. Penalties for those who destroyed forests.

The community elder further explained that the use of herbal medicine was practiced and is still practiced today by the forest adjacent Abaluhyia community. The knowledge about the medicinal/herbal plants was passed through generations by oral tradition and apprenticeship. The key respondent said that there were certain medicinal trees that were used to make toothbrushes. These were used as chewing sticks for cleaning teeth as well as ensuring oral health. The key respondent added that the people who used chewing sticks to brush their teeth did not experience problems with the teeth. Thus, all the trees that had any medicinal value had to be preserved for future usage.

A leader of the CFA who was a key respondent conveyed the view that the use of totems protected some trees and animals from destruction. Totems bound people together in their belief that they shared one ancestry, lineage and were a family. They explained that totems comprised of animals, trees and even birds which were barred from being killed or cut or destroyed because of their religious symbolism. According to the key respondent, the indigenous Abaluhyia believed that the survival of the community's clans depended on the totems. Totems promoted an understanding of a common obligation towards each other and the community at large. Totems signified and exemplified the living dead, spirits and the clan and were a symbol of the sacred. There were also totemic spaces in which special ceremonies were conducted and trees therein were not touched given their religious value. Thus, the prohibitions surrounding the totems safeguarded the forest at the same time nurturing its regeneration.

An elder who was a key respondent noted that rivers within the forest were highly valued in the indigenous Abaluhyia worldview. Some sites alongside rivers were used for religious and ritual activities such as cleansing murderers and purification of widows, initiation, sacrifices, dedication and covenants. Gumo et al (2012) confirm that in most cases setting aside of protected forest sites were intended to protect watersheds, fragile ecosystems, as well as plants and animals that are important to the local community. They explain that traditional communities are titleholders of such areas, and exercise general administrative functions over them. A key respondent intimated that it was prohibited for members of the community to frequently visit such sites as they were considered sacred. It was also prohibited for members to cut the trees in such spaces for any kind of use. The control in access to these sites facilitated conservation of the forest. The attitude of the indigenous Abaluhyia people towards the forest were shaped by their worldview. These attitudes find relevance in the notion that worldview can unlock some of a culture's ideology of the cosmos and its implications for one's life.

The perspectives presented in the study about the utilization of totems for forest preservation, as well as the significance attributed to rivers, align with the assertions made by Ikuenobe (2014) regarding the African perspective on nature. According to Ikuenobe, Africans perceive nature as an intrinsic entity that warrants reverence for its inherent worth. The reason for its sacred and divine nature lies in its alignment with humanity, as well as its intrinsic moral value derived from its participation in the cosmic and ontological order, alongside its moral and religious superiority. According to Ikuenobe (2014), the moral stance on the environment necessitates the cultivation of a

sense of justice, an understanding of what is morally correct, and recognition of the responsibilities that humans are obligated to fulfill.

Interviews revealed that religious specialists and medicine men were tasked with the role of protecting and promoting conservation of certain natural vegetation in the forest. These specialists were believed to have certain knowledge about these trees as well as power bestowed upon them by ancestors to conserve vegetation. These specialists gave direction on the strategies to be employed for conservation of the forest which had to be followed in order to avert curses and misfortunes.

The respondent's views on the reverence and admiration shown towards the conservation of medicinal trees align with the observations made by Ikuenobe (2014) regarding the manifestation of traditional African perspectives on ontology and cosmology through traditional medicinal practices and healing methods. African populations heavily depend on the utilization of herbal remedies and botanical derivatives for medicinal purposes. Consequently, individuals recognized the importance of demonstrating reverence towards the natural world and safeguarding diverse botanical specimens that serve as sources of roots, leaves, barks, and other natural substances utilized in traditional medicinal practices. Africans have the belief that the occurrence of illness can be attributed, at least partially, to an imbalance in an individual's alignment with the cosmic order of nature.

Distinctly, the indigenous Abaluhyia people have had cultural beliefs, thoughts, practices and views on the role of the forest on their lives. These have informed their worldview on conservation of the forest as well as the knowledge that is passed on to their generation. The study confirms that these beliefs, thoughts and practices remain relevant today and can be utilized in the important mission of conserving Kakamega Forest.

6.2 Importance of Conservation of Kakamega Forest

In view of the crisis caused by the wanton destruction of Kakamega Forest, it was imperative to find out from the study participants their thoughts about the importance of conservation of the forest. The crisis that is a result destruction of Kakamega forest has led to climate change in the region. The indigenous Abaluhyia people have practiced conservation of the forest for very many years, yet the rate of destruction is alarming and has led to questioning their value of the forest.

The Regional ecosystem conservator elucidated that it is important to conserve the forest because it helps stabilize climate by regulating ecosystems, protecting diversity, supporting livelihoods and absorbing carbon dioxide that is released from burning fossil fuels. The REC explained that trees in forest landscapes absorb and store carbon dioxide emissions that when not absorbed lead to global warming. Trees also release oxygen as a byproduct which makes a significant contribution in mitigating climate change.

In the same accord, questionnaire responses reported that: “Water vapor rising from the forest feeds moisture-laden clouds causing convection. These effects then accelerate the formation of rain which falls in the soil and gets taken up all over again for the process to be repeated. Conserved forests ensure purification of water in the streams and wells by filtering out heavy metals and nitrates from water through roots of the trees before it makes its way through to the water table.” The respondents indicated that, most of the safe drinking water comes from water basins which begin in forests.

Study results from questionnaires administered to forest officers indicated that increased forest cover contributes to increased rainfall as a result of evaporation, it also helps

moderate climate. A forester reported that “Forest conservation aims at increasing forest cover which then reduces excess carbon in the atmosphere and promotes the emission of oxygen in to the atmosphere thus contributing to the balancing of the local and global temperature.” Respondents also pointed out that deforestation and forest degradation play a role in global and local climate change, and reciprocally, deforestation is indirectly affected by climate change. It emerged from questionnaire respondents that deforestation is a major driver of climate change.

The County Ecosystem Conservator drew attention to the fact that forests are also affected by climate change associated disturbances such as flooding, droughts, wildfires and insects which are the result of their destruction. According to this key respondent, forest vegetation patterns are heavily dependent on climate and human influence on the distribution, structure and ecology of the forest. When the forest vegetation is cleared, less rainfall is realized and delayed and therefore less water is available at people’s disposal. In the key respondent’s view, conservation of the forest is the topmost climate change solution.

Focus group discussions affirmed that in the understanding of the indigenous Abaluhyia worldview, forests portend life and are a resource which is sacred. The respondents indicated that indigenous people understand the importance of Kakamega Forest as a source of livelihood. The forest provides numerous essential services such as food, medicine, wood for timber and fuel, climate regulation and recreation. The forest also harbors cultural resources that are used for conducting the community’s rituals and practices such as initiation (mainly circumcision), healing and worship. Therefore, Kakamega forest needs to be conserved as a matter of priority.

Interviews revealed that the forest is believed to be a home for the gods and spirits; therefore, it was held in high regard and is sacred. Owing to its sacredness, its conservation and protection was a primary responsibility. Interview respondents contented that forests harbor medicinal trees and herbs and are also a source for certain fruits that are only found in the forest. Respondents also indicated that forests are sites for traditional ceremonies such as circumcision, in which case the forest is used as residence for initiates while they recover. During their stay in the forest, they are taught about their traditional roles in the community. Respondents also indicated that forests provide spaces for worship and are a home to animals. The indigenous Abaluhyia community who live adjacent to the forest need to make conservation of the forest a way of life.

The perspectives of the participants regarding the forest being perceived as a dwelling place for deities and supernatural beings, resulting in its reverence and sanctity, are comparable to numerous rural communities in Ghana. These communities continue to be primarily influenced by traditional belief systems, which shape their attitudes and behaviors towards the utilization of natural resources, as emphasized by Diawuo and Issifu (2015). According to scholarly sources, the promotion of traditional belief systems has been observed in regions where specific animals and other natural components hold sacred significance. The preservation of trees and other natural resources has been found to be a key focus of African traditional belief systems, which can be seen as informal institutions. These researchers, in alignment with the findings of this study, express their disapproval of the lack of respect, both in theory and practice, given to traditional belief systems despite their significant importance in the conservation of biodiversity and the environment. Modernization perceives the belief systems, worship, and practices of

African Traditional Religion as being detrimental to the development, harmony, peace, and solidarity of communities.

The study results about the Abaluhyia reverence and awareness of their environment find relevance in Obasola's (2013) views, which state that indigenous African populations possess an awareness and comprehension of their role within the local ecosystem, while acknowledging the spiritual significance attributed to nature or the environment. The influence of religious traditions and beliefs on human values and behaviors has historically played a significant role in fostering a commitment to forest conservation. Consequently, these religious traditions and beliefs offer a potential avenue for cultivating favorable environmental attitudes in the future. The significance of forest conservation is supported by both the perspectives of the respondents and Obasola. This is substantiated by the belief that understanding a culture's worldview can provide insights into its fundamental beliefs about the universe and the impact it has on individuals' lives. The individual's worldview exerts a significant impact on their cognitive processes, behavioral patterns, and perceptual abilities.

Hence, it is clear that both the experts and the indigenous Abaluhyia who live adjacent to the forest agree on the importance of conserving Kakamega Forest. It is also confrmed that the Abaluhyia community have developed a good understanding of how to preserve the forest. Therefore, conservation of the forest using the indigenous Abaluhyia worldview would go a long way in enhancing and building up the forest.

The views of Diawuo and Issifu (2015) acknowledge the significance of conserving Kakamega Forest and recognize the historical presence of forest preservation efforts within the Abaluhyia community. They further highlight the indigenous knowledge

systems pertaining to natural resource management in Africa, which have evolved over time to address diverse challenges related to survival. For many years, Africans have engaged in the conservation and management of their natural environments. According to the scholars' interpretations, individuals who mishandled the natural environment would not escape divine retribution. The consequences and penalties imposed on those who mishandled their natural resources were of a severe nature, leading community members to exercise caution and mindfulness in their utilization of the available resources. In ancient societies, forests, bodies of water, mountains, and the diverse array of animal species inhabiting these natural environments were regarded as sacred entities and were treated with reverence, avoiding any form of exploitation or abuse. The systematic exploitation of natural resources was facilitated by the influence of spirit mediums and the advice provided by traditional organizations.

The Abaluhyia people attribute spiritual significance to the forest, as they believe that supernatural entities reside within it. This notion aligns with Gumo et al's (2012) recognition that Africans employ their faith as a means of preserving their various ecosystems. According to the writers, African spiritualism fosters a sense of reverence towards various elements of nature, including animals, woods, rocks, mountains, and rivers. Furthermore, it provides a rationale for the veneration of specific locations and the prohibition of certain behaviors. Scholars have noted that the development of conservation values stems from the recognition that natural resources are beyond the control, invention, or creation of ordinary humans. As a result, individuals of African descent refrain from interfering with phenomena or systems that they lack comprehension of or authority over. This phenomenon results in the cultivation of reverence towards the

inherent value and preservation of natural environmental resources. According to scholarly discourse, within the context of African religion, there exists an inherent and indissoluble connection between people and the entirety of God's creation. This connection is rooted in the shared derivation of life from God, who is universally recognized as the ultimate source of all existence. The environment encompasses animals, humans, plants, and natural occurrences, all of which collectively contribute to the provision of resources necessary for survival.

6.3 The Relationship between conservation of the Forest and climate change

In the face of climate change and the challenges that come with it and in the wake of outcries about destruction of Kakamega Forest, climate change remains a thorny issue. Indigenous communities therefore need to observe regulations that ensure conservation of forests and mitigation of climate change. However, the inadvertent destruction of the forest begs the question of whether local communities relate the destruction of the forest to the changing climate patterns. The study thus sought to find out from participants of the study whether in their view, conservation of the forest was in any way related to climate change.

The Regional Ecosystem Conservator who was a key respondent explained that there is an interdependent relationship between Kakamega Forest and climate change. According to the key respondent, any impacts on the forest affect the climate, and any changes in the climate affect the forest. According to this respondent, the forest is a vital storehouse for carbon dioxide. The forest helps clean the air by absorbing greenhouse gases such as carbon dioxide from the atmosphere. The key respondent further stated that the forest

ensures clean water, reduces soil erosion and provides habitats to plants and animals that live therein. The key respondent explained that if it were not for the forest, so much carbon would remain in the atmosphere which would result in to extreme weather events such as drought, precipitation and heat waves.

Foresters contended that proper conservation and management of Kakamega Forest is an important strategy in the efforts to address climate change. Well conserved healthy forests are a carbon sink which ensures a cool environment, clean water and a conducive habitat for both forest and human life. According to the foresters, when the climate changes, its effects such as rising temperatures and unpredictable rainfall makes forests vulnerable to diseases and fires. Extreme changes in climate leading to destruction of the forest contributes to carbon emissions which are high contributors to climate change. Thus, there it is essential to conserve the forest in the efforts to address climate change.

Questionnaire responses stated that: “Trees in the forest reduce evaporation and therefore balance the temperature within and around the forest. Well conserved forests result into consistent rainfall and a better climate and remove carbon dioxide from the air and store it in the trees and the soil.” This process acts as a check to climate change. The respondents indicated that Kakamega Forest needs to be conserved to address climate change since destruction of forests leads to depletion of primary sources of food and reduces the natural disposal of greenhouse gases.

Interview results revealed that respondents believed that forests attract rainfall thus creating a good climate. Respondents acknowledged that the forest also helps in the formation of rain, they harness water, they are water sources as well as stabilizers of the climate. Some respondents related Kakamega Forest to climate change however, they

could not give a scientific or technical explanation of the process since they did not have the scientific understanding of the connection. In their view, destruction of forests leads to less rain and prolonged periods of drought. Some respondents also indicated that a well conserved forest maintains biodiversity as well as balance nature.

While the respondents who were professionals working in agencies that are related to conservation of forests and climate change spoke with clarity from a position of knowledge about the relationship between conservation of the forest and climate change, the interview responses also indicated knowledge that there is a relationship between conservation of the forest and climate change albeit without detailed descriptions of the relationship. It was also clear that interview respondents related formation of rain with the forest. The claims by interview respondents that rain emanates from the forest which they also considered as a source of rivers, indicate that they relate the forest to climate change.

In accordance with the findings of Ikuenobe's (2014) study on the significance of forest conservation, it is affirmed that traditional African societies exhibit a deep reverence for nature. This is evident in their adherence to the belief and practice of totemism, wherein distinct animals, plants, or natural entities are accorded respect by various families, clans, or villages. Africans hold a deep reverence for nature, since they recognize the inherent value it holds for humanity, given its potential utility. It is advantageous for individuals to utilize natural resources for their own advantage while also striving to preserve a harmonious equilibrium in the natural world, as these actions have repercussions that extend to our interconnected existence. Maintaining equilibrium and concordance contributes to the creation of a favorable living environment, hence promoting the

enhancement of both physical and spiritual welfare. According to Ikuenobe (2014), traditional Africans saw mountains, trees, forests, and various animals as symbolic manifestations or incarnations of deities or spirits, attributing them with divine qualities, sacredness, and deserving of veneration. Numerous physical and natural entities possess religious and spiritual importance, being labeled as religious shrines wherever the divine or sacred is exhibited.

This study resonates with the findings of Mensah et al's (2014) study on the correlation between forest conservation and climate change, in suggesting that the implementation of capacity building initiatives targeting traditional leaders inside traditional territories could effectively safeguard the valuable cultural and natural resources. According to this scholar's perspective, it is crucial to grant local leaders the opportunity to enhance their engagement in environmental matters, while also providing them with legal support to ensure the preservation of traditionally safeguarded regions, which may include sacred sites. The formation of individuals' perceptions of the environment and culture is predominantly influenced by their worldview, encompassing their attitudes and values. Therefore, it is imperative to establish strategies that may effectively engage the local community in environmental conservation efforts and foster a sense of reverence towards indigenous customs and practices. Mensah suggests that the forestry service in the traditional area of Ghana should consider expanding their participation off-reserve forest efforts to encompass a greater number of sacred locations. Collaborative endeavors of this nature could furthermore furnish the needed assistance and instruction to indigenous populations in the realm of fire avoidance and management, hence mitigating the deleterious impact on the natural environment.

