Faith-Based Water Sanitation and Hygiene Initiatives: Effects on Pastoral Livelihood in Marsabit County, Kenya

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Abstract

Background: In Marsabit County, pastoralists face challenges such as scarce clean water, proper hygiene, inadequate sanitation, and limited socioeconomic well-being. This study assessed the effects of Water, Sanitation, and Hygiene (WASH) initiatives by faith-based organizations (FBOs) on pastoral livelihoods in Marsabit County. The study was guided by three objectives: To assess the extent to which faith-based organizations' water sanitation and hygiene initiatives enhanced access to adequate safe and clean water among pastoral communities in Saku, Sub County, Marsabit County, Kenya, to evaluate the extent to which faith-based organizations' water sanitation and hygiene initiatives enhanced changes in sanitation facilities and hygiene practices among pastoral communities in Saku Sub County, Marsabit County, Kenya and to examine the extent to which faith-based organizations' water sanitation and hygiene initiatives enhanced food security and income generation among pastoralists in Saku Sub County, Marsabit County, Kenya.

Method: Using a stratified sampling technique, the study's target population comprised 2004 individuals and a representative sample of 323 household heads. Structured questionnaires were used to collect data from household heads. Thematic analysis was applied to explain the questionnaire responses further, incorporating qualitative data gathered from two Key Informant Interviews and two Focus Group Discussions.

Results: The main findings revealed enhanced access to safe and clean water, hygienic sanitation, food, and improved income for the targeted community.

Conclusion: This study confirmed that WASH initiatives enhanced the livelihoods of the target population. To further reinforce pastoral livelihoods, concerted interventions by the government is necessary for larger infrastructure.

Keywords: Faith-based organization, WASH, pastoralists, livelihood development, Kenya

Introduction

Pastoral communities mainly found in arid and semi-arid regions, such as Marsabit County, Kenya, experience numerous challenges related to inadequate clean and safe water, inadequate sanitation facilities, and poor hygiene practices. These challenges threaten pastoral livelihoods, which are compounded by the harsh climatic conditions in the region. Faith-based organizations have addressed these challenges by initiating Water, Sanitation, and Hygiene (WASH) programs in pastoral community areas, such as Marsabit County.

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Access to clean and safe water, adequate sanitation facilities, and enhanced hygiene practices are critical for the global livelihoods of communities. World Vision Australia, for example, through its WASH interventions globally in countries like Myanmar, Cambodia, Syria, and Zambia, among others, enhances the livelihoods of several communities by improving access to safe water, sanitation, and hygiene; capacity building in the communities; and advocating for water systems that can be used for multiple purposes (World Vision Australia, 2022).

The International Federation of Red Cross and Red Crescent Societies (IFRC) operates globally to ensure equitable, sustainable, and affordable access to water and sanitation services. The organization aims to improve global WASH access and awareness of overall health and care, which translates to healthier and more resilient communities through quality water, sanitation, and hygiene activities (IFRC, 2023).

World Vision Kenya WASH initiatives operate in approximately 23 counties through water supply, quality sanitation and hygiene, governance and finance, and water security and resilience (Makoni, 2021). Additionally, World Concern Kenya has an ongoing project incorporating the WASH project with a sustainable livelihood approach on the One Village Transformed (OVT) initiative in Samburu County. Through the WASH project, World Concern Kenya empowers the community in agriculture, disaster prevention and preparedness, and animal husbandry (World Concern, 2020).

Inadequate water supply can promote agricultural production, leading to food security, protection of the natural environment, promotion of quality health, poverty reduction activities, and support of education for children (Hutton & Chase, 2017; Mwongera, 2022). On the other hand, lack of access to safe, clean, basic sanitation and poor hygiene practices are major contributors to waterborne diseases, such as diarrhea, cholera, and typhoid (Kumwenda, 2019). Other challenges include malnutrition, environmental degradation caused by open fecal defecation, limited access to education, and gender inequality (World Health Organization [WHO], 2017; Qazi & Anwar, 2019).

The faith-based organizations (FBOs) WASH initiatives on pastoral livelihoods need to be assessed to determine their effects on the communities they serve. This study assessed the effects of faith-based organizations' Water Sanitation and Hygiene (WASH) initiatives on the livelihoods of pastoral communities in Saku Sub County, Marsabit County, Kenya. Specifically, it sought to investigate whether these initiatives contributed to enhanced access to adequate clean and safe water, sanitation facilities and practices, and enhanced food security and income generation among the pastoral communities in Saku Sub County, Marsabit County, Kenya.

