

Assessment of The Influence of Management Committee on Community-Led Monitoring of Borehole Water Project in Bura Sub-County, Tana River County in Kenya

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Abstract- In recent years, there has been a growing emphasis by governments and development practitioners on the active involvement of all stakeholders, particularly the intended beneficiaries, throughout the project cycle to expedite the achievement of development goals and sustain the realized benefits. Diverse strategies have been employed to enhance community participation in the planning, execution, monitoring, and evaluation of community-driven development initiatives. In Kenya, County governments are constitutionally mandated to facilitate people's engagement in local development and governance. Since their establishment, these County governments have established local governance structures and mechanisms for community members to engage in development projects and programs. However, in Kenya, these participatory local governance structures and avenues have not been extensively researched. This study aims to assess the influence of the management committee in community-led monitoring of a borehole water project in Bura Sub-County, Tana River County, Kenya, focusing on three key objectives: evaluating the impact of the management committee on gender equality, assessing their role in leveraging local knowledge, and examining their influence on the development of local community capacity. The theoretical framework guiding this research is the theory of participation proposed by Reed et al. (2018), which identifies four critical factors for successful stakeholder engagement: context, design, power, and scale of the engagement. To conduct this study, a case study research design was implemented. The study population included household heads, members of the borehole water project management committee, and officials of the County government of Tana River County, serving as key informants. Data collection involved the use of interview schedules and questionnaires to gather both qualitative and quantitative data. A systematic random sampling method was employed to select 38 household heads. The study sample comprised all 12 members of the Bura cattle dip community borehole management committee, one Bura Sub-County administration official, and 10 officials from the directorate of monitoring and evaluation in Tana River County. The findings of this study indicate that, on the surface, there is no gender-based discrimination in the community-led monitoring of the borehole water project. However, local community knowledge

was not effectively integrated into the monitoring process, and the community did not acquire a substantial understanding or skills related to project monitoring through their involvement in the borehole water project monitoring. Furthermore, the study reveals that County Government of Tana River policies designed to promote gender equality, harness local knowledge, and foster local community capacity building are inadequately disseminated and implemented at the local level. In conclusion, the management committee plays a crucial role in community-led monitoring of borehole water projects and, more broadly, in the implementation of community-led development initiatives. Therefore, it is recommended that authorities educate community members about patterns of gender-based discrimination, leverage local community knowledge, and define the specific capacities that community members are expected to acquire when participating in community development initiatives like the borehole water project.

Index Terms- community participation, management committee, community-led development, gender equality, local knowledge, capacity building.

I. INTRODUCTION

B1.1 background to the Study
Efforts to uplift living standards and accelerate development in Africa have become increasingly critical, particularly in the face of persistent poverty, healthcare challenges, and inadequate educational outcomes (Begashaw, 2019). The COVID-19 pandemic in 2019 further underscored the need for resilience and enhanced coordination among development actors (Begashaw, 2019; Africa Development Bank Group (ADB), 2021). To achieve these goals, active participation of the community in their own development initiatives is essential (Lechler & Cohen, 2009).

Kenya has undertaken significant reforms to enhance efficiency in public-led development efforts, including the adoption of various policies and strategies (Hope, 2012). The introduction of a devolved governance system in 2013 mandated the devolved governments, including Tana River County

Government, to implement effective methods for community participation in governance and development (Constitution of Kenya, 2010). Tana River County Government, one of Kenya's 47 devolved governments, implements various development projects and programs derived from the County Integrated Development Plan (CIDP), incorporating a monitoring and evaluation (M&E) framework emphasizing participatory approaches to involve the community at various levels in the project cycle management (Tana River County Government, 2018). The community-based borehole water management committees collaborate closely with government officials to plan, implement, and monitor borehole water projects, ensuring that the interests of both beneficiaries and the wider public are addressed (Tana River County Government, 2020).

In the Kenyan context, community-led development strategies are rooted in a national policy that emphasizes the importance of communities taking the lead in initiating projects and programs aligned with their needs (Ministry of East African Community, Labour and Social Protection - MEACLSP, 2017). This national policy underscores the involvement of all community members and the consideration of local priorities in developmental funding (MEACLSP, 2017). The World Bank (2021) highlights the central role of community-led development efforts in poverty-reduction-oriented interventions, advocating for transparent, extensive community involvement and the development of local community capacity. This approach also emphasizes the recognition and utilization of local knowledge and the active participation of women in monitoring community-led development projects.

Against this backdrop, the study aims to examine the influence of local committees, particularly the management committee, in community-led monitoring of a borehole water project in Bura Sub-county, Tana River County, Kenya. Specifically, the study will focus on the utilization of local knowledge, gender equality, and the development of local community capacity as key factors influencing community-led monitoring of the borehole water project.

1.2 Statement of the Problem

Since the enactment of the Constitution of Kenya in 2010, community-driven development has been a focal point in the country's development agenda. County Governments are constitutionally obligated to empower self-governance, enhance community involvement in decision-making processes, and promote the autonomy of people in shaping their own development. While local governance structures have been established to foster community-driven development, there remains a noticeable deficiency in the technical capacity of County Governments to devise and implement effective strategies for ensuring community-led development. Concerns have emerged regarding the level of community engagement, recognition of community priorities and local knowledge, and the capacity-building efforts necessary to sustain development projects.

Within the Tana River County Government, management committees have been envisioned as mechanisms that bridge the community and government officials, creating a platform for community-led monitoring of borehole water projects. However, there is a noticeable gap in understanding how these management

committees influence aspects such as gender equality, the utilization of local knowledge, and the development of local capacity within the framework of community-led monitoring for borehole water projects. This gap is substantial because the effectiveness of community-led project monitoring relies on proven participatory approaches.