Table 6.1 Extent of Deforestation of Kakamega Forest

	Frequency	**%**
Very large extent	47	23.3
Large extent	82	41.0
Little extent	45	22.4
No extent	18	8.9
Uncertain	8	4.4
Total	200	100.0

Source: Own compilation from results of the research

In line with relating conservation of the forest with climate change, it was essential to establish the extent which the forest had been destroyed from the respondents. The study sought to find out from interviews about the extent of deforestation in Kakamega forest. As indicated in table 6.1, 47 respondents representing 23.3% of the participants acknowledged that Kakamega Forest had been destroyed to a very large extent. 82 respondents representing 41% acknowledged that the forest has been destroyed to a large extent. Forty five respondents representing (22.4%) were of the view that Kakamega Forest has been destroyed to a little extent. Results revealed that 18 respondents representing (8.9%) indicated that the forest had not been destroyed while 8 respondents representing (4.4%) were uncertain. The study results confirm that majority of the

respondents acknowledge that the forest has been destroyed but they have varied opinions about the extent of the destruction. The varying opinions on the extent of destruction clarify the various levels of understanding in terms of age, education level and time. This position finds relevance in the rationale that worldview is a basic interpretation schema of a culture's reality within communication implication.

6.4 Activities that cause destruction of Kakamega Forest

The study sought to find out the activities that cause destruction of Kakamega Forest. An interview with CEC established that destruction of the forest was a major setback on the efforts to conserve Kakamega Forest. Pressure from the community in search of farmland and land for settlement due to increased population has led to encroachment on forest land. The people encroaching on the forest, destroy forest materials to create room for farming. Cutting live trees by both the people who are in search of land as well as poachers is a major contributor to destruction of the forest. The key respondent decried the extraction of firewood from the forest especially by women and school children during school holidays as a serious concern with regards to destruction of Kakamega Forest.

Foresters explained in questionnaires that people moving in and out of the forest contributed to degradation of the forest by forming footpaths which caused soil erosion thus interfering with the growth of the ecosystem. Grazing of animals within the forest caused trampling which resulted in to degradation and interferes with the length and growing of grass. Questionnaires respondents clarified that, if the grass does not grow

long enough then it cannot hold enough water in the forest hindering evaporation and condensation with the clouds to form rain.

Questionnaire respondents highlighted the fact that illegal timber poaching where trees are cut for sale and extraction of poles for building was rampant and contributes to deforestation. Burning charcoal for both domestic use and commercial purposes was also identified as an agent of destruction of the forest. Charcoal burning often led to forest fires. Forest fires lead to decimation reducing the forest to a bush or bare land, a situation that affects both the micro and macro climate.

Focus group discussions revealed that many members of the community that live adjacent to the forest look at the forest as the government's property. This attitude which formed because they see KWS guard guarding the forest all the time, has led people to lack of a sense of responsibility over the forest. As a result, the people inadvertently engaged in wanton logging, burning charcoal and killing the animals in the forest for food. Respondents acknowledged that there is indiscriminate logging for firewood, charcoal and harvesting timber.

FGDs affirmed that motorcycle riders were the main transporters of the poached timber. Trees were also cut in search of medicine by herbalists and members of the community who often removed the bark of trees completely an action that led the medicinal trees to dry up. Focus group discussion further confirmed that charcoal burning occasionally led to forest fires which led to destruction of various resources within the forest. Greed was cited as a motivation for destroying the forest since those who destroyed forests sold the materials they got and kept wanting to do more damage for greed for money.

The study results point to a state in which the destruction of the forest is severe due to the pressure exerted by the people's demand for farmland and residences. The pressure is further escalated by the timber poachers as well as the people who burn charcoal for both domestic and commercial use. Unlike in the indigenous African practice, where rules and regulations governed protection and exploitation of the forest resources, today the community does not enforce any regulations as this role has been relegated to the government. Consequently, destruction of the forest continues at an alarming rate.

Gumo et al (2012) argue that in order to raise awareness about the imperative of monitoring deforestation, it is crucial to foster engagement from many stakeholders. The authors note that African communities acknowledge the interconnectedness between the environment and human beings. The authors propose that conservation is a collective phenomena, emerging from the collective knowledge of millions of individuals. African individuals possess an understanding that the sustenance of life is contingent upon the ongoing availability of natural environmental resources for human utilization. Conservation ideals and practices, in their perspective, are not solely derived from law enforcement mechanisms. Rather, they are rooted in a combination of spiritual beliefs and social responsibilities, which have evolved as a means of ensuring survival and avoiding retribution from the spiritual realm.

According to Gumo et al (2012), there is a correlation between the preservation of forests and the prevention of their destruction. The authors argue that certain African worldviews suggest that the fertility of soil and the frequency of rainfall are dependent on the well-being of specific wildlife groups. The African population expresses anxiety with the act of killing sacred animals, the cutting down of sacred trees, and the destruction of sacred

spaces inside the forest. These actions are believed to incur spiritual disfavor, resulting in severe droughts or outbreaks of illness. It has been cautioned that the deterioration of natural resources utilized for spiritual purposes, such as deforestation and unanticipated outbreaks of fire, could inevitably lead to the destruction of sacred sites designated for spiritual practices. The concept is articulated whereby African individuals endeavor to preserve the connection between the spiritual realm and mankind by refraining from messing with the natural environment.

The objective of the study was to ascertain the underlying factors that drive individuals to participate in deforestation activities. The findings of the study revealed that individuals were involved in deforestation for a multitude of reasons. The findings from the interviews indicate that those residing in close proximity to the forest predominantly rely on firewood and charcoal as their preferred cooking fuel options. The aforementioned situation served as a catalyst for the people residing near the forest to engage in the practice of tree felling for the purpose of obtaining firewood, as well as the production of charcoal, which was utilized both for personal consumption and for commercial purposes. The participants also reported that the woodland was deforested in order to provide pastureland for livestock grazing. The findings from interviews conducted with respondents indicate that poverty has a significant role in the occurrence of deforestation. The economic difficulties stemming from high levels of unemployment prompted individuals residing in the vicinity of the forest to partake in logging activities in order to acquire timber for commercial purposes. The timber that was acquired was afterwards utilized for the purposes of constructing buildings, engaging in carpentry work, and serving as a source of wood fuel. The deforestation was attributed by certain participants

to the insufficient presence of security personnel in the vicinity of the forest. Deforestation can be attributed to the practice of clearing land for the sake of settlement.

The study revealed that as a result of deforestation too much radiation had occurred, increased evaporation and water volumes in rivers with sources in the forest had become so low. Deforestation also resulted in to a change in rain patterns, low yields, change in temperatures of surrounding areas, long spell of drought and delayed rains. The shrinking forest cover was identified as the reason for increased temperatures, drying rivers, soil erosion and an inadequate water supply.

6.5 Challenges of conservation of Kakamega Forest.

It emerged from interviews that conservation of Kakamega forest does not mean much to the poor who need the forest resources to survive. Conservation efforts are often marred by poverty, joblessness and hunger. Deforestation for livelihood is common among members of the forest adjacent community. The study revealed that interaction of the forest adjacent community with the forest had taken a trajectory that has impacted negatively on the forest ecosystems. Minimal awareness about the effects of deforestation on climate change influence negative environmental behaviour.

In the quest to curb destruction of the forest, the community that lives adjacent to the forest needs to understand the impact of their actions in spite of their circumstances. There is a need to create awareness that the continued destruction will ultimately lead to more deplorable conditions for them. Moser (2010) approves by stating that messages can be conveyed by words or information accompanied by imagery, symbols and emotions being evoked by pictures. Emotional impacts on the audience can be far

stronger than the impact of words alone and it leads to the intended behavioral outcomes. Messages that increase worry, concern or even fear should be accompanied by information that allows audiences to translate their feelings in to remedial action (Moser 2010).

The majority of the members of the community believe that the forest is utility based as confirmed by Ikuenobe (2014) in the observation that Africans think that the value of the environment lies in human use. Trees are a source of capital investment and insurance against hard times. Trees provide the supply of timber, wood and food. However, Obasola (2013) recommends the need to look at the issue of the environment from the African religious perspective with the view of ascertaining the orientation of the people to the environment preservation and conservation. This would help create awareness to forest adjacent communities on the dangers of destroying the forest.

6.6 Summary of the Chapter

This chapter examined how the indigenous Abaluhya worldview conserved the forest. The study revealed that the concept of conservation of the forest existed among the Abaluhyia community. Conservation was promoted for medicinal trees, special trees used for construction of houses and the trees found in spaces for worship. The study revealed that it was important to conserve Kakamega Forest since it helps in stabilizing climate by regulating ecosystems, protecting diversity, supporting livelihoods and absorbing carbon dioxide that is released from burning fossil fuels. Conserved forests also ensure purification of water in streams and wells by way of filtering out heavy metals and nitrates from water through roots of the trees. The study revealed that the majority of the

respondents felt that the forest had been destroyed to a large extent. Pressure from the community in search of farmland and pasture were identified as the main drivers to deforestation. The search for firewood and burning of charcoal also contributed to destruction of the forest. Deforestation led to radiation, increased evaporation, change in temperatures and rain patterns. The indigenous Abaluhyia conserved the forest and their approaches were sustainable and successful.

CHAPTER SEVEN

INTEGRATING INDIGENOUS ABALUHYA WORLDVIEW WITH SCIENTIFIC APPROACHES IN COMMUNICATING CLIMATE CHANGE RELATED TO CONSERVATION OF KAKAMEGA FOREST

7.0 Introduction

This chapter evaluated the potential to integrate the indigenous Abaluhya worldview with the scientific approaches in communicating climate change that is related to conservation of Kakamega Forest. The chapter drew primary data from interview and questionnaire responses as well as Focus Group Discussions respondents. The chapter looked at the response to communicating climate change, challenges hampering positive response to communicating climate change that is related to conservation of Kakamega forest, application of the indigenous Abaluhya worldview and integrating the indigenous Abaluhya worldview with scientific approaches in communicating climate change that is related to conservation of Kakamega Forest.

7.1 Response by the Forest adjacent community to communicating climate change related to conservation of Kakamega Forest

It was imperative to ascertain whether the Abaluhyia community that live adjacent to the forest were of the same descent. Interviews revealed that the Abaluhyia people who live adjacent to the forest migrated from different parts of the Abaluhyia people. There were migrants from Budalang'i, Butere and Vihiga who settled among the Isukha community. Having lived with each other for a long time, they adopted similar beliefs mostly drawn from the local Isukha community.

It was important for the study to find out how the community that lives adjacent to the forest had responded to communicating climate change that is related to conservation of Kakamega Forest. This was informed by the fact that studies show that climate change continues to escalate as destruction of the forest goes on. It was imperative to find this out in order to identify reasons for their attitude and response to the communication. One of the CFA leaders observed that while communicating climate change that is related to conservation of Kakamega Forest continues to be done, the behavior and riposte of the forest adjacent community indicates that they are not heeding to the communication. This was demonstrated by the continued destruction of the forest and the alarming rates at which the forest cover continues to diminish.

The Community Forest Association leader attributed the poor response to the communication to complacency, ignorance, impunity and the approaches used in communicating. Moser (2010), in harmony with this key respondent's view about complacency and ignorance claims that basic understanding of climate change thus remains superficial and vulnerable to frequent revision. It is critical that communicating climate change that is related to conservation of Kakamega Forest in based on policies that relate with the worldview of the audience targeted by the communication. In order to curb complacency and ignorance, the communication must allure the audience's conscience and belief systems.

Clearly, it is essential that strategies used in communicating climate change should relate with the local community's beliefs and experiences. Approaches incorporating the local community's worldview have the capacity to appeal to the audience since they would

resonate with them. An owned communication strategy would go a long way in checking impunity and complacency in responding to communication on climate change.

The respondents' views that the behavior and riposte of the forest adjacent community indicates that they are not heeding to the communication, are addressed by Chanza (2016) who draws attention to the fact that Climate science needs to be understood by indigenous communities as a common endowment that helps them to seek practical solutions to problems and opportunities brought by the ever changings and unpredictability in the climate system. Climate governance at local levels is potentially realizable when indigenous communities with their invaluable reservoirs of climate change knowledge actively participate in climate regimes.

7.2 Challenges hampering positive response to communicating climate change

It was important for this study to identify the challenges that hamper the local community from responding appropriately to communication about climate change related to conservation of Kakamega Forest. An interview with the local Chief revealed that the strategies that are employed to communicate climate change that is related to conservation of Kakamega forest impede understanding and a positive response in behavior to the communication. One of the strategies pointed out by the respondent as getting in the way of a positive response to communication was the use of ICT (Information Communication Technologies). Information communication technologies were in the category of electronic media communication devices which the key respondent considered inadequate in achieving effective communication of climate change that is related to conservation of Kakamega Forest. Electronic media devices that

were identified included radio, television, wide internet and telephones. It was the key respondent's view that reliance on electronic media to communicate to rural people does not give the communication the impetus that it needs to influence appropriate change of behaviour in them.

In consensus with the community elder's sentiments, Focus Group Discussions reported possession of phones by many people, however, the discussions revealed that majority of the people mainly used the phones for verbal communication and yet climate change communication was often delivered via text messages. Interview results revealed that the text messages that communicated climate change were not sent regularly, but on a few occasions. This meant that the engagement by the communicators with communication companies to send short messages on climate change to members of the community was not consistent. FGDs indicated that these messages did not also reach all members of the forest adjacent community as mapping to reach them exclusively is not easy. This meant that a large portion of the target audience often missed the communication that was sent by short message services. The group which consists of people who do not have mobile phones also totally missed out on communication that is relayed through such media.

The study revealed that communication does not reach all the members of the targeted audience owing to the availability of the media used in communication. The chief drew attention to the fact that access to mass and electronic media is generally low due minimal disposable income. The poor are marginalized by electronic media by way of little or no access. The administrator indicated that communication about climate change is sometimes done on the local radio stations. Unless this communication is done repeatedly, chances are that the communication aired could be missed out by some

members of the targeted audience who are not able to listen to the radio often. Therefore, the communicators need to use communication strategies that would improve access and understanding by the target audience. This need to engage in strategies that can enhance communication reaching a larger audience is validated by the theory that says that worldview and communication represent a way to improve understanding culture and enables ability to speak to the heart of diversity of tensions.

Both Focus group discussions and interview respondents identified the use of western scientific terminologies that are foreign and difficult to understand by the target audience as a challenge to communicating climate change that is related to conservation of Kakamega Forest. The use of scientific terms is a result of the research on climate change that is science oriented. It emerged from the study that, inability to understand the communicated information due to technical scientific jargon does not promote understanding and positive responses to communicating climate change that is related to conservation of Kakamega forest. The use of scientific terminologies demotivates the audience and it does not allow them to relate with it.

The views of the study respondents on the use of scientific terms in communicating climate change are upheld by ASSAR (2016) who states that communicators remain faced with challenges such as; effectively integrating scientific information with traditional knowledge, communicating this information to people and groups with varying contexts of power, agency and social dynamics and navigating different communication channels, learning processes and modes of knowledge transmission to ensure that necessary information is accessible to marginalized groups.

Focus Group Discussions revealed that the western scientific approaches that have been employed by the communicators of climate change was the reason for the poor response by the local community in conserving the forest. FGDs upheld that the audience did not understand the terms that were used in the communication about climate change that was being relayed and thus did not respond to it appropriately. Interview respondents were in agreement with the view held by FGDs that the use of scientific terms in communicating barred understanding of the communicated message by the community thus impeded the effort of communicating as well as motivating change in behaviour with regards to climate change that is related to conservation of Kakamega Forest.

The respondents recommended that during communication, climate change jargon needs to be simplified, made meaningful and understandable for the target audience to relate with and embrace it. The scientific terms that are used in communication climate change that is related to conservation of Kakamega Forest can be translated to the local language equivalent to facilitate understanding. The respondents' observations resonate with the tenet that claims that worldview would affect communication in matters such as accepting or rejecting change.

FGDs and interview participants views that explain that most individuals cannot clearly understand and hold the amount of scientific intricacy and ambiguity in their minds, much less be able to apply it scientifically resonate with Moser (2010). The scholar's observations that a public that is insufficiently educated and sufficiently disverted to follow details of the debate over the scientific approach of communicating climate change has been caught in the communication crossfire explain well the respondents' concern. The perceptions and levels of awareness keep rising and falling.

Moser (2010) further reinforces respondents' explanations by acknowledging that although scientific literacy is essential and welcome for many reasons, it is simplistic to assume that individuals merely lack information or understanding of climate change. It should also not be assumed that if these knowledge gaps could be filled with the information, then lay individuals would be able to interpret the data in a particular way. In the Moser's opinion, complexities of the use of scientific knowledge by lay individuals to translate understanding and concern into practice must be addressed through relevant communication and supporting mechanisms.

