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Examining Environmental Management Awareness Levels in Rural Communities: A Case Study of Chongwe District in Zambia

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Abstract

Zambia faces critical challenges of environmental degradation through loss of biodiversity, water pollution, deforestation, etc. Such resource degradation and contribute significantly to the low productivity of the primary sectors like agriculture, forestry, wildlife and fisheries thereby contributing to prevailing extreme poverty and food insecurity, and climate change in most of Zambia's rural communities. This research study examined the environmental management awareness levels in rural communities of Chongwe district in Zambia. The study was guided by the following specific objectives: To establish environmental management awareness levels in rural communities; To examine the effectiveness of environmental management initiatives on overall awareness levels in rural communities; To determine factors that affect the levels of environmental management awareness in rural areas. A sample size of 50 respondents was selected from various households of Chongwe district to help provide data. This research study utilized both qualitative and quantitative methods, surveys and focus group discussions. The key findings highlighted low levels of awareness on environmental management, 16% said there was high awareness and understanding of environmental management practices, 32% said there was moderate awareness with some knowledge gaps, 22% said there was low awareness, with limited understanding of environmental issues, 18% said there was awareness only on specific issues like waste management or water conservation, and 12% said there was minimal to no awareness due to lack of access to information. This is due to barriers given by the respondents, 28% were inadequate educational infrastructure which hindered the dissemination of environmental knowledge, 26% were traditional beliefs which conflict with modern environmental management practices, creating resistance to change, 28% were beliefs that environmental practices are unnecessary or impractical, and 18% were lack of training or education in sustainable resource use. Despite the barriers, awareness levels showed signs of improvements. The results suggested a positive correlation between high environmental awareness levels and actual environmental practices. The findings of this research study are crucial for policy makers, as they highlight the importance of environmental awareness especially in rural areas as these residents are highly dependent on the environment. Therefore, policy makers should ensure the implementation of effective policies, initiatives, and interventions that will increase the awareness levels of peoples (particularly rural based people), so as to improve environmental conservation and sustainability.

Keywords: Environment, Environmental Management, and Environmental Awareness

1. Introduction

Environmental awareness refers to the state of people's knowledge, opinions, and notions about the role of the environment in human life, including the state of knowledge about methods and tools for the management of using, protecting, and shaping the environment (Ğrodowiskiem and Zarządzanie 2015). Recently, global environmental issues have received great attention due to the increase in global problems relating to pollution, depletion of natural resources, land degradation, climate change, etc. (DeSombre, 2017; Arwood *et al*., 2017). Human activities negatively influence the health of the environment for present and future generation as a consequence of environmental pollution (Decamps, 2016; Thapa, 2019). The desire to develop in all dimensions of life characterized by the exploitation of natural resources has led to severe environmental degradation (Adu *et al*., 2020; Kharkongor and Passah, 2014). This is both at global and local level. Decrease in ozone layer and increase in

emission of greenhouse gases are the examples of the damage at global level, while ground water pollution and soil erosion is an example of regional impact of human activities on the environment (Debonne, 2019; Shukla *et al*., 2019).

Rural dwellers' livelihood depends mainly on farming. A study to examine farmers' environmental awareness and attitude towards environmental degradation found that perceptions of the seriousness of environmental degradation had a positive influence on their awareness, concern, and attitude toward environmental degradation (Mweemba and Wu, 2010). Many studies show that farmers are more willing to protect the natural environment if they are aware of the environmental problems created by agricultural activities (Barnes *et al*., 2015; Forsyth and Story, 2018). Environmental education and awareness are necessary as they impart knowledge, create awareness, inculcate attitude of concern and provide skill to handle the environmental challenges. It makes people aware of environmental situation that led to environment damage (Monika *et al*., 2015). The economic costs of desertification and land degradation in Zambia combined with the negative effects of climate change, population growth and an ever-increasing demand for natural resources require immediate and assertive actions and programmes to halt and reverse the trends (Kourouma *et al*., 2022). Failure to do so will result in undermining the country's efforts in addressing its national environmental and economic challenges. 'Desertification' means land degradation in arid, semiarid and dry sub-humid areas resulting from various factors, including climatic variations and human activities (NAP, 2020).

The National Action Plan (NAP) for the SADC Great Green Wall (GGW) seeks to address land degradation and desertification to restore ecosystems, enhance their functioning, protect biodiversity and improve livelihoods of communities. It provides an opportunity for coordinating efforts, mobilizing resources, and engaging stakeholders at a national level and subnational level. The NAP has the potential to ensure effective implementation and monitoring, leading to impactful reforestation, land restoration, and community development (Ministry of Green Economy and Environment, 2023). Chongwe district is a district of Zambia, located in Lusaka province, with a population of 313,389 people. This study will assess environmental awareness among rural people of Chongwe district.

1.1 General Objective

The general objective of this study is to examine environmental management awareness levels in rural communities of Chongwe district in Zambia.

1.1.1 Specific Objectives

1. To establish environmental management awareness levels in rural communities.
2. To examine the effectiveness of environmental management initiatives on overall awareness levels in rural communities.
3. To determine factors that affect the levels of environmental management awareness in rural areas.

1.2 Theoretical Framework

The study was guided by the Theory of Planned Behavior. According to Akintunde (2017), the Planned Behavior theory was proposed by Ajzen (2002), this model of planned environmental behavior considers the intention to act and objective situational factor as direct determinants of pro-environmental behavior. The intention itself is considered summarizing the interplay of cognitive variables which include; knowledge of action strategies and issues, action skills, as well as personality variables (locus of control, attitudes and personal responsibility).

The Planned Behavior Theory grew out of the theory of reasoned action and it suggests that human behavior is influenced by three belief constructs: beliefs about consequences; expectations of others and things that may support or prevent behavior (Adriaanse *et al*, 2010). A strong premise of the theory is that, at the conceptual level, links among influences on behavior and their effects are captured through one of the components of the model or relationships in the model. The application of this model to this study is that, the model provides further explanations into the connection between knowledge, attitude, behavioral intention and actual behavior as they influence environmental sustainability practices. Knowledge is not a specific component in the model but "attitudes are function of beliefs" (Ajzen and Fishbein, 2010), since in this context, beliefs refer to knowledge about a specific behavior. Ajzen's model therefore, allows for representation of cognitive elements through affective elements by their influence on beliefs. For instance, when a person understands that he/she has control over a certain situation, his/her behavioral intentions reflect this understanding as much as his/her beliefs as to the outcome of a certain behavior.

2. Literature Review

2.1 Levels of environmental management awareness in rural communities

Environmental management awareness is a critical aspect of sustainable development, especially in rural areas where livelihoods are directly dependent on natural resources. In Zambia, rural communities form the majority of the population and are often at the forefront of environmental degradation due to practices such as deforestation, unsustainable farming, and poor waste management (Tembo and Nyirenda, 2021). Establishing environmental awareness levels among these communities is essential for effective environmental conservation and management. Zambia has developed several policies and frameworks to guide environmental management and promote public awareness. The key legislation includes the Environmental Management Act No. 12 of 2011, which mandates the Zambia Environmental Management Agency (ZEMA) to oversee environmental education and awareness (ZEMA, 2020). The National Policy on Environment (2007) also emphasizes the need for public participation and awareness in environmental protection activities.