This study is important because of its alignment with Kenya Vision 2030 and Sustainable Development Goals, specifically Goal 6, on clean water and sanitation (United Nations [UN], 2018).

The objectives of this study align with this goal and with the pillars of Kenya Vision 2030 (Kenya Vision 2030, 2018). These include social, economic, and environmental pillars.

These initiatives are crucial in improving public health, enhancing livelihoods, and contributing to sustainable development and poverty reduction among the pastoral communities in Marsabit County. In the context of Marsabit County, determining the effects of FBOs' water sanitation and hygiene (WASH) initiatives on pastoral livelihood was imperative for aligning with the broader development objectives of both the Kenya Vision 2030 and Sustainable Development goals. Furthermore, assessing the WASH initiatives was crucial in understanding how such interventions can enhance overall livelihoods, such as food security and improved health.

While WASH initiatives can be regarded as tools for enhancing livelihoods, empirical evidence on their effects in Marsabit County is limited compared to other studies related to pastoral livelihoods, such as drought coping mechanisms (Lekapana, 2013; Wainaina, 2018), climate, and resilience strategies (FAO, 2017; MoALF, 2017).

Therefore, this study aims to fill this gap by assessing the effects of FBOs' WASH initiatives on pastoral livelihoods in Marsabit County. Three objectives guided the study: (1)To assess the extent to which faith-based organizations' water sanitation and hygiene initiatives enhanced access to adequate safe and clean water among pastoral communities in Saku, Sub County, Marsabit County, Kenya; (2) to evaluate the extent to which faith-based organizations' water sanitation and hygiene initiatives enhanced changes in sanitation facilities and hygiene practices among pastoral communities in Saku Sub County, Marsabit County, Kenya and (3) to examine the extent to which faith-based organizations' water sanitation and hygiene initiatives enhanced food security and income generation among pastoralists in Saku Sub County, Marsabit County, Kenya.

Literature Review

WASH initiatives are likely to positively affect communities, especially where people depend heavily on livestock rearing and natural resources for survival. WASH initiatives aim to enhance access to clean water, appropriate sanitation, hygiene practices, and diversified livelihood opportunities (Whitleya et al., 2019). This study evaluated existing literature on the effects of selected WASH initiatives, focusing on poverty reduction.

WASH Initiatives and their Importance

Water, Sanitation, and Hygiene (WASH) initiatives encompass a range of programs, policies, and activities aimed at improving access to adequately clean and safe drinking water, proper sanitation facilities, and hygiene practices in communities (Kumar, 2022). This is supported by the United Nations Sustainable Development Goals (SDGs), specifically Goal 6, which aims to ensure the availability and sustainable

management of water and sanitation (United Nations, 2018).

Achieving the goals of WASH initiatives is key to averting waterborne diseases, such as cholera, diarrhea, and dysentery. Hygienic habits such as handwashing can reduce the transmission of infectious diseases (WHO, 2017). Further, communities' livelihoods are enhanced by promoting dignity and saving time, especially for women and girls who are usually responsible for fetching water for their families (Mwongera, 2022). Thus, WASH initiatives promote public health, economic development, environmental protection, livelihood, and poverty reduction.

Community Participation

Community engagement is the key to the success and sustainability of any project. Specifically, community leaders formulate initiative goals, mobilize their members, and forge a sense of ownership (Kelly et al., 2017). Selected members become part of the monitoring and evaluation team for the regular assessment of the impact of the WASH initiatives, such as the continuous availability of clean water, proper hygiene practices, and livelihoods (Tsekleves et al., 2022). Moreover, they are empowered by gaining new skills (Nelson et al., 2021; Tsekleves et al., 2022).

Access to Adequate Safe and Clean Water

Providing adequate, safe, and clean water can promote the health and well-being of communities. Development agencies can develop a water system infrastructure to help beneficiaries reduce the time spent walking long distances to fetch water. This may lead to better health outcomes and increased time for other productive activities (Mwongera, 2022). Furthermore, children, especially girls, may have more time to attend school (WHO, 2017). Second, the provision of WASH programs in schools is likely to create a more favorable learning environment, thus positively impacting education (WHO, 2017).