A CFA leader pointed out that illiteracy among the forest adjacent community hampered communicating climate change that is related to conservation of Kakamega Forest. The key respondent claimed that illiteracy levels were high in the community, thus, illiterate and semi-literate members of the community did not understand the science-based communication on climate change as well as the relationship between climate change and conservation of the forest. Inability to understand the communication hindered them from resonating with the communication on the subject of climate change. The challenge posed by illiteracy on communicating climate change that is related to conservation of Kakamega forest necessitates a change in approach to communicating. A change in approach of communicating that the target audience can relate with finds clarification in the understanding that worldview can influence communication and cultural behaviour as well as interpreting events.

Coupled with illiteracy, Focus Group Discussions also cited ignorance as a hindrance to a positive response to communicating climate change. The members of the FGD highlighted the fact that since some people were ignorant of the fact that destruction of

the forest contributed to climate change, they continued to destroy the forest. Interview results explicated that lack of knowledge of the underlying causes of climate change and their relationship with conservation of the forest has serious implications on its communication. Thus, there is a need to address lack of knowledge through simplified, clear and understandable communication. An elder decried the negative effects of ignorance on dealing with climate change that is related to conservation of Kakamega Forest as perpetuating a negative direction of thought which influence people's perspectives and actions. The perpetuation of negative thoughts as a result of ignorance can be addressed by engaging with what the people know and relate with. This engagement finds relevance in the principle which states that worldview shapes how culture influences communication and behavior as well as interpreting events.

In relation to illiteracy and ignorance, FGDs expressed that language was a barrier that played a role in hindering understanding communication about climate change. People who are illiterate or ignorant face challenges when they are communicated to in a language that they do not understand clearly. To effectively communicate climate change, it is necessary to use a simple, comprehensible and relatable language which is clear to the target audience. This was due to the fact that many communicators who work for Kenya Forest Services, Kenya Wildlife services and agencies that are concerned with communicating climate change do not belong to the local community, therefore, they use either English or Kiswahili. The barrier to understanding communication of climate change based on language validates the theory that states that worldview can unlock some of the deepest layers of a culture's ideology of the cosmos and its implication for one's life.

Recognizing the use of scientific terms, illiteracy, ignorance and the use of non-local languages as barriers to communicating climate that is related to conservation of Kakamega Forest can potentially find solutions which can aid as well as improve communication. For more positive outcomes, the communicators need to address the barriers identified and provide solutions based on the local community's worldview. This would enable robust communication and understanding by the audience.

Interview results revealed that communicating climate change that is related to conservation of Kakamega forest is usually done at the chief's barazas. Nonattendance by members of the community to the chief's barazas because of the need to carry out economic activities was a common occurrence. This then meant that members of the community who did not attend the baraza often did not get the communication which also resulted in to non-responsiveness. The community could only respond to what they have heard and can relate with. The study also revealed that members of the forest adjacent community lived in far-flung areas around the forest. Long distances from locations where communicating climate change is done was a limiting factor to attendance of meetings held to communicate and this hindered communicating climate change due to accessibility. For communicating climate change to be effective, the members of the forest adjacent community need to have access to the communication for them to understand and respond to it appropriately. Effective communication strategies that ensure access as explicated by respondents would motivate response to some level. The response to communication relates with the notion that states that worldview awakens cultural obligations and gives guidelines which result in to expected behaviour.

Questionnaire responses added to the subject of access by drawing attention to inability to reach the target audience by the communicators as a challenge to communicating climate change that is related to conservation of Kakamega Forest. Kenya Forest Services workers are often not able to reach all members of the community due to lack adequate resources that should facilitate them to rake through the villages to communicate climate change messages. Resources are also necessary for the planning and organization of meeting for advocacy on climate change. While their mandate entails communicating conservation and management of the forest in relation to both the local and global climate change, scarcity of resources does not allow for capacity to carry out this mandate effectively.

Interviews with leaders of the Community Forest Association pointed out that while they have been charged by the Kenya Forest Services to communicate climate change to members of the community who live adjacent to the forest, they not only lack the funds to traverse the area around the forest to carry out their obligation, they also lack mandated policies for the same. CFA leaders explained that they carry out the task of communicating climate change on a purely voluntary basis; they are neither facilitated nor compensated for any travels that they undertake to various places to communicate climate change and conservation of Kakamega Forest. Whenever the CFA leaders travel to attend the chief's barazas or meetings where they are required to communicate climate change and conservation of the forest issues, they do it on their own volition and have to use their own money. As a result of lack of compensation, the motivation levels go down leading to low attendance, thus hindering effective communication.

Questionnaire responses by foresters divulged that the forest adjacent community do not have a sense of ownership of Kakamega Forest. These respondents who mainly work for Kenya Forest Services and KWS highlighted the fact that the members of the forest adjacent community believe that the forest belongs to the government and therefore they have no responsibility to conserve it. Whereas Kenya Wildlife Services rangers have been charged with the duty to guard the forest from people who destroy the forest by obtaining forest resources illegally, the community members think that they do it because the government possesses the forest. The belief that the forest belongs to the government which is prompted by the constant presence of Kenya Wildlife Service rangers who guard the forest poses a challenge to eliciting positive responses to communicating climate change that is related to conservation of Kakamega forest. The challenge is caused by conflict in what they deduce from the constant guarding of the forest by KWS rangers vis a vis the message that is communicated. The belief that the forest is the property of the government is a hindrance to changing behaviour by the forest adjacent community. The behavior and attitude to climate change communication by the members of the forest adjacent community that is contrary to the expectation relates to the rationale that states that worldview awakens cultural obligations and gives guidelines which result in to expected behavior. Their worldview in this case leads them to act in contrary to the expected response to the communication given, instead their actions are informed by what they see.

Interview results pointed out that whenever the rangers arrest someone who is found to be poaching resources from the forest, they deal with such people ruthlessly. Such culprits are often arrested, beaten and detained. The punitive measures taken by rangers when

community members are found getting materials from the forest have also led members of the community to believe that the animals and the trees are the property of the Kenya Wildlife Services and therefore, they are under no obligation to preserve them.

Bearing in mind the fact that no resources are available to conduct small village meetings in which communicating climate change that is related to conservation of Kakamega Forest can be done, communication is hindered. The lack of resources hindered effectiveness and consistency in the efforts of communicating climate change that is related to conservation of Kakamega Forest. The government not allocating funds for Forest Community Association which has been obligated to communicate climate change and conservation of Kakamega forest is an obstacle to communication too.

Focus Group Discussions identified an attitude of complacency as an impediment to communicating climate change. FGDs drew a scenario where people heard the communication about climate change and its impacts but they neither took it seriously nor felt obligated to respond to the message as a reason for low response to communicating climate change that is related to conservation of Kakamega Forest. The study revealed that apart from complacency, some people have a negative attitude to communication on climate change which resulted into failure to understand the magnitude of the impact of climate change. Complacency led to lack of interest, understanding and incapacity to relate the causes of climate change to conservation of Kakamega Forest which correspondingly resulted in to low response to the communication. Complacency further made some members of the community not give the communication the attention it deserved.

The attitude of members of the community that live adjacent to the forest needs to change for them to identify with the forest and relate with the communication about climate change. Identifying with the forest and positive attitude towards the communicated information on climate change finds relevance in the principle that states that worldview revolves around personal identity and group belonging which awakens cultural obligation and gives guidelines which result in to expected behaviour.

A key respondent pointed out that poverty was a challenge to communicating climate change that is related to conservation of Kakamega Forest. The respondent identified unemployment as a driver to poverty which leads to over dependance on the forest for resources. The poverty levels among the community that surround the forest drove them to poaching timber for sale and use as well as hunt the animals which live in the forest for consumption as food. Poverty motivated them to poach forest materials in order to sell and get money for survival.

One of the CFA leaders held the view that communicating climate change that is related to conservation of Kakamega Forest needs to involve young children for posterity. In the respondent's view, children stand a better chance of believing the communication, learning from it, practicing what they have learnt and spreading the communication in the future for posterity. However, the strategies that are employed by most agencies that communicate climate change have not incorporated children since they mainly target adults. The key respondent confirmed that children do not attend barazas where the communication is often done. This is because barazas are usually organized for the purposes of addressing a myriad of adult related issues other than climate change. While KFS has an initiative of greening the environment in a few schools, only a few schools

were included. The respondent upheld that the initiative should target more schools as well as have programs during school holidays in order to reach more children.

Interviews revealed that members of staff at Kenya Forest Services and Kenya Wildlife services in an attempt to intervene on destruction of the forest, had asked the forest adjacent community to report to them cases of destruction of the forest. While some community members have grasped some understanding of the need to conserve the forest for a good climate and were now reporting cases of logging to Kenya Forest services, the reports are minimal and therefore destruction of the forest continues. It was evident that the community that lives adjacent to the forest has not come to terms with the magnitude of their actions.

It also emerged from questionnaire responses that there was sporadic planting of trees by some members of the forest adjacent community in their shambas as a response to communicating climate change that is related to conservation of Kakamega Forest. This initiative by KFS was aimed at supplying timber and poles for constructing houses and for sale. However, since communicating climate change has not achieved the intended response, the effort by a few people in the community cannot meet the demands of the supply of timber required. Responses from interviews indicated that the CFA had initiated tree nurseries for both indigenous and exotic trees so that those who want to plant can access them and selling. However, these seedlings seem to be bought more by the people who visit the KFS offices from other places more that the local community.

The forest officers also drew attention to the Nyayo tea zones. This is a concept that was introduced by Kenya Forest Services, and the zone covers a radius of 100 metres of land from the boundary of the forest which was preserved for the establishment of tea

plantations. They are aimed at protect the forest by keeping off the poachers. The tea zones are a buffer zone between the forest and the land that belongs to the members of the forest adjacent community. The efforts to put the tea zones around the forest were meant to communicate protection and conservation of the forest in a bid to subsequently avert the harsh impacts of climate change. However, members of the community misconstrue the intention of these tea zones. They interpret this initiative as an effort to deny them access to the forest yet they rely on it for their livelihood. Consequently, they continue to device ways of accessing and poaching materials from the forest. The community's misunderstanding of the intention of the establishment of the tea zones and the communication therein, conveys the principle that worldview is a basic interpretation schema of a people's reality within communication implication.

Focus group discussions identified neglect of socio-cultural practices, values and perceptions of the community about the importance of the forest as a challenge to communicating climate change that is related to conservation of Kakamega Forest. These practices, values and beliefs were at play for long periods in conserving the environment and were passed down to members through oral tradition to generations. Focus Group Discussions intimated that these practices ensured protection and conservation of the forest for epochs. The disregard of socio-cultural practices and values that were employed in conserving and protecting the forest was attributed to the influence of contemporary education and settlement by communities from other regions to areas that are adjacent to the forest. FGDs pointed out the fact that settlement by people from different communities also had a way of distorting local cultures with regards to conservation of the forest. The distortion of the community values and practices poses a

challenge to eliciting positive response from communicating climate change that is related to conservation of Kakamega Forest. The prevailing scenario in which cultural practices are neglected rebuts the principle which holds that worldview revolves around personal identity and group belonging which awakens cultural obligations giving guidelines which result in to expected behavior.

The CEC revealed that employees of Kenya Forest Services who are charged with communicating climate change that is related to conservation of Kakamega Forest are very few, thus they are constrained in labour. It also emerged from the study that foresters who work in stations that are mandated to communicate conservation of Kakamega Forest often come from other ethnic communities other than the local ethnic community. This means that they can only communicate using the national and official languages. Such workers often do not have the capacity to appropriately express communication about climate change in a way the touches the attention of the members of the community as well as relate it to conservation of Kakamega Forest. These workers are also not well versed with the indigenous worldviews of the Abaluhyia community who live adjacent to the forest and therefore they may not employ it in their communication. The scenario with varying worldviews between the communicators and the audience poses challenges in communicating climate change that is related to conservation of Kakamega Forest.

In consistency with the study results which indicate various challenges in communicating climate change, Moser (2010) asserts that the challenge of reconciling human information processing habits and propensities with the human impact on the planet becomes important in the attempt to persuade the people that humans can cause a global systematic

change as well as conceive of and implement appropriate, effective solutions soon enough. The various challenges identified by the study as hindering communicating climate change that is related to conservation of Kakamega Forest rationalize the position which states that worldview can unlock some of the deepest layers of a culture's ideology of the cosmos and its implication for one's life. They also endorse the view that worldview shapes how culture influences communication and cultural behaviour as well as interpreting events.

7.3 Application of the indigenous Abaluhya Worldview in communicating climate change

In the quest of seeking effective strategies to communicate climate change, the study sought to find out from the respondents whether application of the indigenous Abaluhya worldview would make communicating climate change that is related to conservation of Kakamega Forest more effective. One hundred and sixty six respondents representing (67.40 %) participants expressed that application of the indigenous Abaluhyia worldview in communicating climate change that is related to conservation of Kakamega Forest would make it more effective while 27 respondents representing (10.86 %) were of a contrary opinion. Fifty three (21.74%) respondents were uncertain about whether the indigenous Abaluhya worldview would make the communication effective. The responses indicated that the majority of the study participants believe that application of the indigenous Abaluhyia Worldview in communicating climate change that is related to conservation of Kakamega Forest would enhance effectiveness. The respondents who upheld this view were informed by the understanding that before the scientific and

technological approaches to management of forest resources, there existed indigenous approaches to managing natural forests.

Further engagement with the respondents revealed the view that applying the indigenous Abaluhyia worldview would enable the community to relate with the communication thus enhancing its effectiveness. An elder in the community postulated that the community's worldview would bequeath its members with a sense of ownership of the communication strategies and therefore enhance effective communicating climate change that is related to conservation of Kakamega Forest. The relationship between a people's worldview and communication approaches is finds relevance on the principle that states that worldview is a basic interpretation schema of a culture's reality within communication implication.

Interview respondents also held the view that communicating climate change using the indigenous Abaluhyia worldview would attract the attention of the target audience and especially the illiterate since this worldview would be relatable and meaningful to them. Primary data from the interview respondents indicated that application of the indigenous Abaluhyia worldview in communicating climate change that is related to conservation of Kakamega Forest has the capacity to demystify the apprehension caused by the less understood scientific approach. Respondents claimed that scientific approaches have been considered difficult to understand and the target audience has had misgivings about how to conform to its recommendations. A communication approach that is understood and relates to a community's worldview is based on the understanding that worldviews can affect communication in matters such as time, accepting or rejecting change.

The respondents' views about the of Abaluhyia worldview's capacity to demystify the apprehension caused by the less understood scientific approach resonate with Ngara and

Mangizvo (2013) in their claim that it is crucial to uphold religious beliefs, cultural norms and practices, as they play a vital role in the prudent discourse and management of natural resources. These authors further state that it is commonly noted that throughout rural communities worldwide, the conservation of the environment is intricately intertwined with the cultural practices of the inhabitants. According to these experts, the erosion of traditional beliefs on a global scale is leading to the deterioration of informal, self-imposed limitations on resource utilization. Consequently, this poses a significant threat to species and ecosystems that were formerly safeguarded by these traditions. The views of the respondents and those of Ngara and Mangizvo (2013) converge in the statement that says that erosion of conventional checks and balances, particularly within contemporary communities, has had a detrimental impact on their ability to implement regulations and policies. The cessation of traditional cultural practices not only results in the loss of these practices themselves, but also poses a significant risk to natural environmental structures.

A key respondent observed that, “If the indigenous Abaluhyia worldview is applied, the indigenous Abaluhyia community’s capacity can be tapped in communicating climate change that is related to conservation of Kakamega Forest and its aptitude would yield the desired change in behaviour. The reason for my vouching for the indigenous Abaluhyia worldview in communication are enlightened by the fact that our worldview helps in the formation of culture which is our people’s way of life.” This view is based on the understanding that worldview influences communication and cultural behaviour as well as interpreting events. Worldview also revolves around both personal and group

belonging which promises awakening cultural obligations and give guidelines that result into expected behavior.

The key respondent's views that the indigenous Abaluhyia worldview is necessary in communicating climate change finds relevance in Gumo et al (2012) elaboration that religious experts and community elders play a crucial role in safeguarding sacred sites by implementing specific guidelines and regulations that govern the sustainable utilization of resources within these areas. The practice of impeding the frequent utilization of certain locations contributes to the promotion of optimal ecological diversification within those sites. According to these researchers, the implementation of social control measures pertaining to the utilization of natural resources in these locations serves to effectively mitigate or prevent deterioration, pollution, or contamination.

Gumo et al (2012) further explain that the notion of sacredness encompasses not just plants, but also animals, birds, and snakes. The majority of African societies hold certain flora and fauna species in high respect due to their spiritual significance. As per scholarly discourse, the preservation of certain flora and fauna species is undertaken with the primary objective of facilitating religious practices. It is posited that the transmission of sacredness within African culture occurs intergenerationally, as it is perceived to be a directive bestowed by ancestral figures. The belief posited by certain individuals is that the omission of communal sacrifices and offerings can potentially exert an influence on the occurrence of disasters. There is a belief that if the society permits the destruction of sacred areas, it may result in the ancestors bestowing curses upon the living. Hence, the conviction that certain locations within the forest hold spiritual significance contributes to the promotion of sustainable ecological protection.