Despite the existence of these frameworks, implementation and outreach to rural communities remain limited. Research indicates that while environmental policies are well-articulated at the national level, they often fail to trickle down effectively to rural populations due to infrastructural, educational, and financial limitations (Chibwe and Sakala, 2020). Studies show that environmental management awareness in rural Zambia is generally low, particularly in remote districts. According to Banda and Phiri (2019), only 35% of rural respondents in a study conducted in Eastern Province had a basic understanding of environmental concepts such as climate change, waste disposal, and

deforestation. Most rural dwellers acquire environmental knowledge informally through indigenous practices rather than formal education or structured awareness campaigns.

In another study conducted by Mwansa and Simukanga (2021), rural communities in Northern and Western Provinces demonstrated limited understanding of the long-term effects of environmental degradation. The study revealed that 68% of participants associated environmental conservation only with tree planting, showing a narrow perception of what environmental management entails. Education plays a critical role in shaping environmental awareness. Rural Zambia faces significant challenges related to low literacy levels, which impede effective communication of environmental messages. According to the Zambia Statistics Agency (2022), the literacy rate in rural areas stands at 54%, compared to 80% in urban areas. This disparity directly affects the capacity of rural communities to access, comprehend, and act on environmental information. Environmental education is not consistently integrated into primary school curricula in rural areas, and where present, it is often theoretical and poorly resourced (Kalaba and Mukosha, 2019). Furthermore, teacher training colleges rarely emphasize environmental pedagogy, leading to a shortage of educators competent in environmental management instruction.

Awareness campaigns spearheaded by the government and civil society organizations have had mixed results in rural Zambia. ZEMA has undertaken several outreach programs such as radio broadcasts, school clubs, and community meetings. However, logistical challenges and limited funding have restricted the coverage and frequency of these programs (ZEMA, 2020). NGOs such as the Centre for Environment Justice (CEJ) and WorldWide Fund for Nature (WWF) Zambia have contributed to raising awareness through capacity-building workshops and local conservation projects. For instance, CEJ's "Green Champions" initiative trains rural youths to promote environmental stewardship in their communities (CEJ, 2021). However, the sustainability and reach of these interventions are often limited by donor dependency and lack of long-term government support. Moreover, the use of local languages in awareness campaigns is inconsistent, limiting comprehension in multilingual rural communities. Radio remains the most effective medium due to its accessibility, but many programs are aired during inappropriate hours or are not interactive enough to stimulate community engagement (Chansa and Mbewe, 2022).

Several structural challenges hinder effective awareness creation in rural areas. These include; poor infrastructure: Many rural communities lack basic services such as electricity, making it difficult to use audio-visual media for education, limited human resource capacity: There is a shortage of trained environmental educators and extension officers, poverty: Immediate survival needs often overshadow long-term environmental concerns among poor households (Tembo and Nyirenda, 2021), inadequate coordination: Fragmentation among stakeholders, government departments, NGOs, and traditional leaders, leads to duplication of efforts or neglect of certain areas (Chibwe and Sakala, 2020).

2.2 Effectiveness of environmental management initiatives on overall awareness levels in rural communities

Zambia's rural communities are intricately linked to their natural environments, relying heavily on natural resources for their livelihoods. Environmental degradation, driven by factors such as deforestation, climate change, and unsustainable land use, poses significant challenges to these communities. In response, various environmental management initiatives (EMIs) have been implemented to promote sustainable practices and enhance environmental awareness. Community-based conservation has been pivotal in promoting environmental awareness and sustainable resource management in Zambia. Kasanka National Park, managed by the Kasanka Trust in partnership with the Department of National Parks and Wildlife, exemplifies successful community-based conservation. The Trust's initiatives include community outreach programs, conservation farming techniques, and human-wildlife conflict mitigation, fostering environmental awareness and stewardship among local communities (Mubanga and Mwale, 2023).

However, challenges such as inadequate communication among stakeholders and limited community participation hindered its effectiveness, highlighting the need for robust community engagement strategies (Mwango, 2004). Environmental education initiatives targeting youth have played a significant role in fostering environmental awareness in Zambia's rural communities. A study in Nchelenge District revealed low levels of environmental awareness among students, teachers, and parents. The study recommended integrating environmental education into school curricula and involving stakeholders in promoting environmental awareness (Makoba, 2015). Research in Luanshya District indicated that existing climate change awareness programs were ineffective in reaching youths. The study emphasized the need for tailored communication strategies and increased stakeholder involvement to enhance climate change awareness among young people (Mubanga *et al*., 2023). Integrating environmental restoration with sustainable livelihood opportunities has proven effective in enhancing environmental awareness and resilience in rural Zambia. The Zambia Integrated Forest Landscape Project (ZIFLP) in Eastern Province promoted sustainable land management (SLM) practices among smallholder farmers. The study found that increased awareness of SLM practices led to greater land allocation for such activities, emphasizing the importance of farmer education and extension services (Mubanga and Mwale, 2023). In Ndola's informal communities, residents demonstrated awareness of water quality issues but lacked the means to protect and treat their water sources. This gap between awareness and action underscores the need for skill-based health education and community engagement (Centre for Environment Justice, 2024).

2.3 Factors affecting the levels of environmental management awareness in rural communities

Environmental management awareness is pivotal for sustainable development, especially in rural Zambian

communities where livelihoods are intricately linked to natural resources. Understanding the determinants of such awareness is essential for formulating effective environmental policies and interventions. Socioeconomic factors such as education, income, gender, and location significantly influence environmental awareness in rural Zambia. Education and Income: Higher levels of education and income are associated with increased environmental knowledge and sustainable consumption behaviors. However, individuals with lower socioeconomic status often exhibit greater environmental concern due to their heightened exposure to environmental degradation (Sichone, 2016). Gender and Location: Males and urban dwellers tend to display higher environmental knowledge rates compared to females and rural residents. This disparity underscores the need for targeted environmental education in rural areas Chileshe and Moonga, 2019).

Access to information and extension services plays a crucial role in enhancing environmental awareness among rural communities. Extension Services: Farmers with access to extension services are more likely to be aware of climate change and adopt adaptive practices. Extension services provide vital information on environmental management and sustainable agricultural practices. Information Dissemination: The effectiveness of information dissemination is influenced by the medium used. Utilizing contemporary information sources like radio, television, and mobile phones can bridge the knowledge gap in rural areas (UNFCCC, 2015).

Government policies and institutional support are instrumental in promoting environmental awareness. National Environmental Management Act (NEMA): NEMA provides a statutory framework for environmental management, emphasizing cooperative governance and public participation in environmental decision-making. National Climate Change Response Policy (NCCRP): The NCCRP aims to address climate change through education and awareness campaigns. However, challenges in implementation, particularly at the local government level, hinder its effectiveness (CDKN, 2021).

Despite various initiatives, challenges persist in enhancing environmental awareness in rural Zambia: Limited Resources: Inadequate staffing and resources in environmental departments hinder effective outreach. Lack of Community Involvement: Environmental education programs often exclude community participation, reducing their effectiveness. Environmental management awareness in rural Zambia is influenced by socio-demographic factors, access to information, policy frameworks, and cultural contexts. While various initiatives have made strides in enhancing awareness, challenges remain. Addressing these challenges through community involvement, institutional support, and integrated education can foster sustainable environmental practices in rural Zambia (Edmund Rice International, 2022).

Zambia faces significant challenges in EMA due to low education levels in rural areas. According to the Zambia Environmental Management Agency (ZEMA, 2021) [31], only a small percentage of rural Zambians have formal education on environmental issues. Environmental education is integrated into school curricula, but its reach remains limited as their impact is constrained by inadequate resources and teacher training. The Zambian government, through ZEMA, has implemented policies aimed at raising EMA. The Environmental Management Act of 2011 mandates environmental education and awareness programs, but implementation challenges persist (ZEMA, 2021) [31]. NGOs such as the World-Wide Fund for Nature (WWF) and local conservation groups play a significant role in raising awareness through community engagement projects (Chomba *et al*., 2021) [9].