Access to Hygienic Sanitation Facilities

Effective WASH initiatives should incorporate hygiene education and awareness campaigns in the community (Desilie & Rangama, 2014). Development agencies can promote positive behavioral changes to improve hygiene practices (Qazi & Anwar, 2019). This could include teaching proper handwashing techniques, appropriate sanitation practices, and waste disposal among other critical hygienic practices (Qazi & Anwar, 2019). These initiatives could lead to improved health outcomes such as the reduction of waterborne diseases. When diseases are reduced, morbidity rates decrease, particularly among children and vulnerable community members (WHO, 2017).

Ability to Cope with Climate Change

Communities in arid and semi-arid lands (ASALS) experience adverse climate conditions due to fluctuating weather changes (Keneilwe et al., 2018).

Such communities are vulnerable to prolonged droughts, water scarcity, and floods (Osumanu et al., 2017). Some suitable interventions could sensitize and educate the community to cope with and develop resilience to climate change through drought-resistant crops for food security (Osumanu et al., 2017). Besides, rainwater harvesting, well construction, and boreholes (World Food Program [WFP], 2018) are important interventions.

Diversified Livelihoods

WASH initiatives can enhance the livelihoods of community members by increasing access to clean water for agriculture and livestock keeping. Communities that rely solely on livestock keeping, such as pastoralists, can help diversify through small-scale agriculture to reduce their dependency on livestock only (Keneilwe et al., 2018). Providing reliable and adequate water sources for domestic and livestock use can lead to healthier animal productivity and crops, enhancing pastoral livelihoods (Githinji et al., 2019). Communities will increase their food security.

Theoretical Framework

Geographical Disparities Theory

The concept of geographical disparities originated from ancient Greek and Roman scholars, such as Strabo (Singh, 2022) and Hippocrates (Heymann, 2010), who researched the role of geography and how it influences societies. The theory became more popular in the 19th century, with some scholars such as Alexander von Humboldt (Buttimer, 2003; Peaud, 2011) and Carl Ritter (Peaud, 2011) exploring how geography relates to human development. Scholars, economists, and geographers, such as Paul Krugman, Vernon Henderson, and Masahisa Fujita, have significantly contributed to the theory. More specifically, American geographer Ellsworth Huntington asserted that the physical environment and climatic conditions greatly influence development outcomes (Stehr, 1998; Chimhowu, 2009). Further, geographical disparities theory asserts that individuals, institutions, and cultures in some areas are deprived of opportunities to escape poverty (Bradshaw, 2006).

In addition to climatic conditions, geographical and natural features, topography and the unavailability of arable and viable agricultural land and public services lead to spatial poverty and critically explain disparities (Chimhowu, 2009). According to Abdulai and Shamshiry (2014), the concentration of poverty in specified areas indicates that these regions lack an economic base to compete. Furthermore, poor institutional and political governance, stigma, social exclusion, and inadequate infrastructure play a major role in causing poverty (Bird et al., 2010).

Geographical disparities theory is closely related to livelihoods. The theory examines unequal economic and social indicator distributions across geographic regions. On the other hand, livelihood development focuses on enhancing the living standards and well-being of individuals and communities. Geographical disparities theory can

be adopted to understand disparities, identify regional challenges, and design contextualized initiatives. This approach plays a significant role in reducing disparities and in enhancing livelihood development.

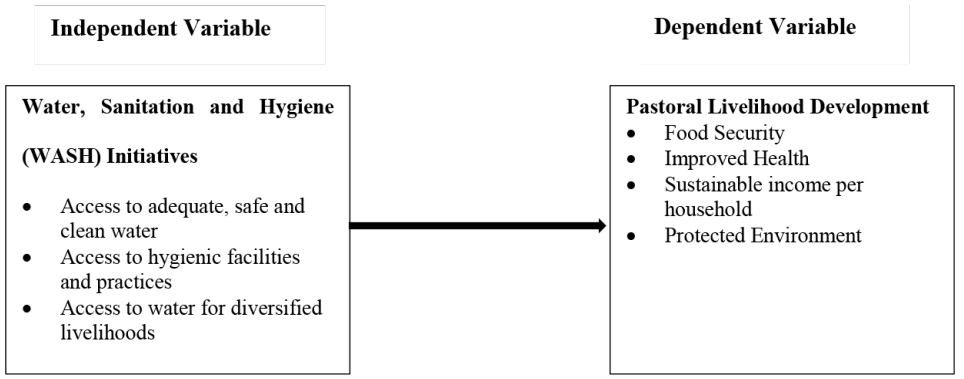
Marsabit County is located within ASAL in Northern Kenya. This makes it one of the driest regions of Kenya. It presents numerous environmental challenges, such as persistent droughts, contributing to the extensive loss of grassland biodiversity. As a result, most people experience serious livelihood challenges. The limited resources of communities are greatly stretched, making them more vulnerable to adverse weather effects (Komote & Ondieki, 2017). Geographic disparity theory can be used to identify disparities in Marsabit County. Addressing inequalities in the county can play a critical role in creating opportunities for marginalized pastoralists to enhance their livelihoods and economic well-being, thus reducing poverty levels.