The study revealed that the 10.86% respondents who were of a contrary opinion to the view that application of the indigenous Abaluhya worldview in communicating climate change that is related to conservation of Kakamega Forest would make it effective were mainly youthful people. Their responses were mainly informed by the fact that they have not interacted with indigenous Abaluhyia knowledge and were not familiar with it, therefore they are not aware of it's potential. It emerged from the study that these respondents did not relate with the indigenous Abaluhyia worldview since they have not had a close interaction with it. The study revealed that contemporary formal education which often takes the young people away from home, denying them interaction with their indigenous worldview had led them to have a worldview that is more inclined to science which in their opinion were better in communicating climate change that is related to forest conservation.

In convergence with the respondents who endorsed application of indigenous Abaluhyia worldview in communicating climate change Moser (2010) acknowledges that in communicating climate change, there is a need to help people navigate complexities by developing compelling narratives such as worldviews, meaning-giving stories that allow people to see their place in the context of humanity's and the earth's common fate. Complexities are how people see themselves, their roles, rights and responsibilities fitting into the larger social and ecological whole. Therefore, when people understand their roles, rights and responsibilities in environmental management, then communicating climate change that is related to climate change would be effective.

From the foregoing results which indicate that the majority of the respondents acknowledged that indigenous Abaluhyia worldview would enhance communicating

climate change, it can be conceded that this worldview can be tapped for communication. People's worldviews usually establish bases for outlining their communication procedures. Thus, the 10% participants who said that the indigenous Abaluhyia worldview would not enhance communicating climate change were unenlightened about its capacity in communicating issues that affect the core of people's lives.

The regional Ecosystem Conservator confirmed that there has not been any undertaking to come up with a legal framework that provides for incorporation of indigenous worldviews in the Kenya Forest Services mandate of communicating climate change and conservation of Kakamega Forest. The key respondent indicated that the government had not initiated a structured policy arrangement which incorporates the indigenous Abaluhyia worldview in communicating climate change that is related to conservation of Kakamega Forest. Thus, without a legal framework then there cannot be funding for such an initiative. Lack of a policy, a legal framework and funding to support the incorporation of the indigenous Abaluhyia worldview in communicating conservation of Kakamega Forest and climate change issues continues to impede desired responses to the communication.

The Regional Ecosystem Conservator concurred with the view that incorporating the indigenous worldview would make communicating climate change more effective. In the key respondent's view, the communication would yield more positive responses to the issue of climate change. The key respondent's views implied that if the socio-cultural practices and values were not neglected, then communicating climate change that is related to conservation of Kakamega Forest would have been more effective. Consistent cultural practices and attitudes are the remedy to address these challenges even before its

manifestation. The need to apply the indigenous Abaluhyia worldview has a basis in the notion that states that cultural worldview and communication represent a way to improve understanding and enables ability to speak to the heart of diversity of tensions.

Questionnaire responses revealed that there are often technical conflicts between the contemporary approach of communicating climate change and the indigenous Abaluhya worldview. Forest officers decried the fact that often, the conservation methods that are recommended by Kenya Forest Services were at conflict with the local people's worldview. This scenario plays out where contemporary communication advocates for preservation and conservation of the forest that is focused on inputs for protection of biodiversity for climate management. On the other hand, indigenous African communication strategies focus on outputs and utility since the forest is valued as a resource for goods and services that are demanded for by people.

Foresters drew attention to an instance where the members of the local community did not understand nor agree with the idea of being barred from harvesting herbs and firewood from the forest. They do not understand why trees that grew on their own should have restrictions on their utility. The variance between KFS recommendations and the forest adjacent community's perspective hinders communicating climate change that is related to conservation of Kakamega Forest. The disagreement between the perspective of KFS and that of the local community leads to resistance to communication since there is no rapport between the communicator and the audience. However, the questionnaire respondents acknowledged that indigenous Abaluhyia worldview has elements which would unlock the stalemate that has affected communicating climate change that is related to conservation of Kakamega Forest.

The regional Ecosystem Conservator's acknowledgement that indigenous Abaluhyia worldview needs to be incorporated in communicating climate change find relevance in Mawere (2010) claims that indigenous knowledge is perceived by the respondents as valuable in the establishment of a morally virtuous society. Its utilization aids African communities in recognizing their duty in the exploitation of environmental resources. Indigenous knowledge encompasses a range of community-based skills, technologies, and practices that collectively contribute to the community's awareness and capacity to responsibly and sustainably utilize the environment. Worldviews have a significant role in fostering a sense of community affiliation, hence stimulating communal responsibilities that provide individuals with guiding principles that shape their anticipated conduct.

There exist similarities between the study results and Ngara and Mangizvo (2013) affirmations claiming that according to traditional Ghanaian beliefs, those who transgress culturally approved norms or engage in environmental degradation may face retribution from their ancestors. Burial and ritual sites are commonly regarded as the dwelling places of ancestors and are maintained as sanctified forests. The utilization of resources through practices like as agriculture, hunting, and deforestation is strictly restricted within designated areas until specific ceremonial procedures have been conducted. The sacred groves provide as habitats for ecologically significant species that hold economic and social importance. The preservation of sacred groves for the sake of improved management and protection of natural resources was facilitated through the utilization of cultural values.

Ultimately, the study reveals that indigenous Abaluhyia worldview has a vital role to play in the subject of communicating climate change related to conservation of Kakamega Forest. This worldview was used to ensure preservation of the forest and its resources for the posterity of the community. Whereas the community may not have been aware of the scientific explanations about conservation of the forest, their worldview provided for strategies that recognized that the community's livelihood depended on the forest so they needed to preserve it. Thus, the recommendation by majority of both the interview and questionnaire responses that indigenous Abaluhyia worldview should be applied in communicating climate change.

The utilization of the indigenous Abaluhyia worldview in the communication of climate change exhibits similarities with the Nepali context, as elucidated by Karki et al (2017). Karki et al (2017) highlight the significance of indigenous and local knowledge in Nepal, since there is much evidence of indigenous and local traditions that demonstrate adaptation to various types of changes and challenges. These knowledge systems have the potential to aid in the development of policies, plans, and programs that are responsive to climate change. The various groups in Nepal have cultivated a wealth of traditional knowledge and accompanying effective strategies for establishing, sustaining, and enhancing their means of subsistence through harnessing natural resources and engaging in community-driven initiatives. Through the accumulation of knowledge over numerous centuries, individuals have developed a profound comprehension of the intricate composition and operations of the interdependent systems encompassing both humans and the environment in which they reside.

Incorporating indigenous Abaluhyia worldview in communicating climate change relates with Karki et al (2017) views which point out that, indigenous knowledge systems have been consistently adapted and employed to foster a harmonious coexistence with the natural environment. These systems serve the purpose of obtaining essential resources such as food, water, energy, medicines, and building materials from the local ecosystems. The individuals' understanding and proficiency in utilizing their surroundings, as well as their comprehension of the interplay between the environment and their social systems, constitute a fundamental component of their adaptive culture, capacity, and identity. The acquired knowledge exhibits specificity to particular situations and demonstrates adaptability in response to changes within human-environmental systems. Karki et al. (2017) underscore the significance of indigenous and local knowledge and practices in enabling Nepali people to effectively address the pressing and immediate consequences of climate change. Furthermore, these entities possess the capacity to assist individuals and organizations in formulating enduring adaptive strategies, plans, and programs.

7.4 Integrating the indigenous Abaluhya worldview with scientific approaches in communicating climate change related to conservation of Kakamega Forest

The study revealed that 182 (73.91%) respondents were of the view that the indigenous Abaluhya worldview should be integrated with the western scientific approaches to enhance communicating climate change that is related to conservation of Kakamega Forest while 64 (26.09%) did not agree. According to the 73.91% respondents, both science and indigenous worldviews have a role to play in conserving the forests and therefore combining the two in communicating climate change that is related to conservation of Kakamega Forest would enhance the effectiveness of the communication.

Questionnaire responses revealed that western scientific worldviews alone cannot be depended on to effectively communicate climate change that is related to conservation of Kakamega Forest. Primary data from the study revealed that western scientific approaches have mainly been used to communicate climate change that is related to conservation of Kakamega Forest but they have not elicited the desired response from the audience. Furthermore, destruction of the forest has goes on. Therefore, Abaluhyia worldview needs to be integrated in the efforts to communicate climate change.

In convergence with the study results on the need to incorporate indigenous Abaluhyia worldview in communicating climate change, ASSAR (2016) states that there is support for the incorporation of the indigenous Abaluhyia worldview in the context of communication strategies that promote dialogue and public involvement. This integration is seen to have the potential to not only boost comprehension of climate change and adaptation options, but also increase the probability of inducing behavioral change. However, it is frequently observed that communication strategies aimed at conveying climate change information to vulnerable rural areas tend to rely on one-way dissemination methods. The involvement of communities in the provision of climate information and the construction of specialized adaptation tools or advice is infrequent, resulting in limited relevance of these initiatives at the local level. The ASSAR organization suggests that it is beneficial to promote communication strategies that facilitate dialogue, engagement, and the co-production of knowledge with local populations. One crucial aspect to consider is the use of communication strategies that combine technological advancements with a focus on human interaction.

In accordance with the perspectives expressed by the participants regarding the importance of incorporating the indigenous Abaluhyia worldview into climate change communication, Chirisa et al. (2018) proposes that it is a requirement to combine scientific methodologies with the indigenous Abaluhyia worldview. This is due to the current limitations of scientific predictions in accurately determining the duration and distribution of seasonal rainfall, resulting in probabilistic forecasts. Scholars argue that there exists a critical point in which the western scientific community has encountered challenges in effectively communicating information. It is at this juncture that indigenous traditional knowledge emerges as a potential solution. By integrating this knowledge with scientific methods, it has the potential to significantly contribute to the field of climate change communication. However, it appears that policy makers have largely overlooked the utility of this integration.

The acknowledgement by the questionnaire respondents that it is essential to integrate the indigenous Abaluhyia worldview in communicating climate change cannot be overemphasized. This position clearly indicates that communication involving the use of scientific approaches has not borne the desired outcome and therefore, there is a need to review the communication strategy. The foresters and workers of agencies that are concerned with climate change are the main communicators, thus their recommendation to integrate indigenous Abaluhyia worldview with scientific approaches in communication should be a welcome strategy.

A leader of the CFA stated that, “Our indigenous Abaluhyia worldview has communication strategies that deliberately embrace and target the understanding of an entire community. Communication done through folklore, wise sayings, prohibitions such

as taboos, traditional and religious ceremonies, totems and customs would relate and be responsive to the needs of the community. Communication about the sustenance of the forest and the environment at large was all inclusive, practical and passed through oral tradition." Initiation was one the ceremonies in which values about conservation of the forest were imparted. The Abatirichi sub-tribe of the Abaluhyia community had their initiates reside in the forest during the healing period. In the forest, initiates were provided with a secluded space where they were taught and trained about the community's values and customs and were eventually graduated in to adulthood. Amongst the teachings that were given during this period was the importance of forests, the uses of various types of trees and the trees that had prohibitions attached to them.

The assertions of respondents that Communication about the sustenance of the forest and the environment at large was all inclusive, practical and passed through oral tradition relates with Mcneely & Lazarus (2014) who state that the way in which people perceive climate change risk is informed by their social interactions and cultural worldviews. Chanza (2016) adds that participation of indigenous people using their knowledge skills and experiences drawn from many years of coping and adapting to changing and variable environments deserve emphasis. Indigenous Knowledge increases the community buy in as well as promoting equity, efficiency and environmental integrity. It also leads to increased communication and understanding.

The CFA leader said that, "Indigenous Abaluhyia worldview has a medium of communication that is consistent with the values, beliefs and attitudes of the indigenous community." Therefore, it was imperative in view of this worldview that information about climate change that is relevant and useful to local audiences is communicated

appropriately. Tapping elements from the experiences and beliefs of the local community has the potential of yielding positive outcomes in relation to communicating climate change related to conservation of Kakamega Forest. Consequently, the reception of the communication that uses the indigenous Abaluhyia worldview would improve as well as elicit more positive behaviour.

The key respondent therefore, recommended that while science would provide data based on research, the indigenous Abaluhyia worldview would be used to communicate climate change data related to conservation of Kakamega Forest. Thus, integrating the indigenous Abaluhyia worldview with scientific approaches in communicating climate change that is related to conservation of Kakamega Forest would be complimentary. The foregoing position is consistent with the theory that states that worldview is a basic interpretation schema of a culture's reality within communication implication. This recommendation is upheld by Moser (2010), who states that the persistent disconnect between people's concerns and attitudes about climate change and the extent of their energy and climate relevant behaviours, results in to the more general problem of the attitude behaviour gap.

Consistent with the perspectives of the primary participant, who emphasizes the significance of including the indigenous Abaluhyia worldview into climate change communication, Chirisa et al. (2018) assert that the absence of such integration poses a threat to the survival of indigenous traditional knowledge, potentially resulting in its inability to be transmitted across generations. According to their perspective, indigenous traditional knowledge and science are influenced by religious and cultural beliefs, hence impacting the transmission of climate change in relation to forest conservation matters. These experts additionally note that as the severity of climate change increases and leads

to extensive damage to both property and individuals' means of subsistence, particularly in developing nations, it becomes imperative to adopt communication strategies that incorporate indigenous traditional knowledge alongside universalistic science. The integration of these approaches is important in order to achieve effective dissemination of climate change information.

The suggestion made by the study participants to integrate the indigenous Abaluhyia worldview into climate change communication pertaining to the preservation of Kakamega Forest relates with Lumosi and McGahey (2016) in their argument stating that in order to enhance the applicability and effectiveness of climate change communication, it is crucial to recognize the inherent conflicts between the efficacy of widespread mass communication and the necessity for context-specific knowledge within local settings. It has been observed that communication strategies aimed at conveying information about climate change to vulnerable rural areas frequently rely on one-way dissemination methods. According to these experts, it was uncommon for communities to be actively engaged in the generation of climate information or the development of tailored adaptation tools or guidance. Therefore, it is imperative to promote communication strategies that facilitate discourse, active participation, and collaborative knowledge generation with local populations. One of the primary factors to consider is the utilization of hybrid communication strategies that combine technology-driven and human-centric techniques.

The Focus group discussions (FGDs) highlighted the observation that the Abaluhyia community possessed methods of communicating climatic occurrences and their implications for forest conservation prior to the progress of technology and science. The

continued relevance of these communication tactics can be attributed to the indigenous Abaluhyia worldview, which emphasized the importance of forests for sustaining their livelihoods. Consequently, the purpose of their communication efforts was to safeguard the future of the forest. The consensus among participants was that employing the indigenous Abaluhyia worldview in the sharing of scientific findings would lead to effective communication. The participants in this study also recognized that the majority of individuals would find their viewpoint relatable, thereby making the communication more appealing to the intended audience. Therefore, the validation of the respondents' views regarding the indigenous Abaluhyia knowledge systems originates from the recognition that worldview has the potential to reveal profound aspects of a culture's cosmic ideology and its impact on individuals' lives.

A community elder alluded to the concept of preservation of sacred grooves as an indigenous way of communicating conservation of the forest which would address climate change. The key respondent said that, “Sacred grooves were areas that are managed by preserving its natural plants and animal life. These spaces were homes to gods, spirits and ancestors.” The key respondent said that shrines were also found in such places, therefore, the reverence that was prescribed for these places by the community’s tradition and culture communicated preservation and conservation of the forest since they were occupied by powerful and revered beings. The reverence and prohibitions on removal of trees from sacred grooves ensured conservation of the forest. The key respondent said, “The preservation of sacred grooves was communication in itself that helped to ensure conservation of the forest. The prohibitions and efforts put in protecting

these spaces within the forest, communicated conservation of the forest and ultimately addressed climate change."

Foresters indicated in the questionnaire responses that the KFS had embraced and adopted the concept of Nature Reserves, however, their approach was science oriented and therefore the members of the community did not relate with it. The respondents drew attention to the fact that the communication passed by Kenya Forest Services about Nature Reserves was aimed at barring people from access. This position did not relate with the utility-based perspective of preserving Sacred grooves. Members of the community perceived the KFS concept of nature reserves to be an initiative of the government which denied them the opportunity to use forest resources; thus, they do not feel obligated to preserve them. However, one forester indicated that an integration of the concept of utility based sacred grooves and input-based nature reserves which allows for the indigenous Abaluhyia worldview participation would aid in communicating climate change related to conservation of Kakamega Forest. This dimension and the views of the respondents validate the notion that cultural worldview and communication represent a way to improve understanding culture and enables ability communicate to the heart of diversity of mental and emotional concerns.