2.4 Literature gap

There is a gap in evaluating the long-term impact of environmental education on behavioral change and sustainable practices in rural communities. While digital and social media have been highlighted as influential tools for environmental awareness, research is limited on their accessibility and effectiveness in remote rural areas with low internet penetration and technological infrastructure. Studies rarely explore the comparative impact of traditional media (e.g., community radio) versus digital platforms in disseminating environmental knowledge in rural contexts. There is a need for more research on how economic conditions and poverty influence environmental awareness and sustainable practices. Specifically, how livelihood dependencies on natural resources impact the willingness to adopt environmentally friendly methods. The effectiveness of financial incentives or subsidies in promoting environmental management awareness and sustainable practices in rural communities remains underexplored. Research is limited on the effectiveness of government policies and programs aimed at increasing environmental management awareness in rural areas, especially in regions with weak enforcement mechanisms.

The role of perception, motivation, and environmental attitudes in influencing EMA and sustainable practices is underexplored, particularly in rural African communities. More research is needed on the relative effectiveness of different media channels (radio, social media, community meetings) in disseminating environmental information in resource-constrained rural settings. Research is needed on the barriers to effective implementation and enforcement of environmental policies, particularly in Zambia where institutional capacity may be limited. Comparative studies across different rural regions (e.g., Africa, Asia, and Latin America) are limited, hindering the understanding of contextual factors influencing EMA. Addressing these research gaps would provide a more nuanced understanding of the factors influencing EMA and inform more effective awareness-raising strategies in rural communities.

3. Research Methods

The research design to be used in this study is the case study research design. The utilization of this design was influenced by the fact that the study involved the collection of data to accurately describe the existing phenomena at the time of investigation. A case study design is appropriate for narrowing down a very broad field of research into one or a few easily researchable examples (Creswell and Creswell, 2017).

3.1 Target Population

The target population for this research study is the rural households of Chongwe ward which is comprised of a population of approximately 9000 male and female individuals of all age groups (CSO, 2022).

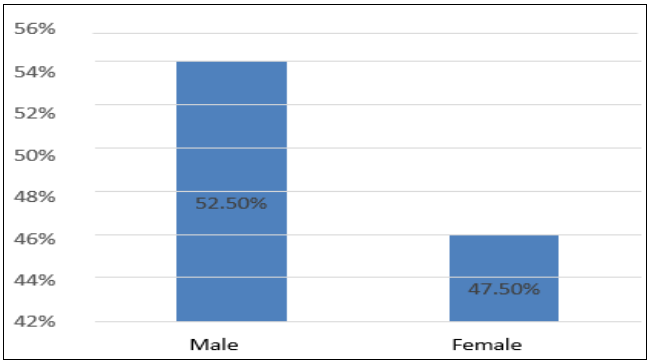
3.2 Sampling Design
This study will use purposive sampling design for the sampling procedure. This sampling method will help in intentionally selecting participants based on specific characteristics or quality that align with the study's purpose (Alkassim *et al*., 2016) [2].

3.3 Sample Size Determination
A sample size of 10% of a studied population is sufficient enough to generate valid results. Therefore, the sample size of this study will consist of 50 participants of all age groups and of both gender specifications (male and female) (Best and Kahn, 2018).

3.4 Data Collection Methods
This research study will utilize two different data collection techniques, structured surveys or questionnaires and focus group discussions. The combination of these data collection methods will help the study gain a comprehensive understanding of the environmental management awareness levels in the rural communities of Chongwe ward. The researcher will also be able to gather statistical information and delve into the lived experiences of the respondents (Creswell, 2015).

3.5 Data Analysis
The research study will incorporate data processing tools such as Microsoft Excel for data entry, and STATA to help analyze the survey or questionnaire data and focus group discussion data collected.

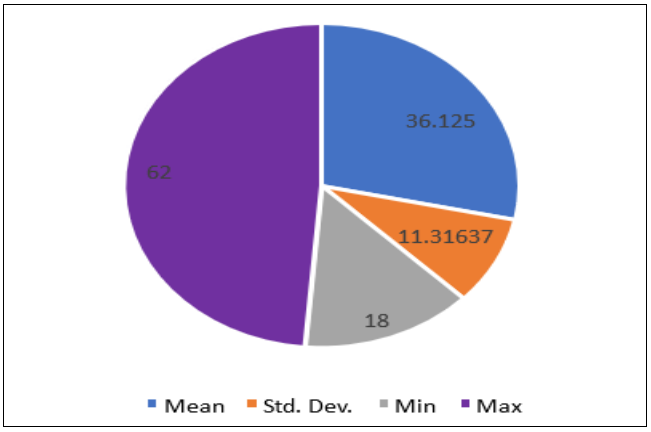
4. Findings and Results
4.1 Characteristics of Respondents (Bio Data)



Source: Primary data, 2025

Fig 4.1.1: Sex of respondents

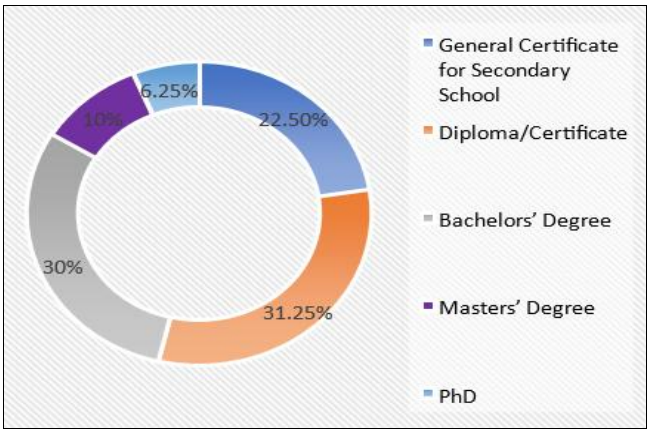
The figure shows the sex of respondents. It was such that the males were 52.50% and the females were 47.50%.



Source: Primary data, 2025.

Fig 4.1.2: Age of respondents

The figure above presents the age distribution of the respondents, which had the mean age of 36.125, a standard deviation of 11.31637, with the youngest respondent being 18 years old, and the oldest being 62 years old.

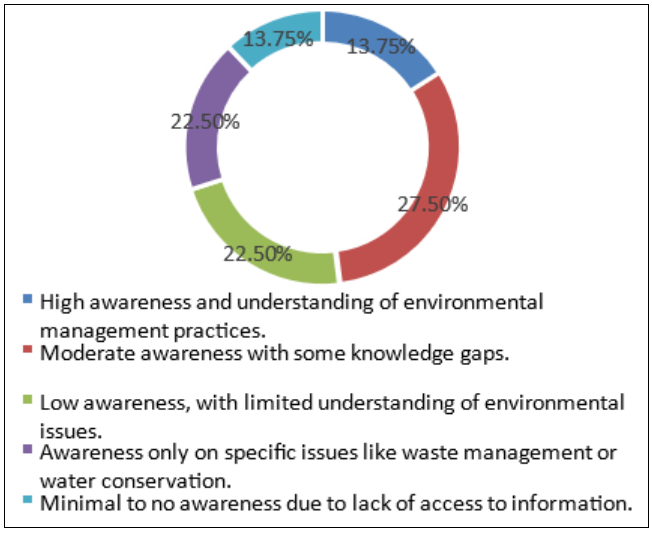


Source: Primary data, 2025.

