

Integrating Indigenous Abaluhya Worldview with Western Scientific Approaches in Communicating Climate Change Related to Conservation of Kakamega Forest

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ABSTRACT

Communicating climate change remains an integral aspect of the quest to manage the impacts of climate change. Communicating climate change largely takes the western scientific approach without much consideration of African traditional knowledge. Communicating climate change has not elicited the desired response from the community that lives adjacent to Kakamega Forest. Abaluhya people have had ways of conserving their forests, which ensured their posterity. The study aimed to assess the potential for integrating the indigenous Abaluhya worldview with western scientific approaches to communicate climate change in relation to the conservation of Kakamega Forest. The study was qualitative and used a descriptive design. The study drew data from interviews, Focus Group Discussions and review of secondary sources. The study revealed that the attitude and response of the members of the community that lives adjacent to Kakamega Forest show that they are not heeding the communication on climate change related to the conservation of Kakamega Forest, as demonstrated by their continued destruction of the forest. The results of the study identified some challenges that hamper a positive response to communicating climate change. The study revealed that the indigenous Abaluhya worldview's communication media, which are consistent with their values, beliefs, and practices, have the potential to enhance communication about climate change related to the conservation of Kakamega Forest. Therefore, this study recommends the integration of indigenous Abaluhya worldviews with western scientific approaches in communicating climate change data related to the conservation of Kakamega Forest.

Key words: Climate Change, Conservation, Indigenous Abaluhya Worldview, Western Science

I. INTRODUCTION

The impacts of climate change continue to threaten the existence of humans, animals and plants. These impacts of climate change are a result of destruction of forests around the world. Communities around the world need to be made aware of the dangers posed by the continued destruction of forests. Effective communication of climate change related to destruction of forests is essential in the efforts to alleviate the impacts of 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. The scholar further explains that 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.

A report by Adaptation at Scale in Semi-Arid Regions (ASSAR, 2016) proposes that communicating climate change should be grounded in dialogue and contextual understanding. They emphasize the need for incorporation 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. ASSAR (2016) adds that one crucial aspect to consider is the use of communication strategies that combine technological advancements with a focus on human interaction.

Gumo et al. (2012) posit that the transmission of sacredness within African culture occurs intergenerationally, as it is perceived to be a directive bestowed by ancestral figures. Hence, the conviction that the forest holds spiritual significance and this conviction contributes to the promotion of sustainable ecological protection. Gumo et al (2012) support the perspective regarding the necessity of incorporating the indigenous Abaluhya worldview into climate change communication in stating 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.

Chirisa et al. (2018) broach the notion that it is necessary to combine scientific methodologies with the indigenous worldviews in efforts to communicate climate change. This is due to the current limitations of scientific predictions in accurately determining the duration and distribution of seasonal rainfall, resulting in probabilistic forecasts. These 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.

From the forgoing scholarly inputs, there is an indication of the necessity to use peoples' worldviews and knowledge which would allow them to relate with communication on climate change. This study sought to evaluate the potential of integrating indigenous Abaluhya worldview with the western scientific worldview in communicating climate change information related to conservation of Kakamega Forest. Owing to the fact that western science has mainly been used but has not elicited the expected response to the communication, there is need to explore the potential that is bestowed in the indigenous Abaluhya community's knowledge system to communicate effectively.

II. LITERATURE REVIEW

According to Mawere (2010), indigenous knowledge is perceived as valuable in the establishment of a morally virtuous society. Its utilization aids African communities in recognizing their duty in the management 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.

According to the ASSAR (2016) report, 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. The report indicates that 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.

Ngara and Mangizvo (2013) point out that, religious beliefs, cultural norms, and practices are frequently in line with contemporary conservation ethics. Therefore, it is crucial to uphold these beliefs and practices, as they play a vital role in the prudent discourse and management of natural resources. These scholars observe 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 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.

The views of all the forgoing scholarly works find relevance in the aims of this study which seeks to evaluate the potential of the indigenous Abaluhya worldview in communicating climate change related to conservation of Kakamega Forest. Indigenous values and practices of the Abaluhya people ensured conservation of the forest and subsequently checked on climate change. The communicated information needs to relate with the peoples' worldviews, knowledge, beliefs, concerns and practices for it to be accepted and embraced. It is necessary that the audience receiving the communication is given opportunities to participate in the communication as well as express their understanding of the subject of climate change and conservation of the forest.