In concurrence with the key respondent on the view that the indigenous Abaluhyia worldview has used its practices, beliefs and values to communicate climate change, Diawuo and Issaji (2015) claim that indigenous beliefs and practices have contributed to indigenous natural resource management. Actions in natural resource management were expressed through religious beliefs and moral sanctions and a range of sacred and cultural practices. The authors endorse the view that resilience of these beliefs and practices stood

the test of time in natural resource management using taboos, totems, traditional protected areas, moral sanctions and rules and regulations.

The indigenous Abaluhyia worldview's concept of sacred grooves has a relationship with the KFS concept of nature reserves. However, the understanding of the two parties with regards to the preservation and utilization of the two is a source of the misunderstanding. Therefore, given an opportunity where the indigenous view of sacred grooves and their significance is understood alongside the significance of forest reserves, then communication about their preservation would be received better by the audience. An approach that integrates the indigenous Abaluhyia worldview and scientific approaches in communicating climate change related to conservation of Kakamega Forest would allow for a common understanding of the two and enhance communication. The forgoing position finds relevance in the theory that claims that worldview can unlock some of the deepest layers of a culture's ideology of the cosmos and its implications for one's life.

Diawuo and Issaji (2015) give the Ghana experience in which the spiritual world is the major driving force that regulates the performance of all traditional institutions in their quest to manage natural resources. The Ghana experience shares similarities with the indigenous Abaluhyia worldview which promotes reverence to the spirits, thus regulating utility of resources that are linked to them. Wildlife species regarded as totems have historical or socio-cultural significance as well as their symbolic quality of clans that adhere to it. Patches of forests in the community are protected because they support sacred totemic animals believed to have special spiritual or cultural values and associations. The prohibition of killing and eating totemic animals has helped to conserve and maintain wildlife in the community.

Focus Group Discussions recommended that for communication to be successful, the communicators need to adopt a strategy that allows for community participation. It emerged that the Abaluhyia indigenous worldview would give an opportunity for the communicating climate change to tap in to the community's experiences, concerns, values and attitudes. These elements from the community's worldview would motivate actions that support action drawn from effective communication of climate change related to conservation of Kakamega Forest. The indigenous Abaluhyia worldview's pro-conservation elements which have been known to promote behaviour change would provide a basis for profound understanding of the scientific data on climate change related to conservation of Kakamega forest. Members of the community that live adjacent to the forest would own and relate with the communication, hence, the principle that states that worldview is a basic interpretation schema of a culture's reality.

In relation to the cause of the variance that occurs in the effort to communicate climate change related to conservation of Kakamega Forest, Moser (2010) castigates the fact that many communication efforts in the past have assumed that simply informing people about climate change would suffice to change beliefs and attitudes which in turn would mobilize audiences for action. Moser's concerns validate the need to employ communication approaches that involve and engage the audience in a relatable and meaningful conversation. Wayne (2007) brings in the dimension that communicating should be grounded in dialogue and contextual understanding. Thus, the need to integrate indigenous Abaluhyia worldview in communicating climate change related to conservation of Kakamega Forest.

The County Ecosystem Conservator explained that while Kenya Forest Services came up with the concept of Community Forest Associations as a strategy to allow participation of the local community, the success of this initiative is marred by lack of clear policies and capitation for their participation. It is imperative that the concept of community participation touches the core of the peoples' experiences, beliefs and religious thoughts. There is a need for KFS to interrogate their initiative and propose to the government strategies that are more accommodative of the indigenous Abaluhyia worldview for successful communication of climate change.

The findings from the focus group discussions revealed that in order to enhance the local community's comprehension and valuation of climate change communication pertaining to the preservation of Kakamega Forest, it is imperative to situate the information within the framework of individuals' real-life encounters with climate change. Subsequently, these experiences should be harmonized with empirical scientific data. The Abaluhyia community identifies with these events through the medium of folklore and general storytelling. The convergence of the Abaluhyia worldview with the Western scientific worldview would facilitate the dissemination, connection, and resonance of climate change information within the local community, hence boosting communication. The focus group discussions (FGDs) acknowledged the significance of using both Western scientific knowledge and the Abaluhya worldview in effectively expressing the importance of climate change-related conservation efforts for the Kakamega forest. Therefore, by incorporating scientific methodologies alongside the indigenous Abaluhyia worldview in the communication of climate change, a comprehensive approach can be achieved. This approach would facilitate inclusivity and enhance comprehension of

climate change communication and forest conservation efforts for both literate and illiterate individuals. The importance of contextualizing individuals' experiences in the communication of climate change lies in the understanding that worldviews play a significant role in shaping how culture impacts communication, cultural behavior, and the interpretation of events.

Consistent with the perspectives shared in the focus group discussions (FGDs) regarding the importance of situating the experiences of local communities within their specific contexts to facilitate their engagement in climate change communication, Karki et al. (2017) elucidate that indigenous knowledge serves as a solid basis for shaping communication strategies, and its amalgamation with scientific knowledge enhances the effectiveness and applicability of communication efforts. These scholars acknowledge the significant importance of indigenous and local knowledge systems in the context of climate change policies. They propose the incorporation of both knowledge systems into the communication of climate risk management within national policies and programs. It is crucial to acknowledge that local knowledge is accessible and essential for managing climate and natural catastrophes at the community level. The present study aligns with the perspectives put out by Karki et al. (2017) regarding the incorporation of scientific knowledge and the indigenous Abaluhyia worldview as the basis for climate change communication. It is crucial to incorporate knowledge systems that people can relate to when conveying climate change, as earlier communication efforts have not yielded the anticipated reaction.

One community elder expressed the viewpoint that scientific communication frequently contains abstract scientific concepts that are frequently obscured by scientific jargon.

Consequently, there is a need to simplify and make the communication more accessible by using a straightforward and practical language. The resolution of this issue can be facilitated by integrating the indigenous Abaluhyia worldview's existing knowledge regarding forest conservation and interpretation of climate phenomena into the communication process. The utilization of the Indigenous Abaluhya worldview is recommended for the purpose of deconstructing scientific notions and facilitating effective communication regarding climate change in relation to the conservation efforts concerning Kakamega Forest. This scenario is feasible due to the utilization of Western scientific data, which is afterwards interpreted and communicated in a manner that aligns with the indigenous Abaluhya worldview, hence facilitating comprehension and relatability among the audience.

The elder espoused the belief that the amalgamation of the Indigenous Abaluhyia worldview with scientific methodologies in the transmission of climate change will establish a robust communication system capable of captivating the audience. The respondent also indicated that the collaborative endeavors are expected to result in improved communication strategies and increased effectiveness in promoting behavior change. The primary recommendation made by the main participant was to incorporate the indigenous Abaluhyia worldview alongside scientific approaches. This suggestion aligns with the theory that posits that worldview has a significant impact on cognition, behavior, and perception. By doing so, it allows for a deeper understanding of a culture's beliefs about the universe and how these beliefs shape individuals' lives.

ASSAR (2016) proposes that incorporating the indigenous Abaluhyia worldview can enhance and strengthen the communication of climate change. To address the gaps in

climate change knowledge sharing, the authors recommend the development of community radio programs that adopt a combined approach. Radio journalists have the capacity to serve as intermediaries among various stakeholders, including communities, scientists, and policy officials. The journalists initially establish contact with the communities, seeking to ascertain their needs and concerns. Subsequently, they communicate the acquired local perspectives to scientists and policy makers. Journalists have a crucial role in disseminating scientific information and policy to communities, hence enhancing the accessibility of content. They also contribute to raising awareness about potential climate threats and promoting the adoption of adaption options. This technique facilitates the exchange of ideas and collaborative generation of knowledge, hence fostering collective learning among stakeholders.

The findings from interviews have indicated that the indigenous Abaluhyia worldview serves as a means of conveying the established norms and cultural restrictions pertaining to the preservation of the forest. Norms are a means of expressing reverence, safeguarding, and sustainability of the forest, whilst prohibitions are communicated through the use of taboos and totems. Norms and taboos play a crucial role in shaping individuals' attitudes towards conservation behavior and establishing a framework for the appropriate utilization of forest resources. The primary participant expressed support for the idea that cultural norms and taboos can be utilized and adapted to effectively convey scientific information regarding climate change and the preservation of Kakamega Forest. The primary interviewee additionally suggested that incorporating the community's cultural norms and prohibitions into the communication of scientific information regarding climate change and the preservation of Kakamega Forest will effectively

resonate with the values and beliefs of the intended recipients. The proposition to incorporate norms and taboos into the dissemination of scientific information pertaining to climate change affirms the hypothesis that posits the influence of worldview on the manner in which culture impacts communication, cultural conduct, and the interpretation of occurrences.

The indigenous Abaluhyia worldview is observed to be embodied in traditional activities, as elucidated by a community elder. For example, the Abaluhyia community relies on the utilization of herbs for medicinal purposes. The collection of these herbs primarily occurs within forested areas, thereby promoting an ethos of care and reverence towards the herbal trees, ultimately contributing to the preservation of the forest ecosystem. The ancient practice of the Abaluhyia community, which involves the meticulous use of herbal trees found in the forest, has the capacity to convey messages regarding forest conservation. Furthermore, this activity has the potential to foster comprehension among even the illiterate members of the community. According to the respondent, a combined strategy that incorporates traditional traditions and scientific facts to convey information about climate change has the potential to engage a broader spectrum of individuals. The utilization of an integrated strategy will facilitate the harmonious coexistence of Western and indigenous Abaluhyia worldviews in the endeavor to effectively communicate the climate change issues pertaining to the conservation of Kakamega Forest. The above argument supports the proposition that cultural worldview and communication serve as a means to enhance the comprehension of culture and facilitate the capacity to address the complexities inherent in diversity.

A village elder said that, ‘The indigenous Abaluhyia traditional religion serves as a foundation for moral qualities that contribute to the preservation of Kakamega Forest.’ As per the assertions made by the respondent, the motivation behind individuals' concern and preservation of forests can be traced back to religious foundations. Religious moral ideals play a significant role in shaping individuals' attitudes and actions pertaining to the preservation and stewardship of forest ecosystems. According to the primary interviewee, the Abaluhyia community's inclination towards coexistence with the forest and its spiritual inhabitants has motivated their efforts to save the forested areas.

As per the testimony of the village elder, the Indigenous Abaluhyia culture conveyed the significance of trees in sustaining life, as they served as repositories of medicinal resources, sites for religious devotion, water reservoirs, and sanctified areas for performing rituals. The integration of scientific methodologies in disseminating climate change facts pertaining to the conservation of Kakamega Forest is advocated by the traditional religion of the Abaluhyia community. The use of a communal strategy has the potential to provide more favorable outcomes in effectively addressing the prevailing communication gap, while also fostering a greater comprehension of the communication process. Once the audience has comprehended the communication, they will be able to give it due thought. The integration of Abaluhyia traditional religion with scientific methodologies in the communication of climate change data is found to be relevant within the framework of the tenet that asserts that worldview stimulates cultural obligations and provides guidelines that lead to anticipated behavioral outcomes.

The proposal put forth by the Focus Group Discussions suggests the involvement of Abaluhyia traditional religious specialists and herbalists in the communication efforts

regarding climate change and the conservation of Kakamega Forest. The concept was influenced by the observation that religious experts played a role in establishing rules governing the use of medicinal trees and were responsible for implementing regulations aimed at preserving the forest. The findings from the focus group discussions (FGDs) indicated that the preservation of some trees was achieved through the recognition of their sacredness and the establishment of restrictions. Consequently, this approach not only insured the survival of certain trees but also contributed to the overall preservation of the forest. Focus group discussions (FGDs) have suggested that it would be beneficial to involve religion specialists and herbalists in the communication of climate change data pertaining to the conservation of Kakamega Forest.

FGDs maintained that the indigenous Abaluhyia worldview would be best suited to communicate this information since it would be grounded on existing information as well as play a role in enhancing a feeling of ownership. The respondents suggested an integrated approach in which the indigenous Abaluhyia worldview would enhance understanding of the communication while the scientific approach would provide data to be communicated. The integration of the two approaches would go a long way in making communication about climate change that is related to conservation of Kakamega Forest more effective.

The views of FGDs that explain that for communication efforts to be effective, it is important that they begin with an understanding of local perceptions of climate change risks and adaptation responses relate well with ASSAR (2016) who points out that by talking to local communities and focusing on their needs, climate information can be co-generated and can become more legitimate, usable and relevant. To best influence social

or behavioral change, both scientific and cultural discourses on climate change should be evaluated and understood. Given the important role the media plays in raising climate change concerns in policy arenas and framing public discourse, more careful consideration should be given to the knowledge and perceptions of these communicators.

The study results are ratified by Meribe (2014) in stating that contemporary methods of communicating cannot satisfactorily engage and communicate effectively to the local community. Colletta (1980) further argues that a communication strategy that leverages on the people's culture will enable new knowledge, skills and attitudes to be introduced within the framework of existing knowledge, cultural patterns, values and human resources. Therefore, for climate change that is related to conservation of Kakamega Forest to be communicated effectively, it should be integrated with the indigenous Abaluhyia worldview. Combining the Abaluhyia worldview with contemporary scientific approaches will offer better opportunities for communication.

It emerged from Focus group discussions that since people have a tendency to relate with what they consider to be their own, the target audience would relate with both the communication and the message if their indigenous Abaluhyia worldview is integrated with scientific approaches in communicating climate change that is related to conservation of Kakamega Forest. Scientific approaches use mass and electronic media which do no not have a provision to seek clarifications in the event that the communication is not understood. Communication is impeded since the audience is not able to seek elucidation. Integrating the indigenous Abaluhya worldview and scientific approaches would create a strong and attractive communication system which would reach a wider audience and both worldviews would support each other in the course. The

study also revealed that the liaison would cater for both the literate and illiterate as well as motivate those who are illiterate since understanding the message would influence behaviour change. An integration of the two will also yield more information as well as address the existing gap.

The study results are endorsed by ASSAR (2016) who point out that for communication efforts to be effective, it is important that they begin with an understanding of local perceptions of climate change risks and adaptation responses. By talking to local communities and focusing on their needs, climate information can be co-generated and can become more legitimate, usable and relevant. To best influence social or behavioral change, both scientific and cultural discourses on climate change should be evaluated and understood. Given the important role the media plays in raising climate change concerns in policy arenas and framing public discourse, more careful consideration should be given to the knowledge and perceptions of these communicators.

Focus group discussions revealed that the indigenous Abaluhyia worldview has identifiable ways of sharing ideas, meanings, values and perceptions. The Abaluhyia communication systems are blended with many practices and beliefs that can attract and hold the attention of the practitioners since they are an integral part of their worldviews. Indigenous Abaluhyia worldviews are non-alienating since they derive their meanings and relevance from the community's culture which has been with the people for a long time. Respondents recommended the formation of a legal framework that would provide for the provision of funds by government to facilitate incorporation of custodians to indigenous Abaluhyia knowledge in communicating climate change data related to conservation of Kakamega Forest.

The 26.09% minority who did not agree that an integration of indigenous Abaluhyia worldview and scientific approaches would enhance communicating climate change that is related to conservation of Kakamega Forest opined that science and indigenous worldviews often conflict. It also emerged that scientists often do not have regard for indigenous worldviews. A respondent indicated that scientist's attitude towards indigenous worldviews has stifled its relevance and application. An elder's reaction to the respondents who were of a contrary opinion to integrating indigenous Abaluhyia worldview in communicating climate change was that the young people had not experienced the tranquility that had accompanied well conserved forests and predictable and regular climatic events.

Concurring with the majority respondents' viewpoints on the necessity of integrating the indigenous Abaluhyia Worldview and scientific approaches of communicating climate change data, Filho (2008) upholds that there is a need to integrate information on climate change with practical measures that people can take. This is necessary in order to provide their own contribution to the problem-solving process. In Filho's view, most people feel frustrated when they realize that climate change as a whole and a phenomenon such as global warming in particular are matters distant from their day to day lives. The forest adjacent community needs to be aware that they need to protect and keep healthy functioning forests which reduce the risk of rapid changes and loss of ecosystem values and services.