Conceptual Framework

The conceptual framework in Figure 1 shows the expected outcome of the WASH initiative for poverty reduction and the livelihood of pastoral communities in Marsabit County.

Figure 1

Conceptual Framework



The WASH initiatives are adopted by FBOs, whose purpose is to reduce poverty among pastoral communities and realize pastoral livelihood development. When implemented, WASH initiatives are expected to translate into pastoral livelihood development in food security, improved health, sustainable income per household, and a protected environment. The targeted community will be food secure because there is water for farming, generating food for the families and surplus for sale, which translates to increased income. Community health will improve because of access to adequate clean and safe water and sanitation facilities. The environment will be protected because of the availability of sanitation facilities and the health and environmental training received. The study was steered by the research questions below.

Research Questions

1. What is the extent of the faith-based organizations' water sanitation and hygiene initiatives in enhancing access to safe and clean water among pastoral communities in Saku Sub County, Marsabit County?
2. What is the extent of the faith-based organizations' water sanitation and hygiene initiatives in enhancing changes in sanitation facilities and hygiene practices among pastoral communities in Saku Sub County, Marsabit County?
3. What is the extent of the faith-based organizations' water sanitation and hygiene initiatives in enhancing food security and income generation among pastoralists in Saku Sub County, Marsabit County?

Methodology

Research Design

This study adopted a mixed-method design that combined qualitative and quantitative approaches. The sequential explanatory method was first used to collect quantitative data, which was explained using in-depth qualitative data (Creswell, 2014; Creswell & Clark, 2018). The study collected data from 323 household heads who were beneficiaries of WASH initiatives initiated by two FBOs.

Research Setting

The study was conducted in Marsabit County and included two church-based FBOs in Saku Sub County. Livestock-keeping is the main source of income (M'Mbogori et al., 2022). Marsabit County was chosen for this study because it is one of the poorest counties in Kenya (M'Mbogori et al., 2022) and has one of the highest development agencies, including FBOs, that deal with poverty-related activities (MoALF, 2017; County Integrated Development Plan, 2013-2017).

Sampling

About 2000 households within Saku Sub County benefit from the WASH initiatives implemented by Anglican Development Services Mt Kenya East (ADSMKE) and Caritas Marsabit. The study targeted 2000 household heads and four staff members, two from each of the two FBOs. Therefore, the target population was 2004.

The Slovern's formula was used to determine the sample size for the quantitative study. The sample size (n) for the quantitative data was calculated using the total population (N) of the household heads, which was 2000, and the acceptable confidence level of 95% translating to a margin error (e) of 0.05.

$$n = \frac{N}{1+Ne2}$$

$$n = \frac{2000}{1+2000\ (0.05)^2}$$

322.26

Also, a stratified sampling technique was used to select a sample size of 323 respondents (household heads) who completed the questionnaire. This study applied judgmental-based allocation due to the uneven number of respondents. Thus, 162 respondents were from Caritas Marsabit, and 161 were from ADSMKE for each stratum.

Two Focus Discussion Groups (FGDs) of ten participants from the two FBOs were conducted to collect qualitative data. A purposeful sampling technique was used to select the FDG members. Members of the Water Users Committee also responded to the questionnaires. This helped derive an in-depth understanding of the study. Furthermore, two WASH managers from the two FBOs were selected for Key Informant Interviews (KII).

Data Collection

A structured questionnaire was used to collect quantitative data from the respondents, and Semi-structured interviews were conducted with the FGDs and key informants. Respondents with minimal or no education level were assisted by research assistants to complete the questionnaires. The interviews also gave participants more opportunities to elaborate on their points of interest.

Permission was sought and granted by the interviewees. Recording and taking notes were done when the interviewers captured the experiences and views of the staff directly involved in managing the WASH initiatives. On the other hand, the FDG participants were able to describe the experiences and effects of the WASH poverty reduction initiatives in their community. In the case of FGD, the researchers involved a research assistant who understood the local dialect because of the low literacy level of the respondents.