Fig 4.1.3: Highest level of education

The figure illustrates the highest level of education attained by the respondents of which 22.50% only had a general certificate for secondary school, 31.25% had attained diplomas/certificates, 30% had attained bachelor's degrees, 10% had master's degrees, and only 6.25% had attained PhD.

4.2 Level of environmental management awareness in rural communities



Source: Primary data, 2025.

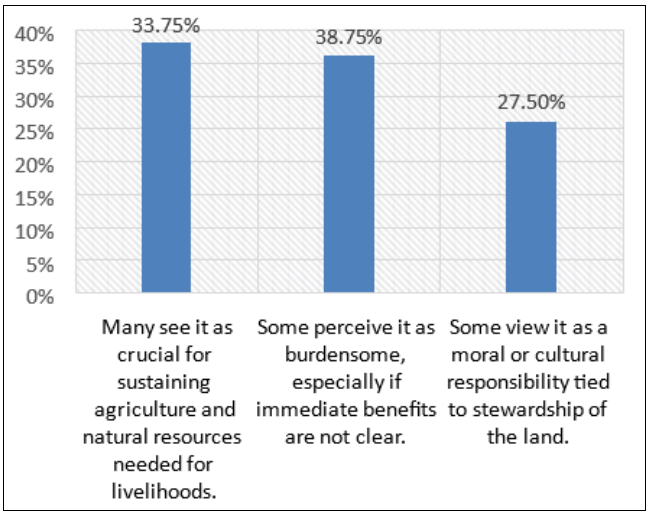
Fig 4.2.1: Current level of awareness among rural communities

The figure displays the current level of awareness among rural communities and of the respondents, 13.75%% said there was high awareness and understanding of environmental management practices, 27.50% said there was moderate awareness with some knowledge gaps, 22.50% said there was low awareness, with limited understanding of environmental issues, 22.50% said there was awareness only on specific issues like waste management or water conservation, and 13.75% said there was minimal to no awareness due to lack of access to information.

Source: Primary data, 2025.

Fig 4.2.2: Main sources of information and education on environmental management are available in rural communities

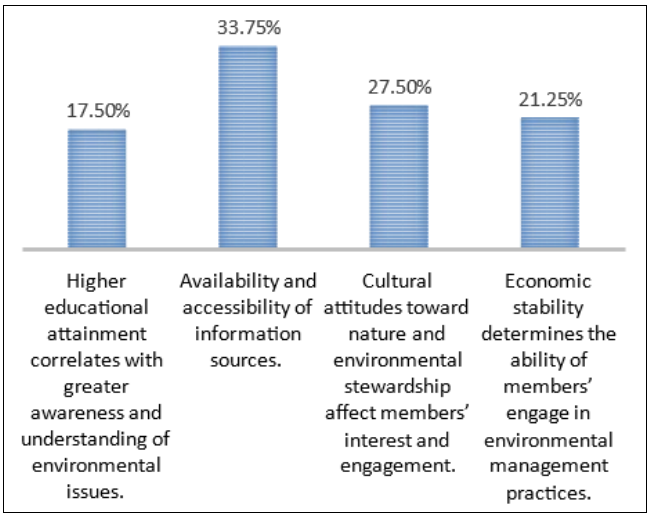
The figure shows the main sources of information and education on environmental management available in rural communities. 17.50% got information from local community meetings led by village leaders or elders, 32.50% got information from radio broadcasts and local newspapers, 17.50% got information from schools and educational programs targeting youth, 12.50% got information from workshops or training sessions organized by NGOs, while 20% got information from ford-of-mouth or informal sharing within families and neighborhoods.



Source: Primary data, 2025

Fig 4.2.3: How rural community members perceive the importance of environmental management practices

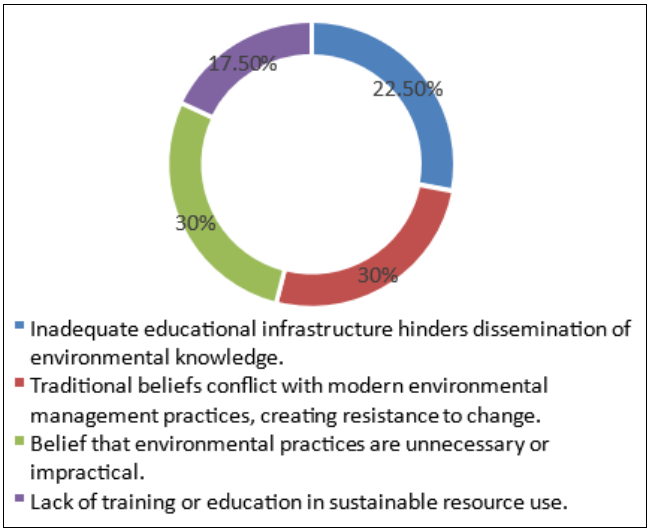
The respondents were asked how they perceived the importance of environmental management practices. 33.75% saw it as crucial for sustaining agriculture and natural resources needed for livelihoods, 38.75% perceived it as burdensome, especially if immediate benefits are not clear, while 27.50% viewed it as a moral or cultural responsibility tied to stewardship of the land.



Source: Primary data, 2025

Fig 4.2.4: Factors that influence the level of environmental management awareness in rural areas

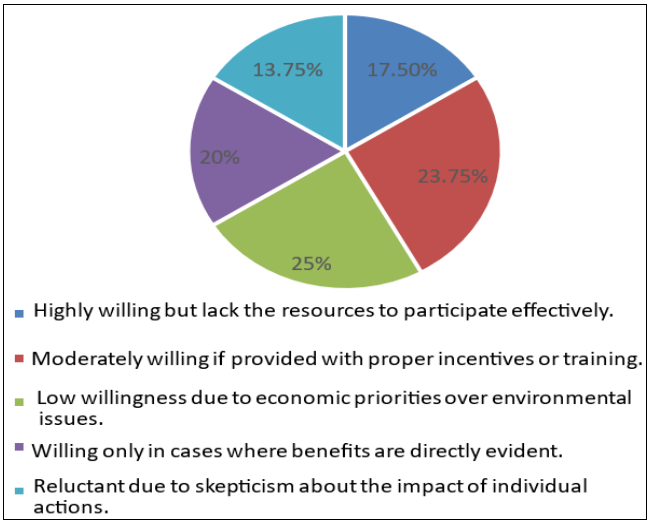
The figure presents the factors that influence the level of environmental management awareness in rural areas. 17.50% were higher educational attainments which correlate with greater awareness and understanding of environmental issues, 33.75% were availability and accessibility of information sources, 27.50% were cultural attitudes toward nature and environmental stewardship which affected members' interest and engagement, and 21.25% was economic stability which determined the ability of members' engage in environmental management practices.