In addition to Filho's views, Moser (2010) supports integrating indigenous Abaluhyia worldview with scientific approaches in the assertion that climate change requires unprecedented co-operation and new ways of thinking and behaving for it to be addressed

adequately and appropriately. This scholar further observes that communicating climate change messages effectively creates mental models that help people make sense of the climate change problem and at the same time direct them towards the appropriate behavioral response. The scholar continues to explain that the distant problem must be brought home; the invisible causes and impacts must be made visible; the inconceivable solutions must be illustrated; perceived and real barriers to action must be shown as something the people can overcome.

The search for solutions to the problems caused by climate change cannot be one-dimensional; it needs to be pursued in an integrated way as confirmed by Filho (2008). In order to better understand climate change, it is important that one has an understanding of what it means to different people in different parts of the world. Galloway-Maclean (2010), Nakashima et al (2012), Tauli-Corpoz et al (2009), Tebtebba Foundation (2009) also contend that indigenous knowledge provides information and insight that compliment conventional science and environmental observation. It can also provide a holistic understanding of the environment, natural resources and culture and the human interrelation between them.

It is imperative to acknowledge that indigenous worldviews and their practice are contributory in ensuring effective communication because they are rich in cultural context; appropriate and sophisticated knowledge form, promote equity, efficiency and environmental integrity while above it all, it leads to increased understanding of the communicated information as affirmed by Chirisa et al (2018). Chirisa et al (2018) are in agreement with Shaw et al (2008) in pointing out the three arguments that advocate for inclusion of indigenous traditional knowledge systems in communicating climate change

and conservation. These authors argue that community participation and empowerment with regards to disaster reduction is increased when indigenous traditional knowledge systems are employed. They also observe that indigenous knowledge is instrumental in helping to provide invaluable information that relates to the local context such that adaptation strategies are locally embedded which will increase their acceptance among local communities. Indigenous traditional knowledge also provides non-formal means of passing on indigenous knowledge which emerges as a means of educating and informing the general public on disaster risk reduction adaptation policies.

The findings of the study are well wrapped up in the inspections of Karki et al (2017) who explain that while policy makers prioritize the need to cope with impacts of climate change, they should move to integrate indigenous and local knowledge with modern scientific knowledge by learning from the local communities who have long been adapting to climate and socio-economic changes. They observe that the trend of integrating both knowledge systems based on local situations should help policy makers to develop multi-level, multi-hazard and multi-disciplinary adaptation plans and create policies, strategies and programs to build resilience. Karki et al (2017) put forward the view that for effective climate change adaptation, policy process should involve dialogue with both indigenous and scientific communities. Governments should synthesize and integrate scientific and indigenous knowledge practices to proactively identify current and future risks and hazards.

7.5 Chapter Summary

This chapter addressed the potential of integrating the indigenous Abaluhyia worldview and scientific approaches in communicating climate change that is related to conservation of Kakamega Forest. The study revealed that the attitude and response of the members of the community that lives adjacent to Kakamega Forest shows that they are not heeding to the communication as demonstrated by the continued destruction of the forest. 73.91% of the respondents recommended that indigenous Abaluhyia worldview should be integrated with scientific approaches in communicating climate change related to conservation of Kakamega Forest. It emerged from the study that both approaches have a role to play in communicating climate change. The results of the study revealed that there are challenges that hamper positive response in communicating climate change. These include the use of electronic and mass media which are inadequate in achieving effective communication of climate change. Access to both electronic and mass media is limited by low disposable income. The use of scientific language was also identified as an obstacle in communicating climate change as well as illiteracy among the target audience and low attendance to public barazas. The respondents proposed that the application of indigenous Abaluhyia worldview integrated with scientific approaches has the potential of improving communicating climate change that is related to conservation of Kakamega forest. The study revealed that the Abaluhyia communication media are consistent with their values, beliefs and practices which can enhance communicating climate change. Thus, tapping in on their experience and practices can yield positive responses in relation to behaviour change. The reverence and prohibitions that the indigenous Abaluhyia applied to sacred grooves have the potential to aid protection of nature reserves which are an invention of

the Kenya Forest Services. Respondents recommended local community members participation in communicating as it would enable success in the communication and possibly breakdown the scientific terms in to simple and understandable language. Abaluhyia accepted norms and cultural prohibitions express respect, preservation and conservation of the forest and utilization of forest materials was guided by moral values which if tapped can yield behaviour change. Therefore, integration of the indigenous Abaluhyia worldview and scientific approaches in communicating climate change related to conservation of Kakamega Forest have the potential of yielding a better and effective communication strategy.

CHAPTER EIGHT

SUMMARY OF CHAPTERS, FINDINGS, CONCLUSION AND RECOMMENDATIONS

8.0 Introduction

This chapter contains a summary of the chapter findings in relation to the study objectives. The conclusions are drawn from the study findings in order to address the study questions. The chapter finally captures recommendations and suggestions for further research.

8.1 Summary of Chapters

The study examined the subject of communicating climate change which continues to elicit discussions across the globe. Governments and the people concerned with climate change continue to become increasingly apprehensive about its impacts. Communicating climate change faces challenges owing to its involvement of scientific research data which has complicated issues and questions. While efforts to communicate climate change that is related to conservation of Kakamega Forest continue, its impacts keep increasing both domestically and regionally. Communicating climate change has been perceived as a technical and scientific process that requires experts to interpret and pass information relating to conservation of forests. However, the scientific data at play is very complex and is often not understood and hence not accepted and therefore it needs to be synthesized in order to break down the barrier that exists between it and the target audience. Communities need to be able to connect the role that their attitudes and lifestyle play in causing climate change in order to work towards understanding the communication.

The study recognizes the view that while scholars have documented so much information about climate change, and there have been efforts to communicate the information to the public, the response of the public to communication indicates that there is a gap in understanding the information. Thus, the study employed the Worldview Intercultural Communication Theory in evaluating the potential of integrating indigenous Abaluhyia worldview with scientific approaches in communicating climate change that is related to conservation of Kakamega Forest. In this quest, the study relates to the theory's tenet which states that worldview can unlock some of the deepest layers of a culture's ideology of the cosmos and its implications for life.

Review of related literature was based on the objectives. Scholars observed that scientific approaches have been employed in communicating climate change however, challenges have been encountered. Scholars claim that science tends to communicate large scales of information that is generalized for specified locations of climate change. The bulk of scientific communication on climate change addresses global concern. Scientific words that are often used hinder understanding, accessibility and inclusivity. Scholars propose that scientists need to ground their information with people's experiences for effective communication and engagement on climate change.

The study employed a descriptive study design where both qualitative and quantitative methods were used. Data was collected using interview schedules, questionnaires and Focus Group Discussion guides. Data was analysed and presented thematically and using quantitative methods.

Chapter four sought to establish the scientific approaches used in communicating climate change that is related to conservation of Kakamega Forest. Data revealed that Climate

change has manifested as erratic and extreme weather events, prolonged dry seasons, reduced rains, drying rivers and recession of water in streams. Thus, the need to communicate climate change that is related to conservation of Kakamega Forest.

Primary data revealed that communicating climate change goes on and the Kenya Forest Services is mandated to carry the role of communicating climate change, conservation and management of Kakamega Forest. The study revealed that for effective communication of climate change to take place, there is need for collaboration between Kenya Forest Services and the community that lives adjacent to the forest. The majority of respondents indicated that communicating climate change is rarely done. A few respondents indicated that it is often done.

The respondents indicated that they did not understand the communication on climate change spelling gaps on the communication strategies. Some respondents observed that lack of understanding was as a result of the difficult scientific terms used in the communication. It emerged from the study that the scientific language does not find practical translations in the local languages.

The study revealed that the approaches employed in communicating climate change include the use of information communication technology which involves verbal communication, written communication, non-verbal communication, electronic communication and communication through participation. The various agencies that were involved in the communication of climate change include KALRO, Nature Kenya, Kenya Forest Services, KWS, Local government officers and officers from the Ministry of Agriculture. The study revealed that written communication about climate change is conveyed through newspapers, magazines, conference papers and books, however these

platforms often target to communicate to a larger society as opposed to a specific audience. News reporters treat climate change news as general news and this limits the effect it should have on the consumers of the news. The government through KFS came up with a Participatory Forest Management initiative that is provided for under the Forests Act 2005. This was an effort to promote participation of the community that lives adjacent to the forest in communicating management and conservation of the forest in order to mitigate climate change. This initiative birthed the CFA which provides for a mutual agreement between KFS and the forest adjacent community.

The study revealed that the electronic media that is used in communicating includes radio, television and mobile phones sms. Twenty respondents acknowledged receiving communication on climate change from a local radio station. Respondents also indicated that the weather forecast was consistently conveyed however it often failed to meet the accuracy test. Only eight respondents indicated that they had heard about climate change on television. They said that television talks on climate change involved experts who mostly discussed complex climate issues that were not easily understood by large audiences

Chapter five examined how the indigenous Abaluhyia worldview communicates conservation of the forest in general. The study revealed that the indigenous Abaluhyia worldview has channels of communicating conservation of the forest as well as climatic events. It emerged from the study that the indigenous Abaluhyia worldview regulated interaction between the people who live adjacent to the forest and the forest resources through communication. The study revealed that the indigenous Abaluhyia worldview's communication strategy is a fusion of multiple practices that are merged with

communication systems as opposed to a disconnected array of messages. These practices are rooted in the values and beliefs of the community.

It emerged from the study that the Abaluhyia people used songs, prohibitions, folklore, cultural ceremonies and wise sayings to communicate conservation of Kakamega Forest. These approaches were reinforced through repetition. Prohibitions that were used included taboos that barred members from destroying forest materials. Sayings and proverbs communicated conservation of the forest through strong imagery and also expressed the moral attitude of approving or disapproving certain actions. Folktales had moral lessons which were meant to lead the people away from wanton destruction of the forest. They also contained aspects such as tests and warnings on the consequences of destroying the forest materials.

The study revealed that cultural platforms offered to educate the indigenous Abaluhyia people about the importance of forests were to the community for posterity. The cultural ceremonies having been an integral part of life of the people was treated with seriousness and the communication shared was held with equal seriousness.

Chapter six assessed how the indigenous Abaluhyia worldview was used in conservation of Kakamega Forest.

The results of the study revealed that 91.3% of the respondents acknowledged that the Abaluhyia people had regulated ways of conserving the forest. It emerged that conservation of forest resources occupies an important space in the indigenous Abaluhyia worldview since it is a way of ensuring friendliness to forest owing to the importance that the community attached to the forest.

The study revealed that the Abaluhyia worldview recognizes and values the spiritual dimension attached to the forest thus its conservation was emphasized. In the Abaluhyia worldview, the forest was a home for the gods and spirits, therefore it was sacred. The forest also harboured medicinal trees and herbs which had to be conserved for their continued use.

The community also appreciates that the forest supports livelihood and put in place regulations on the use of the forest resources. The study revealed that it is important to conserve the forest in order to regulate ecosystems, protect diversity as well as allow for absorption of carbon dioxide that is released from burning fossil fuels.

The study revealed that increased forest cover contributes to increased rainfall as a result of evaporation and also moderates climate. However, the study revealed that destruction of the forest continues. This is caused by pressure from the community in search of both farmland and land to settle due to increased population. The people encroaching on the forest clear bushes and cut live trees to create room for farmland.

The study also revealed that conservation of the forest is hindered by the community's belief that the forest belongs to the government. This notion is informed by the KWS continuous guarding of the forest. This attitude led to destruction of the forest since the community does not have a sense of responsibility over the forest.

Chapter seven sought to evaluate how the indigenous Abaluhyia worldview can be integrated with scientific approaches to enhance communicating climate change data that is related to conservation of Kakamega Forest. In chapter eight, the summary, findings of the study questions are given. Conclusions made based on the findings are also given

It emerged from the study that communicating climate change that is related to conservation of Kakamega Forest continues to be done, however, the attitude and response of the forest adjacent community indicates that the target audience is not responding appropriately to the communication. This was confirmed by the continued destruction of the forest and the rates at which the forest is diminishing. The response was attributed to ignorance about the effects of destroying the forest due to not understanding the communication, impunity, the scientific approach that is employed by the communicators which limits the audience understanding of the communication and poverty which leads to poaching of trees for timber to be sold.

The study results revealed that the media used to communicate climate change that is related to conservation of Kakamega Forest such as radio, television, wide internet and telephone short message services eliminates a large group of the target audience. This is due to minimal disposable income as well as illiteracy which hindered communication via electronic mass media. Mass media also targets a large audience and therefore it may not address the specific message that relates with the audience.

The study revealed that complacency was an impediment in communicating climate change. Some members of the forest adjacent community did not take the communication about climate change seriously. Complacency was aided by ignorance and illiteracy. The constant guarding of the forest by Kenya Wildlife Services rangers conveyed to the forest adjacent community the thought that the forest was the property of the government. Therefore, members of the community had no obligation to support conservation of the forest since it did not belong to them.

The study revealed that neglect of socio-cultural practices, values and perception had hindered communicating climate change. It emerged that if the community had continued to communicate conservation of the forest and its importance using the cultural approach, it would support the approaches taken by the Kenya Forest services alongside other agencies.

The respondents proposed that the application of indigenous Abaluhyia worldview integrated with scientific approaches has the potential of improving communicating climate change that is related to conservation of Kakamega forest. The study revealed that the Abaluhyia communication media are consistent with their values, beliefs and practices which can enhance communicating climate change. Thus, tapping in on their experience and practices can yield positive responses in relation to behaviour change. The reverence and prohibitions that the indigenous Abaluhyia applied to sacred grooves have the potential to aid protection of nature reserves which are an invention of the Kenya Forest Services. Respondents recommended local community members participation in communicating as it would enable success in the communication and possibly breakdown the scientific terms in to simple and understandable language. Abaluhyia accepted norms and cultural prohibitions express respect, preservation and conservation of the forest and utilization of forest materials was guided by moral values which if tapped can yield behaviour change. Therefore, integration of the indigenous Abaluhyia worldview and scientific approaches in communicating climate change related to conservation of Kakamega Forest have the potential of yielding a better and effective communication strategy.

8.2 Conclusion

The study set out to evaluate the potential to integrate the indigenous Abaluhyia worldview with western scientific approaches in communicating climate change data related to conservation of Kakamega Forest. The study was cognisant of the fact that western scientific worldview has mainly been used in communicating climate change data related to conservation of Kakamega Forest and yet the communication has not elicited a positive behavioural change in response to the communication. The poor response is an indication that western science alone is not adequate in communicating and it cannot be relied on exclusively. The continued destruction of Kakamega Forest despite the efforts by various agencies in communicating climate change related to conservation of Kakamega Forest and the worsening of climate variability is an indication that communication has not been effective. Majority of the respondents (73.93%) acknowledged that integrating the indigenous Abaluhyia worldview with scientific approaches would enhance communicating climate change that is related to conservation of Kakamega Forest.

The study therefore concluded that the indigenous Abaluhyia worldview's moral teachings, prohibitions, practices and sanctions concerning conservation of the forest can help develop a system that promotes conservation of the forest. The developed system can help curb destruction of Kakamega Forest subsequently alleviate climate change. The study also concluded that both the western scientific worldview and the indigenous Abaluhyia worldview have a role to play in communicating climate change related to conservation of Kakamega Forest. Therefore, in order to achieve enhanced and effective communication of climate change data, the communication needs to be grounded on both

existing knowledge found in the local people's worldview and the information innovated from research that's mainly based on the western scientific worldview for the audience to relate with the communication. The integration of the two would form a strong and attractive communication system which would enhance effective communication. Integration of indigenous Abaluhyia worldview with scientific approaches in communicating climate change related to conservation of Kakamega Forest justifies the theory that elucidates that worldview shapes how culture influences communication and cultural behaviour as well as interpreting events.

In a progressive world discovery of new knowledge continues, however this knowledge should make sense to audiences in the light of what they already know from their lived experiences. The study thus concludes that the western scientific worldview climate change data should be disseminated in ways that resonate with the people's worldview for them to relate, accept and understand the communication. Science will provide data while the indigenous Abaluhyia worldview breaks the data in to a language that the audience understands and relates with familiar practices that have enabled the people live in harmony with the forest in the past. A worldview that distorts the inherent understanding of the forest as a resource by the native community will not lead to successful communication, hence the need to tackle this understanding by integrating indigenous Abaluhyia worldview with scientific worldview in communicating climate change that is related to conservation of Kakamega Forest.

The study also concluded that integrating the indigenous Abaluhyia worldview and western scientific approaches increases applicability and collaborative knowledge generation thus allowing for community participation. This study conclusions resonate

with the theory that states that worldview shapes how culture influences communication and cultural behaviour as well as interpreting events. Worldview can also unlock a culture's ideology of the cosmos and its implication for one's life as well as awaken cultural obligations that give guidelines for expected behaviour.