Data Analysis

The quantitative data were analyzed using descriptive statistics such as frequency and percentage. The Statistical Package for the Social Sciences (SPSS), version 25, was used to analyze the respondents' perceptions regarding whether the WASH initiatives undertaken by the FBOs enhanced the livelihoods of the pastoral communities in Saku Sub County, Marsabit County.

Regarding qualitative data, upon completion of data collection, all recorded information was carefully transcribed verbatim. Subsequently, an analysis was conducted to identify recurring themes among respondents' narratives. These themes were further scrutinized to identify sub-themes. Excerpts from qualitative data were used to corroborate the findings of the quantitative study. Furthermore, the corroborated quantitative and qualitative data findings were compared with existing literature to provide an in-depth understanding of the research topic.

Ethical Considerations

The letter of introduction was obtained from St Paul's University, which was used to apply for and obtain a research license from the National Commission for Science, Technology

and Innovation (NACOSTI), Kenya. Secondly, permission was received from the two FBOs to conduct research in their organizations. Informed consent was also sought from all respondents before data collection. The respondents were also guaranteed anonymity and confidentiality; thus, coded names were used instead of their real names for information disclosed during the FGD. In addition, cultural considerations were observed based on what was appropriate or inappropriate for the community under study.

Results and Discussion

Results

The research assistants distributed 323 questionnaires to household heads but received 287 questionnaires. The response rate was 88.9 %. This was considered appropriate for the findings of the study. Community leaders of the WASH projects from the two FBOs were organized into two focus groups of ten respondents. They discussed questions regarding the outcomes of faith-based organizations' water, sanitation, and hygiene (WASH) initiatives on the livelihoods of pastoral communities in Marsabit County, Kenya. Two interviews were conducted with WASH managers from Caritas-Marsabit and ADSMKE.

The study sought to determine how beneficiaries were involved in the WASH initiatives. Table 1 shows that beneficiaries participated in different roles, some with multiple responsibilities.

Table 1

Involvement as a Beneficiary of WASH

Variable	Percentages
Mobilizations	28.6
Planning	13.6
Training	100
Implementation	13.6
Monitoring and Evaluation	13.6
Total	169

Table 1 indicates that all respondents were involved in the training, while only 13.6% of beneficiaries were involved in planning, implementation monitoring, and evaluation. These were the Water Users Committee, which represented the beneficiaries of the core responsibilities of WASH initiatives.

The FDGs confirmed their involvement in the WASH initiative, mobilization, planning, training, monitoring, and evaluation. They were empowered to form the Water Resources Users Association (WRUA). Through this, they created a management committee that helped them coordinate community participation at various levels of the project.

The study sought to understand whether respondents could access adequate and clean water. The findings in Table 2 show that 55.7% and 39.4 % of the beneficiaries agreed and strongly agreed respectively that they had access to safe and clean water.

able 2

Access to Adequate Safe and Clean Water

Variable	Percentages
Strongly disagree	.3
Disagree	2.4
Uncertain	2.1
Agree	55.7
Strongly agree	39.4
Total	100

A participant from the FGD asserted that their livestock was supplied with adequate water. Beneficiaries are glad that they do not need to travel long distances with their animals looking for water. One of the key informants alleged that there were watering points for the animals in the community, so the herders no longer needed to walk long distances. Thus, the loss of animals has reduced and improved the well-being of pastoralists. One key informant reported that their WASH initiative benefited schools within their communities. This profited the women and children who were saved from the struggle of walking and spending the entire day looking for water.

However, another member of the FGD raised concerns about resilience to climate change owing to prolonged droughts, which reduced water dams and other water surfaces after some time. Floods also contribute to killing their animals. Thus, it creates a challenge for livelihood enhancement.

Furthermore, the researchers sought to establish whether the respondents had access to hygienic sanitation facilities. The findings in Table 3 show that 55.1% agreed, while 37.6% of the respondents strongly agreed that they had access to hygienic sanitation facilities. This could lead to improved health outcomes, such as reduced waterborne diseases and lower morbidity rates, especially among children and vulnerable community members (WHO, 2017).