Source: Primary data, 2025

Fig 4.2.5: Key barriers to increasing environmental management awareness in rural communities

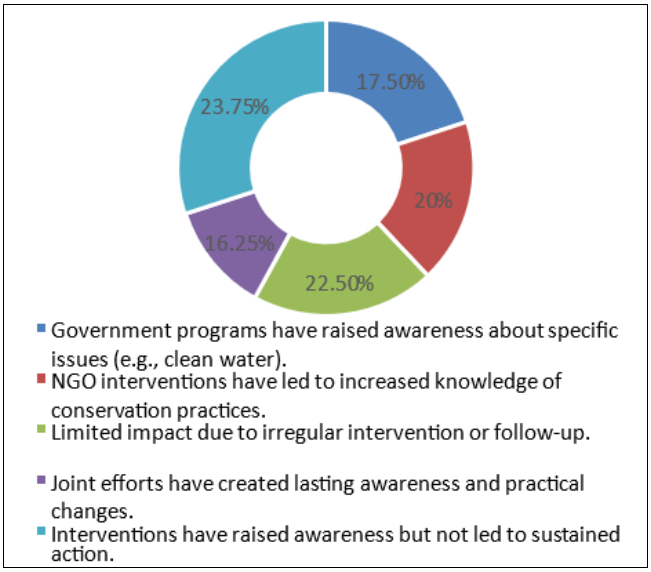
The figure above displays the key barriers to increasing environmental management awareness in rural communities. 22.50% were inadequate educational infrastructure which hindered the dissemination of environmental knowledge, 30% were traditional beliefs which conflict with modern environmental management practices, creating resistance to change, 30% were beliefs that environmental practices are unnecessary or impractical, and 17.50% were lack of training or education in sustainable resource use.



Source: Primary data, 2025

Fig 4.2.6: Willingness of rural community members to participate in environmental conservation efforts

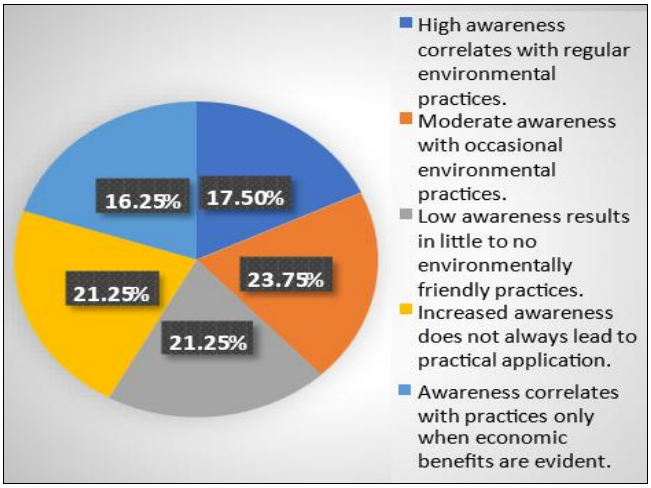
The respondents were asked how willing they were to participate in environmental conservation efforts. 17.50% were highly willing but lacked the resources to participate effectively, 23.75% were moderately willing if provided with proper incentives or training, 25% were lowly willingness due to economic priorities over environmental issues, 20% were willing only in cases where benefits are directly evident, while 13.75% were reluctant due to skepticism about the impact of individual actions.



Source: Primary data, 2025

Fig 4.2.7: Impact of governmental and nongovernmental interventions on environmental awareness in rural areas.

The figure shows the impact of governmental and nongovernmental interventions on environmental awareness in rural areas. 17.50% showed that government programs have raised awareness about specific issues (e.g., clean water), 20% showed that NGO interventions have led to increased knowledge of conservation practices, 22.50% showed that limited impact due to irregular intervention or follow-up, 16.25% showed that joint efforts have created lasting awareness and practical changes, while 23.75% showed that interventions have raised awareness but not led to sustained action.



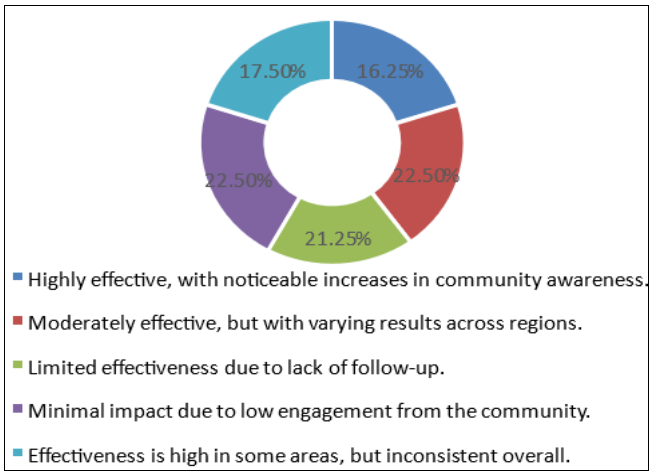
Source: Primary data, 2025

Fig 4.2.8: How awareness of environmental management correlates with actual environmental practices in rural communities

The figure illustrates how awareness of environmental management correlates with actual environmental practices in rural communities. 17.50% showed that high awareness correlates with regular environmental practices, 23.75% showed that moderate awareness leads to occasional environmental practices, 21.25% showed that low awareness results in little to no environmentally friendly practices,

21.25% showed that increased awareness does not always lead to practical application, 16.25% showed that awareness correlates with practices only when economic benefits are evident.

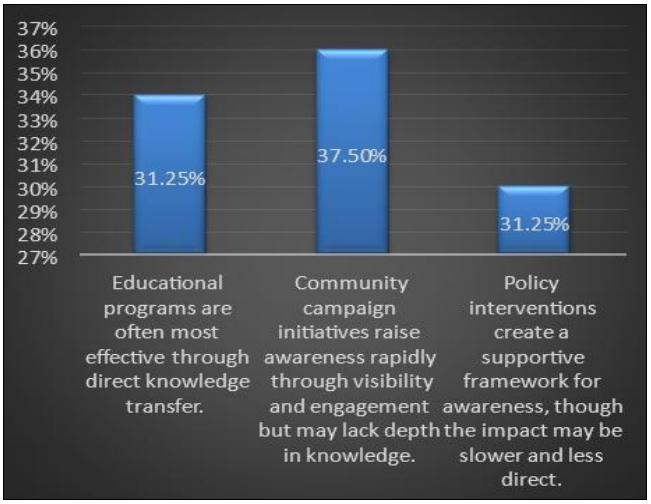
4.3 Effectiveness of environmental management initiatives on overall awareness levels in rural communities



Source: Primary data, 2025

Fig 4.3.1: Effectiveness of current environmental management initiatives in increasing awareness levels in rural communities

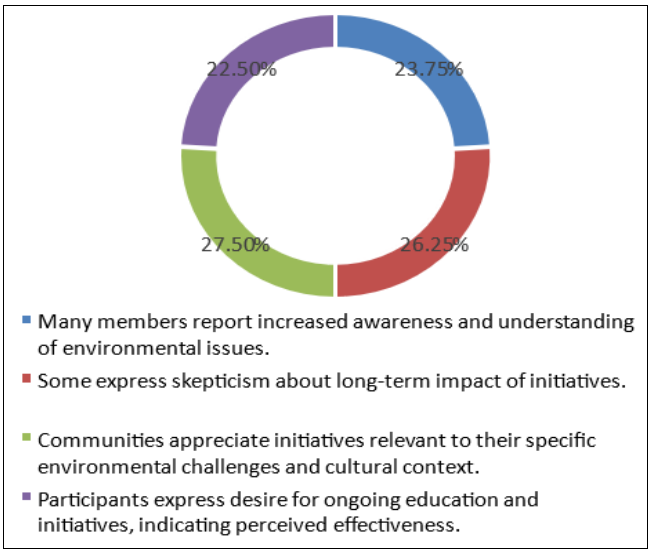
The figure shows how effective current environmental management initiatives are in increasing awareness levels. 16.25% were highly effective, with noticeable increases in community awareness, 22.50% were moderately effective, but with varying results across regions, 21.25% were limited in their effectiveness due to lack of followup, 22.50% had minimal impact due to low engagement from the community, while 17.50% showed that effectiveness is high in some areas, but inconsistent overall.