Karki et al (2017) highlight the significance of indigenous and local knowledge in addressing climate change in Nepal. These authors rationalize that these knowledge systems have the potential to aid in the development of policies, plans, and programs that are responsive to climate change. 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.

According to Karki et al (2017), indigenous knowledge systems have been consistently adapted and employed to foster a harmonious coexistence with the natural environment. 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. 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.

According to the ASSAR report of 2016, 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. 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. Hence this study's aim to evaluate the potential of integrating indigenous Abaluhya worldview in communicating climate change data related to conservation of Kakamega Forest.

III. METHODOLOGY

This study employed a descriptive design which was suitable for obtaining data from both interviews and Focus Group Discussions. The study was conducted in the area that is adjacent to Kakamega Forest and only within Kakamega County. This area falls within a radius of five kilometers from the boundary of the forest. Primary data was collected using interviews and Focus Group Discussions while secondary data was obtained from scholarly works. Respondents were mainly drawn from the members Mwileshi Community Forest Association, community elders and the ecosystem conservators. The sample consisted of two hundred and thirty four participants. Purposive sampling was employed in the selection of the Mwileshi Community Forest Association, two community elders, two ecosystem conservators and FGD participants. Simple random sampling was then used to select two hundred respondents from the two thousand registered members of the Mwileshi Community Forest association from which interview respondents were drawn. Interview schedules were used for face to face interviews while discussion guides were used by five FGDs. Each FGD had six participants. Data was organized, categorized and analyzed in themes which described the various views of the participants regarding integrating the Abaluhya worldview with western scientific approaches in communicating climate change related to conservation of Kakamega Forest.

IV. FINDINGS & DISCUSSIONS

4.1 Response and Attitude to Climate Change Communication

Studies show that while efforts to communicate climate change and conservation of the forest are carried on, climate change continues to escalate due to continued destruction of the forest. It was therefore imperative to identify reasons for the attitude and response to the communication of climate change by the community that lives adjacent to the forest. One of the Community Forest Association 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 alarming rates at which the forest cover continues to diminish.

An elder attributed the poor response to the communication to complacency, ignorance, impunity and the approaches used in communicating. 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.

In a rejoinder to the respondents' views on the attitude and response to communicating climate change that is related to conservation of Kakamega Forest, Chanza and de Wit (2016) draws attention to the fact that Climate science needs to be understood by local people as a shared asset that helps them to seek practical solutions to problems and opportunities brought by change and variability in the climate system. Chanza and de Wit (2016) further points out that climate governance at local levels is potentially realizable when indigenous communities with their invaluable reservoirs of climate change knowledge actively participate in climate regimes.

Lumosi and McGahey (2016) further argue 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. This argument supports the proposal made by the study participants to integrate the indigenous Abaluhya worldview into climate change communication pertaining to the preservation of Kakamega Forest. 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.

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. A community elder who was a key respondent stated 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 an obstacle 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 did not reach all the members of the targeted audience owing to the availability of the media used in communication. A local administrator 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 will 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.

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.

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. The challenge posed by illiteracy on communicating climate change that is related to conservation of Kakamega forest necessitates a change in approach to communicating.

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 ignorance hindered understanding the fact that destruction of the forest contributed to climate change. Interview results explicated that lack of knowledge of the underlying causes of climate change and their relationship with conservation of the forest had serious implications on its communication. Thus, there is a need to address ignorance 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.

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.

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 and conservation of the forest 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, but 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 resources. As a result of lack of compensation, the motivation levels go down leading to low attendance, thus hindering effective communication.

The study divulged that the forest adjacent community do not have a sense of ownership of Kakamega Forest. Respondents 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. The belief that the forest belongs to the government is prompted by the constant presence of Kenya Wildlife Service rangers who guard the forest. A misunderstanding occurs by 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.

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.

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 dependence 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. 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.

The ecosystem conservator 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. The tea zones are a buffer zone between the forest and the land that belongs to the members of the forest adjacent community aimed at protecting the forest by keeping off the poachers. 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 devise 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. FGDs 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 western scientific approaches in communication. 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.