Table 3

Changes in Sanitation Facilities and Hygiene Practices

Variable	Percentage
Strongly disagree	.3
Disagree	3.1
Uncertain	3.8
Agree	55.1
Strongly agree	37.6
Total	100

A member of the FDG said that the organization trained and assisted them in digging pit latrines. They were also trained in handwashing techniques. They noted that diarrhea and typhoid were reduced in children. Access to adequate sanitation and hygiene is critical for enhancing livelihoods (Kumwenda, 2019).

This study assessed whether beneficiaries had grown their own food (Kitchen Garden). The findings in Table 4 indicate that most beneficiaries managed to have kitchen gardens (46.3%). The 20% that strongly agreed made the most remarkable success by working to feed their families mostly vegetables grown in their small gardens. One of the key informants said that some families sold vegetables, thus increasing their household income. The agribusiness training helped some participants adopt the agro-pastoral lifestyle. This translates into poverty reduction and the development of pastoral livelihoods.

Table 4

Enhanced Food Security and Income Generation

Variable	Percentage
Strongly disagree	1.7
Disagree	10.5
Uncertain	22.0
Agree	46.3
Strongly agree	20.0
Total	100

Discussion

Community participation in the WASH initiative intentionality is critical for harnessing the desired results of poverty reduction and pastoral livelihood. This creates an opportunity for them to be empowered by gaining new skills for the intended purpose (Nelson et al., 2021; Tsekleves et al., 2022). In this case, they gain skills to harness the WASH initiatives.

The community accessed adequate, safe, and clean water over a short distance. This indicates that the FBOs met the WHO recommendations for accessing safe drinking water from a source less than 1 km away (WHO, 2022). According to Mwongera (2022), the time saved can be used to engage in economic activities to increase family income while children attend school continuously, with the prospect of creating better livelihoods.

The pastoral communities noted that diarrhea and typhoid were reduced in their children. Access to adequate sanitation and hygiene is critical for enhancing livelihoods (Kumwenda, 2019). In addition to livestock keeping, implementing kitchen gardens enhances food security and increases income. According to Moraine et al. (2014), practicing diversified crop-livestock farming is more likely to ensure food security, improve the quality of household diets, increase family income, and conserve biodiversity.

Limitations of the Study

This study had some limitations while collecting data in the field. The first is cultural barriers. Pastoral communities were still deeply entrenched in their cultural practices and traditions that, to some extent, might have dictated gender boundaries. They could have posed a challenge in engaging respondents at a personal level. This limitation was mitigated by using same-gender research assistants to administer the questionnaires, while focus group discussions were held in an open area and incorporated both genders. Second, illiteracy and language barriers also pose limitations. Most respondents were illiterate, understood their ethnic language only, and could not read or write effectively. This limitation was mitigated by organizing the use of local research assistants to help interpret the FDGs and complete the questionnaires. Third, personal biases and presuppositions on how best to help pastoral communities mitigate WASH challenges are anticipated. This was mitigated using trained and experienced research assistants.

Conclusion

This study aimed to assess the effects of faith-based organizations' water, sanitation, and hygiene (WASH) initiatives on the livelihoods of pastoral communities in Marsabit County, Kenya. The study found that faith-based organizations' WASH initiatives enhanced the livelihood of pastoral communities in Saku Sub County, Marsabit County. The WASH initiatives enabled pastoral

communities in Saku Sub County to access adequate, safe, and clean water. They experienced enhanced changes in sanitation facilities and hygiene practices as well as enhanced food security and income generation. However, most of them admitted that climate change posed a challenge due to prolonged droughts and floods, which affected their livelihoods.

The study concluded that WASH initiatives enhanced the livelihoods of pastoral communities in Saku SubCounty and Marsabit County. Therefore, WASH initiatives are significant for poverty reduction because of their ability to improve public health and create opportunities for food security and income generation for poor communities.

Recommendations

The study recommends that clarity be given to push the government to formulate and act on effective policies to mitigate climate change challenges that threaten WASH initiatives in affected areas such as Saku Sub County, Marsabit County. They should incorporate high-capacity water harvesting and conservation strategies for strategized farming methods, livestock watering, and domestic use. This can incorporate regular sensitization and educate pastoral communities on coping mechanisms within the ASAL areas. Such measures within ASAL areas are likely to sustainably enhance livelihood development. Further studies are recommended to determine how other poverty reduction initiatives, such as ensuring basic health care, enhance the livelihoods of poor households. Secondly, the reduction in climate change threatens to expand the resilience of the poor in coping with losses. Thirdly, there are challenges or hindrances encountered by development agencies in poverty reduction initiatives.

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Conflicts of interest: none

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