Source: Primary data, 2025

Fig 4.3.2: How different types of environmental management initiatives compare in terms of their impact on rural awareness levels

The figure displays how different types of environmental management initiatives compare in terms of their impact on rural awareness levels. 31.25% showed that educational programs were often most effective through direct knowledge transfer, 37.50% showed that community campaign initiatives raised awareness rapidly through visibility and engagement but may have lacked depth in knowledge, and 31.25% showed that policy interventions created a supportive framework for awareness, though the impact may be slower and less direct.



Source: Primary data, 2025

Fig 4.3.3: How rural communities perceive the effectiveness of environmental management initiatives in raising their awareness

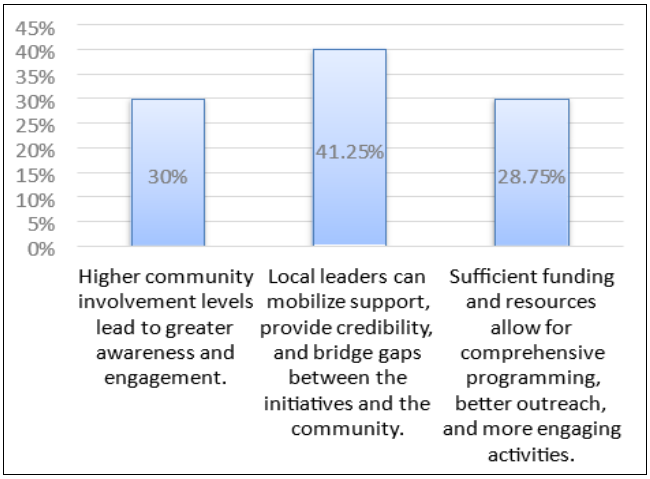
The community members were asked how they perceive the effectiveness of environmental management initiatives in raising their awareness. 23.75% reported increased awareness and understanding of environmental issues, 26.25% expressed skepticism about long-term impact of initiatives, 27.50% appreciated initiatives relevant to their specific environmental challenges and cultural context, and 22.50% expressed desire for ongoing education and initiatives, indicating perceived effectiveness.

Source: Primary data, 2025

Fig 4.3.4: Challenges and barriers that affect the success of environmental management initiatives in enhancing awareness

The figure presents the challenges and barriers that affect the success of environmental management initiatives in enhancing awareness. 26.25% showed financial and human resource constraints which hindered the scope and reach of initiatives, 23.75% showed that insufficient access to

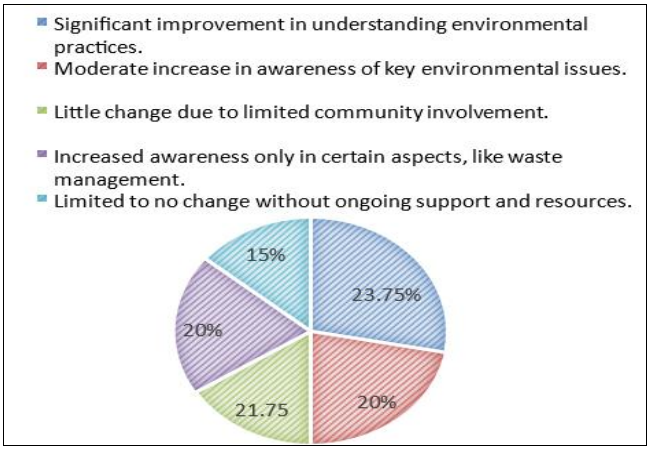
reliable information sources limited community engagement and understanding, 28.75% showed that beliefs and practices conflicted with proposed environmental management strategies, creating barriers, 21.75% showed that many initiatives lacked long-term sustainability plans, leading to temporary increases in awareness without lasting impact.



Source: Primary data, 2025

Fig 4.3.5: How factors such as community participation, local leadership, and resources availability influence the effectiveness of these initiatives.

The figure shows how factors such as community participation, local leadership, and resources availability influence the effectiveness of these initiatives. 30% showed that higher community involvement levels led to greater awareness and engagement, 41.25% showed that local leaders should mobilize support, provide credibility, and bridge gaps between the initiatives and the community, 28.75% showed that sufficient funding and resources allowed for comprehensive programming, better outreach, and more engaging activities.

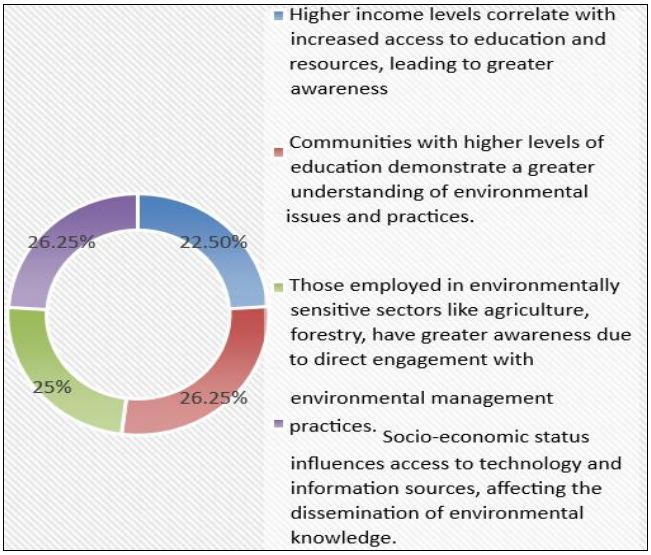


Source: Primary data, 2025

Fig 4.3.6: Changes in awareness levels have occurred due to these initiatives

The figure displays the changes in awareness levels which occurred due to these initiatives. 23.75% showed significant improvement in understanding environmental practices, 20% showed moderate increase in awareness of key environmental issues, 21.25% showed little change due to limited community involvement, 20% showed increased awareness only in certain aspects, like waste management, and 15% showed limited to no change without ongoing support and resources.

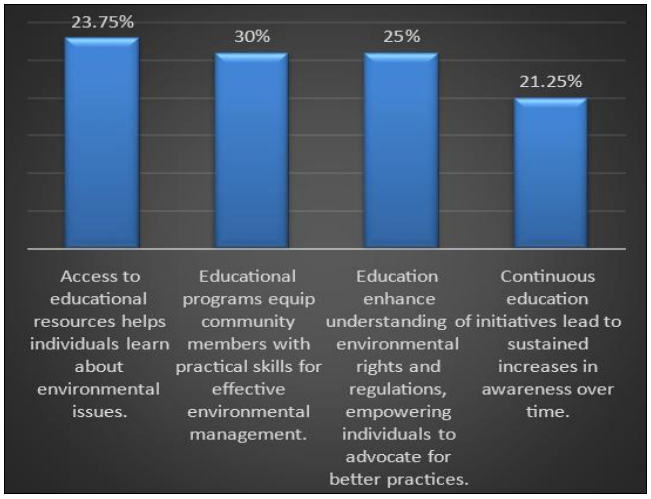
4.4 The Role of government and non-governmental interventions in mitigating the effects of drought on household food security



Source: Primary data, 2025

Fig 4.4.1: Socio-economic factors influencing the level of environmental management awareness in rural areas