8.3 RECOMMENDATIONS

The study clearly underscores the importance of indigenous Abaluhyia worldview in effective communication of climate change that is related to conservation of Kakamega Forest and its ability to shape the response in behaviour of the audience. It is clear that western scientific approaches alone cannot be relied upon to effectively communicate climate change that is related to conservation of Kakamega Forest. In the face of the challenges encountered in communicating climate change related to conservation of Kakamega Forest, it is necessary that the Kenya Forest Conservation and Management government arm and the Kakamega County government formulate climate change communication policies that are based on the knowledge available which is drawn from experience alongside scientific data. Integrating indigenous Abaluhyia worldview with scientific approaches provides for a better understanding of the communication on climate change that is related to conservation of Kakamega Forest. Integration of the two approaches has the potential to make communicating climate change rich as well as reaching a wider audience. The study therefore recommends the formation of a policy framework that would provide for the integration of the indigenous Abaluhyia worldview with scientific approaches in communicating climate change related to conservation of Kakamega Forest.

8.4 Suggestions for further research

This study dwelt on the issue of integrating the indigenous Abaluhyia worldview with scientific approaches in communicating climate change that is related to conservation of Kakamega Forest, thus it was restricted to respondents from the Abaluhyia community who live adjacent to Kakamega Forest within Kakamega County. It is important to understand the perspective of the other communities who live adjacent to the forest in Nandi and Vihiga Counties as well as the various Kenyan communities on the critical discourse of climate change. This is informed by the fact that Climate change affects everyone in Kenya and across the globe. The study recommends that researchers pursue communicating of climate change in the worldview of the various communities in Kenya for a concerted effort towards effective communication of the same.

REFERENCES

Ajani, E.N, Mgbenka, R.N & Okeke, M.N (2013) Use of indigenous knowledge as a strategy for climate change adaptation among farmers in sub-Saharan Africa: Implications for policy. Asian Journal of Agricultural Extension, Economics and Sociology Volume 2(Issue 1):23-40 https@//doi.org/10.9734/AJAEES/2013/1856

Asante, M (1987) *The Afrocentric Idea*. Philadelphia: Temple University Press

Alvera.P, (2013) *The role of indigenous knowledge systems I coping with food security and climate change in Mbire District Zimbabwe*. M.Sc. Thesis in Integrated Water Resources Management, University of Zimbabwe, Harare

Adaptation at Scale in Semi-Arid Regions (2016) *COMMUNICATING CLIMATE CHANGE FOR ADAPTATION: Challenges, Successes and Future Priorities* International Development Research Centre (IDRC) UK www.ASSARadopt.org

Bain, P.G, Milfont, T.L, Kashima, Y, Bilewicz, M, Doron, G (2015) Co-benefits of addressing climate change can motivate action around the world, Nature Climate Change. Nature climate change journal, Volume 6, pages 154-157, DO1:10.1038/nclimate 2814.

Barker, R.L (1999) *The Social Work Dictionary*. Washington D.C: NASIU Press

Bauer.F and Smith. J, (eds) (2015). The Climate Knowledge Brokers Manifesto: Informed Decision-making for a climate resilient future. Climate Knowledge Brokers Group.http://www.climate knowledgebrokers.net/manifesto/.

Bollier. D, (2009) Protecting Indigenous knowledge. Electronic Journal of Indigenous Knowledge (Online) 12(1) http://www.organicagcentre.ca/Docs/protecting/content/ Vol 12 org.phpid=2453

Bryman. A (2006) Integrating quantitative and qualitative research. How it is done. Qual Res Volume 6 issue 1 (97-13) https://doi.org/10.1177/146879410658877

Capstick.S, Whitmarsh. L, Poortinga. W, Pidgeon. N & Upham.P (2015) International trends in Public Perceptions of Climate Change over the past quarter century: International trends in public perceptions of climate change. Wiley Interdisciplinary Reviews: Climate Change 6(1) DOI:10.1002/wcc321

Carvalho. A (2009) *Environmental Communication*. Science Environment Policy 17 (1) European Commission D G ENV.

Chanza. N, de Wit. A (2015) Enhancing climate government through indigenous knowledge. South African Journal of Science 112(1/2) DOI:10.17159/sajs.2016/20140286

Chari, T (2016) *Rethinking Climate Change Communication Strategies in Africa: The Case for Indigenous Media* https://www.researchgate.net/publication/308954453

Chirisa. I, Matamanda. A, R, Mutambwa.J (2016) *African's Dilemmas in Climate Change Communication. Vol 1. Theory of Climate Change communication*. Series Editor Walter Leal Filho, Evangelos Manulas, Anabela Marisa Azul, Ulisses Azeiteiro and Henry McGhie. Hamburg. Germany (2018)

Cox. R (2013) *Environmental Communication and the Public Sphere.* SAGE, Los Angeles

Creswell.J W, Plano Clark. V L (2007) *Designing and Conducting Mixed Methods Research.* Thousand Oaks, C A:Sage

Day, B.A &Monroe. M, C (2000*) Environmental Education and Communication for a sustainable world:* Handbook for International Practitioners. Academy for Educations l Development. Washington

Diawuo, F &Issifu , A K (2015) Exploring the African Traditional Belief Systems in Natural Resource Conservation and Management in Ghana. The Journal of Pan African Studies, Vol 8

Dodd, C H (2017) *Dynamics of Intercultural Communication*. Brown &Benchmark 1995, Pennsylvania State University https://www.amazon.com>Dynamism Intercultural Co…

Douglas. B, (2024) The Immaterial Economics of Saving Nature. Milwaukee; An Open Source Book, academia.edu

Dumaru, P. (2010) Community-based adaptation: enhancing community adaptive capacity in Druadrua Island, Fiji. WIREs climate change,Volume 1. Issue 5, pg 751-763. Doi.org/10.1002/wcc.65

Dupar.M, McNamara.L, Pacha.M (2019) *Communicating Climate Change: A Practitioner's guide. Insights from Africa, Asia and Latin America*. Climate and Development Knowledge Network (CDKN) 2019edition. ISBN:978-0-620-84052-1

ECRC (2005) EnvCom Resource Center, School of Communication. Northern Arizona University

EEA Report (2016). Communication, Environment and behaviour. A second study on the links between public communication, environment policy implementation and behaviour science. European Environment Agency. Copenhagen (no 113)

Eneji.C,V,O, Ntamu. G, U, Unwanade. C, C, Godwin. A, B, Bassey. J, E, Williams. J, J, Ignatius.J (2012) Traditional African Religion in Natural Resource Conservation and Management in Cross River State, Nigeria. Environmental and Natural Resources Research: Vol 2, No 4 2012 ISSN 1927-0488. Published by the Canadian Centre for Science and Education

European Spatial Planning: Adapting to Climate Events (ESPACE 1&2) n.d *Climate ChangeStrategy*. Department for Communities and Local Government http://www.espace-project.org/-

European Commission (2015) *Special Eurobarometer 435. Climate Change Report. Survey conducted at TNS opinion and social at the request of the Directorate-General for climate action*. Published November 2015 Brussels. http://ec-europa.eu/clima/citizens/support/docs report-2015-en.pdf

Evangelical Alliance of Papua New Guinea (2005) *Christians Caring for the Environment in Papua New Guinea. A Hand of Principles and Practice.* Published by Evangelical Alliance of Papua New Guinea. Mt Hagen WHP, PNG

FAO (2014) *Managing Climate Risks and adapting to climate change in the agriculture sector in Nepal, Rome, Italy: climate energy and tenure division (NRC).* Food and Agriculture Organization of the United Nations (FAO) Rome.

Faniran. A, (1997) "*Land, land Degradation and Global Environmental Change: What every citizen must know in Osuntokun.* A (ed) Dimensions of Environmental Problems in Nigeria. Ibadan" Davidson Press

Filho. W L (2008) Communicating Climate Change: challenges ahead and action needed. International Journal of Climate Change Strategic Management 1(1): 5-8 DOI:10.1108/17568690910934363

Guthiga. P, Newshan. A, (2011) *Meteorologists meeting rainmakers: Indigenous and climate policy processes in Kenya*. IDS Bull 42

Gumo, S, Gisege, S.O, Raballa, E and Ouma, C (2012) Communicating African Spirituality through Ecology: Challenges and Prospects for the 21st Century. Religions 3, 523-543; doi 10. Religions ISSN2077-1444, 3390

Hart, P.S, Nisbet, E.C and Myers, T. A (2015). Public attention to Science and Political news and support for climate change mitigation. Nature climate change 5(6). DO1:10.1038/nclimate 2577

Hiwasaki, L, Luna, E & Syamsidik, S.R (2014) *Local and Indigenous Knowledge for community resilience: hydro-meteorological disaster risk reduction and climate change adaptation in coastal and small island communities. UNESCO*

House of Lords Science and Society, Select Committee on Science and Technology Session 1999-2000, Third Report, 2000 HL Paper 38. London

ICIPE (2004) *An Integrated Package for the Conservation of the Kakamega Forest*. ICIPE Annual Scientific Report 2002-2003 ISBN:9290641657

Ikuenobe, P. A (2014) Traditional African Environmental Ethics and Colonial Legacy. International Journal of Philosophy and Theology. Vol 2 No 4. Published by American Research Institute of Policy and Development.

Independent (2010) Indigenous knowledge meets science. http://www.independent.co.ik/news/world/africa/indigenous-knowledge-meets-science-1904637.html.

Intergovernmental Panel on Climate Change (IPCC) Climate synthesis Report. Geneva. http:/www.ipcc.ch/report/ar5/syr/.IPCC (2013). Summary for Policymakers. Climate change 2013: The Physical Science basis. Contribution of Working Group 1 to the fifth Assessment report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom and New York. NY.USA.

Ison, R & Russel, D (2000) *Agricultural extension and rural development: breaking out*

traditions. Cambrigde, University Press, Cambridge

Johnson, B.B (2012) Climate Change Communication: Provocative Inquiry into motives, meanings and means: Perspective, Risk Analysis, 32(6)DOI:10.1111/i.1539-6924. 2011.0173.x.

Kahan, D.M, Jenkins-Smith, H & Braman, D (2011) Cultural cognition of scientific consensus. Journal of Risk Research, 14(2) DOI:10.1080/13669877.2010.511246.

Karki, M, Pokhrel,P & Adhikari ,J,R (2017) Climate Change: Integrating Indigenous and Local Knowledge in to Adaptation Policies and Practices. A Case Study from Nepal. https://www.cabi.org/wp-s/Environmental -science-A10 Karki

Kaufman, D.G (1996) *Protecting our Ecology*, *Biosphere 2000*. 3rd ed, Dunmore: Harper Collins publication.

Keyton. J, (2010) Communication and Organizational Culture; A Key to Understanding Work Experience ISBN: ISBN; 9781412980227 SAGE: Washington DC

Kombo, D.K and Tromp D, L. A (2006) *Proposal and Thesis Writing. An Introduction*. Pauline Publications Africa. Nairobi. Kenya.

Kozak, M (2008) 'Finite and infinite populations in Biological statistics; should we distinguish them?', The Journal of American Science, Vol 4 No 1

Lata, S & Nunn, P.D (2011). Misperceptions of Climate Change risk as barriers to climate change adaptation. A case study from the Rewa Delta, Fiji. Climatic Change 110

Lee, T.M, Markowitz, E.M, Howe, P.D, Ko, K.Y and Leisorowitz, A.A (2015). Predictions of Public Climate Change Awareness and risk perception around the world. Nature Climate Change 5(6). DO1:10.1038/nclimate 2728

Lennie, J & Tacchi, J (2013) *Evaluating Communication for Development. A framework for social change*. Routledge: London.

Lumosi. C and McGahey, J (2016) *Communicating Climate Change for Adaptation Challenges, successes and future priorities*. Publisher: Adaptation at Scale in Semi-Arid Regions (ASSAR). www.assar.uct.ac.za/

Malka, A, Krosnick, J.A and Langer, G (2009) The Association of Knowledge with Concern About Global Warming: Trusted information Sources Shape Public Thinking, Risk Analysis, 29(5) DOI:10.1111/i.1539-6924.2009.01220.x.

Marshall and Rossman (2011) *Designing Qualitative Research* (5th edition) Thousand Oaks, C A: Sage Publications

Marx, S.M, Weber, E.U, Orlove, B.S, Leiserowitz, Krantz, D.H, Roncoli,C and Philips, J (2007). *Communication and Mental Processes. Experiential and analytic processing of uncertain climate change information*. Global Environmental
Change. 17(1) DO1:10.1016/igloenvcha 2006 10.004.

McNamara K.E (2013) and Gibson, C (2009). *We do not want to leave our land; Pacific ambassadors at the United Nations resist the category of 'climate refugees'*. Geoforum 40.

McNamara, K. E (2013). Raising awareness about climate change in Pacific Communities. Environmental Education Research Volume19 issue 6 (16). Pg 864-871 DOI.org/10.1080/13504622.2013.769046

Marx.S, M, Weber. E, U, Orlove. B, S, Leiserowitz. A, Krantz. D, H, Roncoli. C and Phillips. J (2007) Communication and mental processes: Experiential and analytic processing of uncertain climate information. Global Environmental change, 17(11) DOI: 10.1016/i.gloevcha 2006.10.004

Mbiti, J.S (1969) *African Religions and Philosophy*. Oxford: Heinemann

Mbiti, J.S (1975) *An Introduction to African Religion*. Heinemann International

Literature and Textbooks.

Moemeka, A.A (1989) *Communication and African Culture: A Sociological Analysis*. University of Lagos in Nigeria. A paper in the book COMMUNICATION AND CULTURE. AFRICAN PERSPECTIVES. Edited by S.T.Kwame Boafo

MOESTE (2015) Ministry of Science, Technology an Environment of the Government of Nepal

Moser, S.C & Dilling, L (2009) *Creating a Climate Change: Communicating Climate Change and Facilitating Social Change.* National Center for Atmospheric Research: University of Colorado. Cambridge University Press. Ecoscience 14 Issue 4

Moser, S.C (2010*)* Communicating Climate Change: history, challenges, process and future directions. Wiley Interdisciplinary Reviews: Climate Change 1(1). DOI:10 1002/wccll

Moser, S C and Dilling, L (2012) Communicating Climate Change: Closing the Science Gap. ResearchGate.net DO1:10.1093/OXFORDHB/9780199566600.03.0011

Mugenda, O. M and Mugenda, A. S (2003) *Research Methods. Quantitative and*

Qualitative Approaches. African Centre for Technology Studies (ACTS). Nairobi. Kenya

Nerlich, Kotyeko and Brown (2010) *Theory and Language of Climate Change Communication* Wiley Interdisciplinary Reviews: Climate Change

Niamir-Fuller, M, Ozdemir, I &Brinkman, J (2016) *Environment, Religion and Culture in the Context of 2030 Agenda for Sustainable Development*. United Nation Environment Programme 2016 UNEP ISBN:978-92-807-3591-8

Ngara, R & Mangizvo, R (2013) Indigenous Knowledge Systems and the Conservation of Natural Resources in the Shangwe Community in Gokwe District, Zimbabwe International Journal of Asian Social Science, 3(1) Pg 20-28

Nunn, P.D (2009). Responding to challenges of climate change in Pacific Islands: management and technological imperatives. Climate Research Volume 40: 211-231 DOI:10.3354/CR00806

Sarfo- Mensah, P, Owusu-Bi, A, Nyamekye, S, A. & Amisah , S (2014) Environmental Conservation and Preservation of Cultural Heritage: Assets for Tourism Development in the Akyem Abuakwa Tradition Area of Ghana Worldviews; Global Religions, Culture and Ecology. DO1.10.1163/15685357-01700004

Obasola.K, (2013) African Religion and Environmental Dynamics: Implications for

human and Sustainable Development. Department of Religious Studies, Olabisi Onabanjo University. Ogun State. Journal of Studies in Social Sciences. ISSN 2201-4624 Volume 4 No 2

Ockwell, D, Whitmarsh, L & O'Neill, S (2009) *Reorienting climate change communication for effective mitigation- forcing people to be green or fostering grassroots engagement*? Science Community 30(3)

Omare, G, (2006) *Role of Isukha Religious Beliefs and Practices in the Conservation of Kakamega Forest*. Religious Studies Dept. Maseno University. Maseno

Oso W, Y and Onen D, (2008) *A General Guide to Writing Research Proposals and Reports.* Second Edition. Makerere University Printery. Kampala. Uganda

Priest. S, (2016) *Communicating Climate Change.* The Path Forward. Publisher: Palgrave Macmillan. UK 2016. ISBN:978-1-137-58578-137-58579-0

Royal Society Public understanding of Science. 1985. London, The Royal Society

Rweyemamu, R, (1989) *Religion and Peace: An Experience with African Traditions.* StudiaMissionalia

Scherberger. A (2011) *CONSERVATION AND CHRISTIANITY: Outcomes and Values*

Driving Faith-based Conservation. Masters' Thesis. The Nicholas School of the Environment of Duke University.