4.2 Integrating the Indigenous Abaluhya Worldview with Scientific Approaches in Communicating Climate Change Related To Conservation of Kakamega Forest

The study revealed that majority of the 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. The respondents intimated that, both science and indigenous Abaluhya worldview have a role to play in communicating climate change that is related to conservation of Kakamega Forest and both would enhance the effectiveness of the communication. The western scientific approaches have 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. The respondents indicated that local community's worldview needs to be integrated in the efforts to communicate climate change.

A leader of the CFA pointed out that, "Our indigenous Abaluhya culture 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 and it is consistent with the values, beliefs and attitudes of the indigenous community." Chanza and de Wit (2016) agrees 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.

Initiation was one the ceremonies in which values about conservation of the forest were imparted. Some sub-tribes of the Abaluhya 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.

A CFA leader, recommended that while science would provide data based on research, the indigenous Abaluhya worldview would be used to communicate climate change data related to conservation of Kakamega Forest. Thus, integrating the indigenous Abaluhya worldview with scientific approaches in communicating climate change that is related to conservation of Kakamega Forest would be complimentary. 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.

Chirisa et al. (2018) assert that the absence of integration of both science and traditional knowledge 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.

Focus group discussions (FGDs) highlighted that the Abaluhya 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 Abaluhya 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 Abaluhya 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.

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 key respondent said, "The preservation of sacred grooves was communication in itself that helped to ensure conservation of the forest. The prohibitions and reverence for sacred grooves communicated conservation of the forest and ultimately addressed climate change."

The ecosystem conservator indicated that the KFS had embraced and adopted the concept of Nature Reserves, however, their approach was western 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 accessing the forest as opposed to the utility-based understanding by the local community. 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. The conservator indicated that an integration of the concept of utility based sacred grooves and input-based nature reserves would allow for the indigenous Abaluhya worldview participation which enhance communicating climate change related to conservation of Kakamega Forest.

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 Abaluhya indigenous worldview would give an opportunity for the communicators of 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

Abaluhya 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.

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 Abaluhya community identifies with these events through the medium of folklore and general storytelling. The convergence of the Abaluhya 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 Abaluhya 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.

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 Abaluhya 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 Abaluhya 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 Abaluhya worldview alongside scientific approaches.

The findings from interviews indicated that the indigenous Abaluhya worldview communicates established norms and cultural prohibitions pertaining to the preservation of the forest. Through these norms and prohibitions, reverence of the forest is expressed, forests are safeguarded and sustained, and the prohibitions are communicated through the use of taboos and totems. Norms and prohibitions play a crucial role in shaping individuals' attitudes towards conservation behavior and establishing a framework for the appropriate utilization of forest materials. 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. A key respondent 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 Abaluhya worldview is observed to be embodied in traditional activities, as elucidated by a community elder. For example, the Abaluhya 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 Abaluhya 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 Abaluhya 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 Abaluhya 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 Abaluhya 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 Abaluhya 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 Abaluhya 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 Abaluhya 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 Abaluhya 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 Abaluhya 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 Abaluhya 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.

ASSAR (2016) concurs with the views of FGDs in 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.

Meribe (2014) ratifies the study results by stating that contemporary methods of communicating cannot satisfactorily engage and communicate effectively to the local community. 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 Abaluhya 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 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.

In support of the study results, ASSAR (2016) endorses 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.

Concurring with the majority respondents' viewpoints on the necessity of integrating the indigenous Abaluhya 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.

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. 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.

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

The study revealed that the both western science and the indigenous Abaluhya worldview have a role to play in communicating climate change that is related to conservation of Kakamega Forest. It emerged from the study that indigenous Abaluhya have employed their traditional values, knowledge and practices in conserving their forest hence they have been able to address climate change impacts. The indigenous Abaluhya's understanding and value for the forest as a source of life and its relation to the ancestors and gods can be tapped in to enhance communicating climate change information related to conservation of Kakamega Forest.

5.2 Recommendations

The integration of the indigenous Abaluhya 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. The study recommends that indigenous Abaluhya worldview should be integrated with

western scientific approaches for effective communication of climate change that is related to conservation of Kakamega Forest.

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