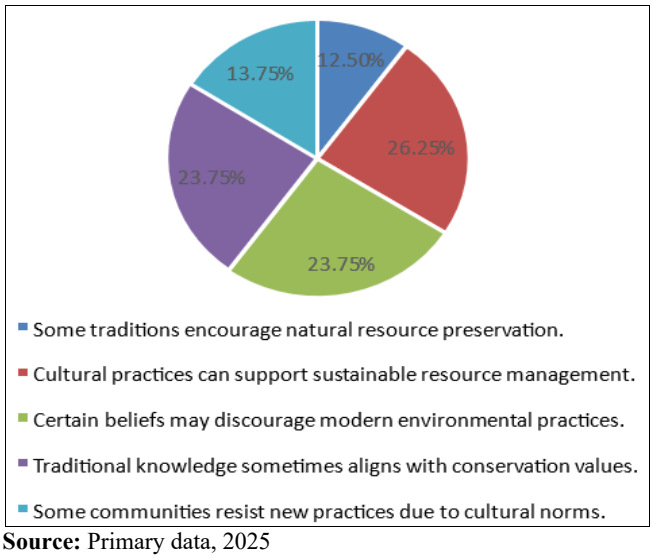
The figure illustrates the socio-economic factors that influence the levels of environmental management awareness in rural areas. 22.50% showed that higher income levels correlate with increased access to education and resources, leading to greater awareness, 26.25% showed that communities with higher levels of education demonstrated a greater understanding of environmental issues and practices, 25% showed that those employed in environmentally sensitive sectors like agriculture, forestry, had greater awareness due to direct engagement with environmental management practices, and 26.25% showed that socio-economic status influences access to technology and information sources, affecting the dissemination of environmental knowledge.



Source: Primary data, 2025

Fig 4.4.2: How access to education and information impacts environmental management awareness in rural areas

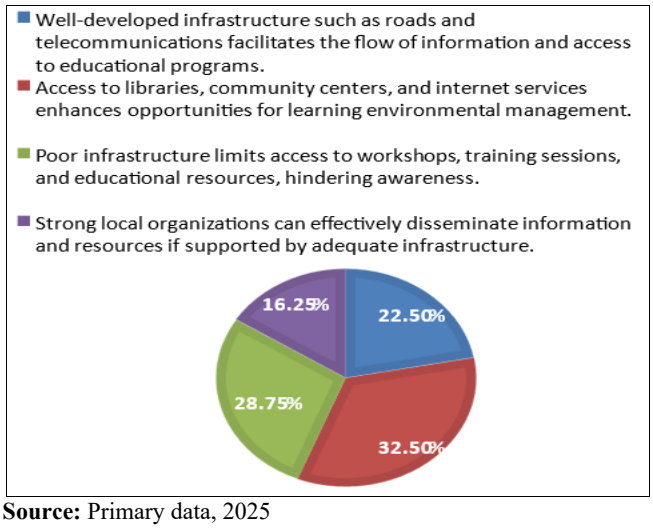
The figure shows how access to education and information impacts environmental management awareness in rural areas. 23.75% showed that access to educational resources helped individuals learn about environmental issues, 30% showed that educational programs equipped community members with practical skills for effective environmental management, 25% showed that education enhance understanding of environmental rights and regulations, empowering individuals to advocate for better practices, while 21.25% showed that continuous education initiatives led to sustained increases in awareness over time.



Source: Primary data, 2025

Fig 4.4.3: Ways in which cultural beliefs and traditions influence environmental awareness levels

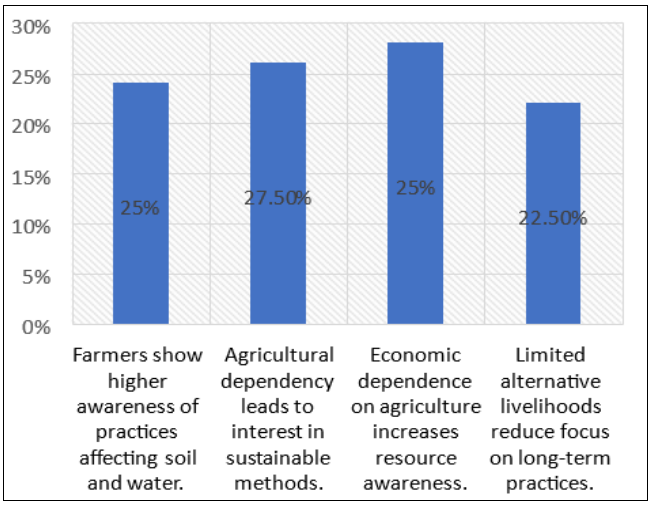
The above figure displays the ways in which cultural beliefs and traditions influence environmental awareness levels. 12.50% displayed that some traditions encourage natural resource preservation, 26.25% displayed that cultural practices can support sustainable resource management, 23.75% displayed that certain beliefs may discourage modern environmental practices, 23.75% displayed that traditional knowledge sometimes aligns with conservation values, and 13.75% displayed that some communities resist new practices due to cultural norms.



Source: Primary data, 2025

Fig 4.4.4: How local infrastructure and resources affect the dissemination of environmental management information in rural areas.

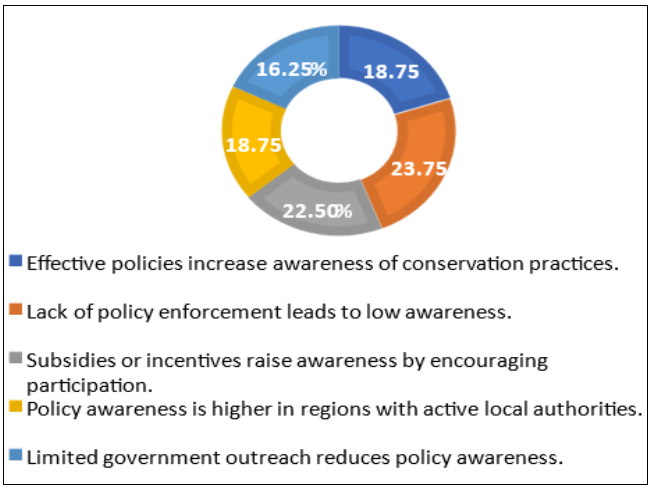
The figure depicts how local infrastructure and resources affect the dissemination of environmental management information in rural areas. 22.50% showed that welldeveloped infrastructure such as roads and telecommunications facilitates the flow of information and access to educational programs, 32.50% showed that access to libraries, community centers, and internet services enhances opportunities for learning environmental management, 28.75% showed that poor infrastructure limits access to workshops, training sessions, and educational resources, hindering awareness, and 16.25% showed that strong local organizations can effectively disseminate information and resources if supported by adequate infrastructure.



Source: Primary data, 2025

Fig 4.4.5: How agricultural dependency influences attitudes and awareness of environmental management

The figure illustrates how agricultural dependency influences attitudes and awareness of environmental management. 25% of farmers show higher awareness of practices affecting soil and water, 27.50% showed that agricultural dependency leads to interest in sustainable methods, 25% showed that economic dependence on agriculture increases resource awareness, while 22.50% showed that limited alternative livelihoods reduce focus on long-term practices.



Source: Primary data, 2025

Fig 4.4.6: Effects of government policies and support on environmental awareness in rural areas

The figure displays the effects of government policies and support on environmental awareness in rural areas. 18.75% showed that effective policies increase awareness of conservation practices, 23.75% showed that lack of policy enforcement leads to low awareness, 22.50% showed that subsidies or incentives raise awareness by encouraging participation, 18.75% showed that policy awareness is higher in regions with active local authorities, while 16.25% showed that limited government outreach reduces policy awareness.