SEI (2016) Building Bridges and Changing Minds: Insights from Climate Communication Research and Practice. Stockholm Environmental Institute. Linnegatan 87D, Box 2421810451 Stockholm

SER (2015) Social and Environment Report. Toyota Industries Corporation

Secretariat of the Pacific Regional Environment Program (2012). Pacific climate change Portal: Theme 4; Education, training and awareness.

Senghor, L.S (1995) 'Negritude: A Humanism of the Twentieth Century in the Lee Hord and Jonathan Scott Lee (eds), *I Am Because We Are: Readings in Black Philosophy*. (Amherst, M.A:University of Massachusetts Press.)

Shorter, A, (1987) Songs and Symbols of Initiation: A Study from Africa in the Social control of *Perception*. Catholic Higher Institute of Eastern Africa. Nairobi

Sibanda, B (1997) *Environmental Policy. Governance, Religious Traditional Practices and Natural Resource Management in Zimbabwe*. Zimbabwe: S.A.P.E.S

Stoknes, P. E. E (2014) Rethinking Climate Change Communication and Psychological climate Paradox*:* Energy Research and Social sciences, 1 DOI:10:1016/i-erss 2014.03.007

Stokes, B, Wike, R and Carle, J (2015) Global Concern about Climate Change. Broad Support For Limiting Emissions. Pew Research Center. http//www.pewglobal.org/2015/11/05/global-concern-about-climate-change-broad-support-for limiting-emissions/.

Sukamolson. S (2007) *Fundamentals of quantitative research*. Language Institute Chulangkorn University

Tarusarira, J (2013) Praying for Rain? African Perspectives on Religion and Climate Change. S African Religion, Climate Change and Knowledge Systems. The Ecumenical Review Volume 69 Issue 3. First published in 2017

Ward, B (2008) *Communicating on climate change: an essential resource for journalists, scientists and educators.* Metcalf Institute for Marine and Environmental Reporting, Narragansett.

Weart. S (2003) *The discovery of global warming*. Harvard University Press, University

Ziervogel, G, Opere, A (2010) *Integrating meteorological and Indigenous knowledge-based seasonal climate forecasts in the agricultural sector*. International Development Research Centre. Ottawa.

APPENDICES

APPENDIX 1: INTERVIEW SCHEDULE FOR ELDERS
Section 1: BIO DATA

1: Sub-County……

2. Location……..

3. Village Name……..

4. What is your age bracket?

a) 40-50 ( )

b) 51-60 ( )

c) 61-70 ( )

d) 81-90 ( )

e) 90 and above

5. What is your level of education?

a) Post Graduate Degree

b) Bachelor's Degree

c) Diploma

d) Certificate

e) Secondary School

f) Primary School

g) None

h) Others (specify)

SECTION 2: CONTEMPORARY APPROACHES TO COMMUNICATING CLIMATE CHANGE

6) Do you agree that deforestation continues to take place in Kakamega forest?

a) Strongly agree

b) Agree

c) Disagree

d) Strongly disagree

7. In your opinion, why do you think some people engage in deforestation?

8. What are the functions of the forest? Give three

9. In your view, have there been any efforts made in communicating about the impacts of climate change?

a) Yes ( )

b) No ( )

If yes, who has made these efforts to communicate about the impacts of climate change?

10. What is the importance of communicating to communities about climate change?

11. In your opinion, is there a relationship between climate change and forest conservation?

12. What ways/approaches have been used in communicating climate change in Kakamega Forest?

13. If climate change impacts and forest conservation have been communicated, have the people responded to the communication?

a) Yes ( )

b) No ( )

If yes, has the communication resulted in to change of behaviour?

SECTION 3: HOW THE INDIGENOUS ABALUHYIA WORLDVIEW COMMUNICATES FOREST CONSERVATION

14. Does the Indigenous Abaluhyia worldview have any relationship with forest conservation?

15. What roles does the Indigenous Abaluhyia worldview play in the conservation of Kakamega forest?

How does the indigenous Abaluhyia worldview communicate forest conservation?

SECTION 4: INDIGENOUS CONSERVATION EFFORTS OF KAKAMEGA FOREST IN THE PERSPECTIVE OF THE LOCAL PEOPLES' WORLDVIEW

16. Are there any impacts of climate change that are manifesting in Kakamega Forest?

a) Yes ( )

b) No ( )

If yes, which ones are they?

17. What activities do people engage in that lead to forest destruction?

18. What is the understanding of the value of the forests for the communities that live around Kakamega Forest?

19. In your opinion, would communicating climate change related to forest conservation mitigate the destruction?

20. What are some of the indigenous conservation practices that are known to the communities around Kakamega Forest?

In your view do people need to engage in activities that conserve the forest?

SECTION 5: HOW INDIGENOUS ABALUHYIA WORLDVIEWS CAN BE INTERGRATED TO ENHANCE COMMUNICATING CLIMATE CHANGE RELATED TO FOREST CONSERVATION.

21. What reasons probably make the local communities around Kakamega forest not respond to communication about climate change related to forest conservation?

22. Have you as an individual received information communicating about climate change related to forest conservation before?

a) Yes ( )

b) No ( )

If yes, who was communicating this information?

23. Did you understand what was being communicated about climate change related to forest conservation?

a) Yes ( )

b) No ( )

If not, what do you think made it difficult to understand?

Language

Medium

Difficult words/vocabulary

Place/ accessibility

24. How often is communicating about climate change related to forest conservation done?

Very often

Often

Rarely

Never done

25. In your view, would communicating climate change related to forest conservation be more effective if the Indigenous Abaluhyia Worldview was applied?

26. Would agree that not applying the Indigenous Abaluhyia worldview knowledge would affect effective communication of climate change related to forest conservation? If yes how ? Explain

27. How is forest conservation communicated according to the indigenous Abaluhyia worldview?

APPENDIX 2: QUESTIONNAIRE FOR FOREST RANGERS/GUARDS

1. Gender:

    a) Male ( )

    b) Female ( )

2. Period of Service in Kakamega Forest

a) Less than five years

b) 6-10 years

c) 11-15 years

d) 20 years and above

SECTION 2: CONTEMPORARY APPROACHES TO COMMUNICATING CLIMATE CHANGE

3. Have you experienced climate change in Kakamega county and its environs? Explain

4. Would you agree that this climate change is related conservation of Kakamega forest?

    a) Strongly agree

    b) Agree

    c) Uncertain

    d) Disagree

    e) Strongly disagree

5. In your view are the people in the communities surrounding the forest engaging in activities that cause destruction of the forest?

6. Have there been any efforts to communicate to them climate change in relation to destroying the forest?

7. In your opinion, do you think the communities around the forest relate climate change to destruction of the forest?

8. Have there been any efforts to communicate climate change related to forest conservation to communities around Kakamega Forest?
    a) Yes ( )
    b) No ( )
9. If yes, how/what approaches have been used in communicating Climate change related to forest conservation?

10. Have these approaches used in communicating climate change brought about change in efforts to conserve the forest?
    a) Yes ( )
    b) No ( )
11. If yes, to what extent?
    a) Very large extent
    b) Large extent
    c) Uncertain

d) Little extent

e) No extent

12. Are the existing efforts to communicate climate change related to forest conservation adequate?
13. What challenges do communicators face when seeking to convey climate change related to forest conservation?

SECTION 3: HOW THE INDIGENOUS ABALUHYIA WORLDVIEW COMMUNICATES FOREST CONSERVATION IN GENERAL

14. What roles do the indigenous Abaluhyia worldviews and religions of the communities around Kakamega Forest play in communicating climate change and forest conservation?

15. How is climate change and forest conservation communicated within the indigenous Abaluhyia worldview?

16. How did the indigenous Abaluhyia communicate climatic events?

17. How is the Abaluhyia worldview/culture used to communicate climate change?

18. What are some of the activities that the community can undertake to communicate climate change?

SECTION 4: THE INDIGENOUS CONSERVATION EFFORTS OF KAKAMEGA FOREST IN THE WORLDVIEW OF THE LOCAL COMMUNITIES.

19. What are the main indigenous nature conservation practices known to the people of Kakamega Forest?

20. Would you agree that forest conservation is related to climate change? Explain

21. In your opinion, can the indigenous Abaluhyia conservation practices be used to address climate change related to forest conservation? Explain

22. What is the understanding and value of forests for the different actors involved? For example, the community members and workers in the conservation sector.

23. Are there any activities that people engage in that can conserve the forest?
    a) Yes ( )
    b) No ( )

If yes, name them.

24. In your opinion, can individuals be persuaded to change their attitudes towards conservation? Explain

25. Can the indigenous Abaluhyia worldview contribute to forest conservation?
    a) Yes ( )
    b) No ( )

What can an Abaluhyia worldview contribute to forest conservation?

26. How has communicating climate change influenced behaviour change in the conservation of forests?

SECTION 5: HOW INDIGENOUS ABALUHYIA WORLDVIEWS CAN BE INTEGRATED TO ENHANCE COMMUNICATING CLIMATE CHANGE DATA RELATED TO FOREST CONSERVATION

27. Does the government/ conservation agency engage in communicating climate change that is related to forest conservation?
28. How often do these agencies communicate to the communities about climate change related to conservation of Kakamega forest?

29. What does the government/agencies communicate about climate change related to conservation of forests?

30. What challenges hinder effective communicating climate change related to forest conservation?

31. In your opinion, can the Abaluhyia worldview be used in communicating climate change relate to forest conservation?
    a) Yes ( )

b) No ( )

If yes, explain how.

32. What indigenous practices communicate climate change that is related to forest conservation?
33. What is the role of values in public engagement for communicating climate change/ forest conservation?
34. How often is climate change related to climate change communicated?
35. To what extent has communicating climate change related to forest conservation influenced the decisions of the communities surrounding the forest in changing from activities that destroy the forest?
36. To what extent are community members involved in efforts to communicate climate change related to forest conservation?
37. Has the communication about climate change related to forest conservation been done using the indigenous Abaluhyia worldview?

a) Yes ( )

b) No ( )

If yes, what was the result?

If not, would it improve the understanding of the local communities if relation to communicating climate change related to forest conservation?

38. Does communicating climate change related to forest conservation address the religious and cultural thoughts/concerns of the communities? How?

39. In your view can the indigenous Abaluhyia worldview be integrated with the scientific data in communicating climate change related to forest conservation?

40. In your opinion would integrating indigenous Abaluhyia worldview and scientific data result in behaviour change?

APPENDIX 3: FOCUSED GROUP DISCUSSION GUIDE FOR COMMUNITY FOREST ASSOCIATION MEMBERS

SECTION 1

1. Have you experienced climate change?
    a) Yes
    b) No
    c) If yes, do you think it is related to the forest in any way?
2. How is it related to the forest? How?
3. In your view, is it necessary to communicate to the communities around the forest about climate change related to conservation of the forest?
4. Have there been any attempts to communicate climate change related to conservation to the communities around Kakamega Forest?
5. How has communication related to climate change and conservation of the forest been relayed? What approaches been used in communicating climate change in Kakamega forest?
6. How often do you receive communication about forest conservation and climate change?

7. Have these efforts led to a change of behaviour in relation to how people treat the forest?

SECTION 2

8. What is the role of the indigenous Abaluhyia people in communicating climate change that is related to conservation of Kakamega forest?

9. What roles do the indigenous Abaluhyia worldviews of the communities that surround Kakamega forest play in conserving the forest?

10. What factors shape understanding and use of the indigenous Abaluhyia worldview in communicating conservation of the forest?

11. What are some of the activities that members of the communities surrounding the forest can undertake to communicate climate change that is related to climate change?
12. How do indigenous Abaluhyia communicate forest conservation and climate change?

SECTION 3

13. How did the indigenous Abaluhyia communities deal with climatic events?

14. What are some of the main indigenous nature conservation practices known to the communities surrounding the Kakamega forest?

15. What is the understanding and value of forest for the communities involved?

16. Are there trees in the forest that are revered/religious that you know of?

SECTION 4

17. How would you propose communicating climate change related to forest conservation so that people take notice?
18. What strategies can be employed to improve communicating climate change that is related to forest conservation?

19. How is the indigenous Abaluhyia worldview used to communicate climate change that is related to forest conservation?

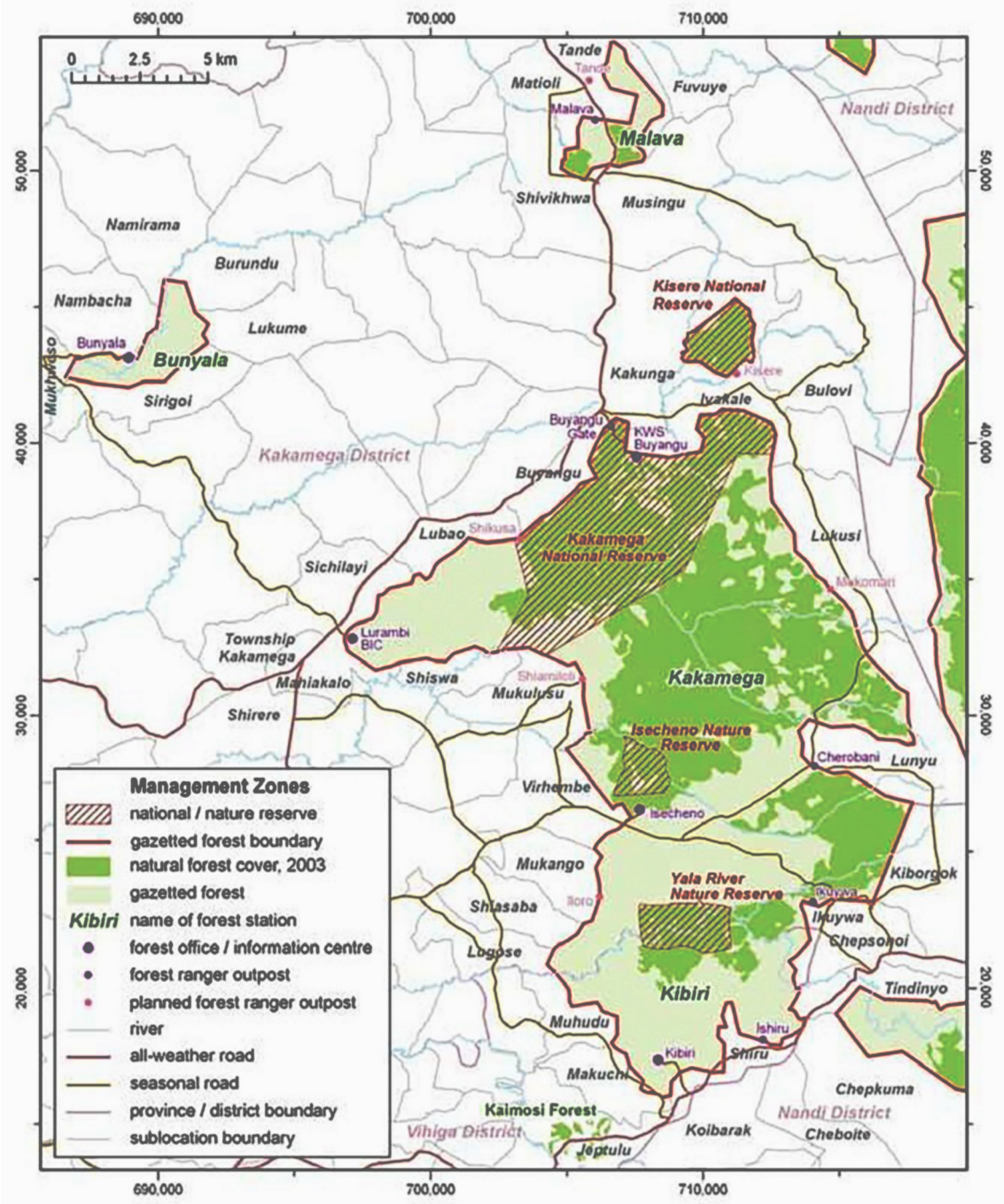
20. What challenges affect effective communicating and use of climate change and forest conservation information?

21. How/what can an indigenous Abaluhyia worldview contribute to forest conservation?

22. What reasons probably make local communities not respond to communication about climate change related to forest conservation?

23. In your opinion, do you think integrating the indigenous Abaluhyia worldview and scientific approaches to communicating climate change data effective?

KAKAMEGA FOREST MAP



Source: https://www.researchgate.net/