4.5 Discussion of Results

The findings above show that the respondents were aged between 18 years old (being the youngest), and the oldest being 62 years old, 52.50% being male and 47.50% female. 22.50% of the respondents only had a general certificate for secondary school, 31.25% had attained diplomas/certificates, 30% had attained bachelor's degrees, 10% had master's degrees, and only 6.25% had attained PhD. The level of education of the respondents affected their understanding of the importance of environmental management and their awareness levels to the conservative practices. This is because many are not exposed to the means of acquiring the much needed information on environmental conservation practices. Higher educational levels can help respondents, especially rural community members, to be informed and aware of environmental management as some topics on environmental management are being integrated into the education curricular. This in turn can help the respondents to make informed decisions concerning the environment, especially in rural areas as their livelihoods are highly dependent on the environment.

From the findings above, it can be concluded that many rural communities have a high level of low environmental management awareness and that many members of these communities lack the much needed information and understanding of environmental management practices. Only a small margin of people had an understanding of environmental management practices and awareness while some were moderately aware with some knowledge gaps, others had low awareness, with limited understanding of environmental issues, and some said there was awareness only on specific issues like waste management or water conservation. Some said there was minimal to no awareness due to lack of access to information. It is also evident from the literature review how key legislation includes the Environmental Management Act No. 12 of 2011, which mandates the Zambia Environmental Management Agency (ZEMA) to oversee environmental education and awareness (ZEMA, 2020). The National Policy on Environment (2007) also emphasizes the need for public participation and awareness in environmental protection activities. But despite the existence of these frameworks, implementation and outreach to rural communities remain limited. Studies show that environmental management awareness in rural Zambia is generally low, particularly in remote districts. According to Banda and Phiri (2019), only 35% of rural respondents in a study conducted in Eastern Province had a basic understanding of environmental concepts such as climate change, waste disposal, and deforestation.

Some of the key barriers to increasing environmental management awareness in rural communities discovered from the findings were inadequate educational infrastructure which hindered the dissemination of environmental knowledge, traditional beliefs which conflict with modern environmental management practices, creating resistance to change, beliefs that environmental practices are unnecessary or impractical, and lack of training or education in sustainable resource use. From the results, it can be said that few rural community members were highly willing to participate in environmental management practices but lacked the resources to participate effectively, while some were moderately willing if provided with proper incentives or training. Others exhibited low willingness due to economic priorities over environmental issues, some were willing only in cases where benefits are directly evident, and the rest were reluctant due to skepticism about the impact of individual actions. Research indicates that while environmental policies are well-articulated at the national level, they often fail to trickle down effectively to rural populations due to infrastructural, educational, and financial limitations (Chibwe and Sakala, 2020).

According to the findings from the literature review, awareness campaigns spearheaded by the government and civil society organizations have had mixed results in rural Zambia. ZEMA has undertaken several outreach programs such as radio broadcasts, school clubs, and community meetings. However, logistical challenges and limited funding have restricted the coverage and frequency of these programs (ZEMA, 2020). NGOs such as the Centre for Environment Justice (CEJ) and WorldWide Fund for Nature (WWF) Zambia have contributed to raising awareness through capacity-building workshops and local conservation projects. For instance, CEJ's "Green Champions" initiative trains rural youths to promote environmental stewardship in their communities (CEJ, 2021). However, the sustainability and reach of these interventions are often limited by donor dependency and lack of long-term government support. Moreover, the use of local languages in awareness campaigns is inconsistent, limiting comprehension in multilingual rural communities. Radio remains the most effective medium due to its accessibility, but many programs are aired during inappropriate hours or are not interactive enough to stimulate community engagement (Chansa and Mbewe, 2022).

The researcher discovered from the findings that some current environmental management initiatives were seen to be highly effective, with noticeable increases in community awareness, while some were seen to be moderately effective, but with varying results across regions. Others were limited in their effectiveness due to lack of follow-up and some had minimal impact due to low engagement from the community, while the rest showed high effectiveness in some areas, but inconsistent overall. The findings showed how different types of environmental management initiatives compare in terms of their impact on rural awareness levels. It was seen that educational programs were often most effective through direct knowledge transfer, while community campaign initiatives raised awareness rapidly through visibility and engagement but may have lacked depth in knowledge, and Policy interventions created a supportive framework for awareness, though the impact may be slower and less direct. Several studies have assessed the impact of environmental management initiatives on awareness levels in Zambia. A study by Banda *et al*. (2020) found that rural communities in Eastern Zambia showed increased awareness of deforestation due to participatory education programs. Community-led conservation projects

in Kafue National Park have resulted in higher engagement in sustainable practices (Simwanda *et al*., 2019).

The findings depicted how local infrastructure and resources affected the dissemination of environmental management information in rural areas. Well-developed infrastructure such as roads and telecommunications facilitated the flow of information and access to educational programs, access to libraries, community centers, and internet services enhanced opportunities for learning environmental management, while poor infrastructure limited access to workshops, training sessions, and educational resources, hindering awareness, and strong local organizations effectively disseminated information and resources when supported by adequate infrastructure. Agricultural dependency influenced the attitudes and awareness of environmental management. Some farmers showed higher awareness of practices affecting soil and water, some showed that agricultural dependency leads to interest in sustainable methods, others showed that economic dependence on agriculture increased resource awareness, while others showed that limited alternative livelihoods reduced focus on long-term practices. Government policies and support had effects on environmental awareness in rural areas. The findings showed that effective policies increased the awareness of conservation practices, while lack of policy enforcement led to low awareness levels. The results also showed that subsidies or incentives raised awareness levels by encouraging participation, and that policy awareness is higher in regions with active local authorities. It was also seen that limited government outreach reduced policy awareness. The literature review showed that the Zambian government, through ZEMA, has implemented policies aimed at raising EMA. The Environmental Management Act of 2011 mandates environmental education and awareness programs, but implementation challenges persist (ZEMA, 2021) [31]. NGOs such as the World-Wide Fund for Nature (WWF) and local conservation groups play a significant role in raising awareness through community engagement projects (Chomba *et al*., 2021) [9].

5. Conclusion

In summary, the findings reveal that environmental management awareness in rural communities remains generally low, with only a small proportion of individuals demonstrating a strong understanding of sustainable practices. While some community members possess moderate awareness, many have limited or no knowledge of environmental management due to a lack of access to information and education. The primary sources of environmental awareness include local community meetings, radio broadcasts, schools, and NGO-led training sessions, though these are not always widely accessible or consistent. While there is some willingness among community members to engage in environmental management practices, participation is often limited by resource constraints, economic priorities, and skepticism about the effectiveness of individual actions. The findings of this study indicate that environmental management initiatives have had varying levels of effectiveness in raising awareness in rural communities. While some initiatives have been highly successful in increasing community engagement and understanding, others have had only moderate or limited impact due to challenges such as lack of follow-up, inconsistent implementation, and low community participation. The findings also reveal that socio-economic factors, education, cultural beliefs, infrastructure, agricultural dependency, and government policies all play a crucial role in shaping environmental management awareness in rural areas. Higher income and education levels are strongly linked to greater awareness, as they provide access to information, training, and technology. Employment in environmentally sensitive sectors, such as agriculture and forestry, also fosters greater understanding of environmental practices due to direct engagement with natural resources. Governmental and non-governmental interventions have contributed to raising awareness, but their impact varies, with some initiatives leading to lasting change while others lack sustainability due to inconsistent follow-up. To improve environmental awareness in rural communities, targeted interventions should focus on expanding educational opportunities, leveraging cultural practices that align with sustainability, improving infrastructure for information access, and strengthening government policies with better enforcement and outreach programs. Providing incentives and alternative livelihood options can also encourage long-term environmental management practices, ensuring both ecological sustainability and economic resilience. Ensuring the development and implementation of effective and attainable policies and support by the government as well as non-governmental organizations will help in increasing awareness levels of conservation practices.

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