The borehole water project initiated in Bura Sub-county, Tana River County, Kenya, in 2018 marks a significant milestone as the County Government's first endeavor of this kind. Thus, the evaluation of the management committee's influence in community-led monitoring of the borehole water project holds considerable importance. It will provide empirical evidence that can assist development organizations and government entities at both national and local levels in devising and implementing appropriate strategies to enhance the effectiveness of community-led monitoring for local development projects.

1.3 Objectives of the Study

- i. To assess the influence of the management committee on gender equality in community-led monitoring of borehole water project in Bura Sub-County.
- ii. To assess the influence of the management committee on utilization of local knowledge in community-led monitoring of borehole water project in Bura Sub-County.
- iii. To assess the influence of management committee on development of local capacity in community-led monitoring of borehole water project in Bura Sub-County.

1.4 Significance of the Study

The outcomes of this study hold considerable importance in shedding light on the effectiveness of community-led development approaches. More specifically, the findings of this research will provide valuable insights for development practitioners, enabling them to better understand the integration of gender mainstreaming, the leverage of local knowledge, and the development of local capacity within the framework of community-led monitoring for borehole water projects.

Furthermore, the study's findings could serve as a foundational reference point for academic researchers, whether at the local or national level, who are interested in delving into the multifaceted aspects of community-driven development in Kenya. Students and researchers, in particular, may utilize these findings to formulate practical guidelines aimed at ensuring gender equality, the effective utilization of local knowledge, and the enhancement of local community capacity within the broader context of community-led development.

II. LITERATURE REVIEW

This section provides empirical evidence regarding the impact of participatory mechanisms, such as community-based management committees, on gender equality, the utilization of local knowledge, and the development of local capacity within the context of community-led development initiatives. Additionally, it introduces the theoretical framework, conceptual framework, and summarizes the identified gaps in the study.

2.1 Gender equality in community-led monitoring of development projects

Promoting gender equality within community-led development initiatives is a critical aspect of sustainable development. Research by the International Labor Office (ILO) (2017) and Woetzel (2015) highlights the potential economic benefits of gender equality, estimating that it can increase the global Gross Domestic Product (GDP) by a substantial margin. The impact is even more pronounced in developing countries (ILO, 2017; Woetzel, 2015). However, despite the recognized importance of gender equality, challenges persist in ensuring women's active participation in community-led development.

Fonchingong and Ngwa (2006) identify systemic barriers that hinder women's involvement in various phases of community-led development projects. Long-standing traditions, low literacy levels, and lack of property rights have marginalized women, preventing their effective contribution to development planning. Women's limited representation in high-ranking positions within community-based committees or organizations further exacerbates this issue (Fonchingong & Ngwa, 2006).

Baum, Bush, Modra, Murray, Cox, Alexander, and Potter (2000) illustrate the varying levels of participation among different population groups in community activities, with women often participating more in volunteer group activities than men. Their findings underscore the importance of considering sub-population priorities when designing and implementing community projects. Mommen, Humphries-Waa, and Gwavuya (2017) emphasize the significance of women's participation in community-led development projects, revealing that committees with women in senior leadership roles tend to meet more regularly. More frequent meetings contribute to better management, and despite various influencing factors, these committees often perform more effectively (Mommen, et al., 2017).

Kiprono, Nganga, and Kanyiri's (2015) studies in Kenya expose the prevalent exclusion of women from leadership roles in the management of public education institutions. Men predominantly hold positions in school management committees, institution heads, and senior teaching roles, significantly influencing decision-making processes related to school management. This underrepresentation of certain groups, including women, in community-led development initiatives can hinder comprehensive human development.

The National Gender and Equality Commission (NGEC) in Kenya (2016) uncovers concerning statistics regarding children's access to education. A significant number of children from impoverished communities do not attend school, which has implications for future community development. Moreover, a higher percentage of women aged fifteen to thirty-four are not in education, training, or formal employment compared to men (NGEC, 2016). While more women are self-employed, they

remain underrepresented in formal employment, contributing to gender disparities in economic participation.

Imbaya, Nthiga, Sitati, and Lenaiyasa (2019) shed light on conservancy management, where senior leadership primarily dictates conservancy decisions with minimal community input. Their research indicates that women's participation in conservancy meetings is notably low, and even when present, women tend to serve as observers rather than active contributors due to cultural limitations (Imbaya, et al., 2019). These findings align with previous studies by Mommen, Baum, Kiprono, and others, highlighting persistent barriers that impede the realization of all-inclusive community development concepts, particularly in terms of gender equality. Addressing these issues is essential for the equitable and sustainable development of communities.

2.2 Utilization of local knowledge in community-led monitoring of development projects

Harnessing local knowledge is instrumental in sustaining community-led development initiatives. Mafimisebi, Fajemisin, and Aiyelari (2012) conducted research in Southwest Nigeria and found that farmers rely on traditional medicinal plant knowledge passed down through generations to enhance livestock keeping, reducing the reliance on costly commercial inputs. Despite limited formal education and training opportunities, these farmers have managed to sustain livestock farming successfully, primarily through the transmission of knowledge from their grandparents (Mafimisebi, et al., 2012). This underscores the value of local resources in advancing rural and community development.

A related study by Komwihangilo, Lekule, Kajembe, and Petersen (2007) in Sub-Saharan Africa highlights the integration of local knowledge regarding livestock feeds into scientific evidence to support sustainable livestock production systems. Local knowledge not only helps small-scale farmers build resilient livestock production systems but also offers opportunities to enhance contemporary market-based solutions (Komwihangilo, et al., 2007). These findings emphasize the pivotal role of indigenous knowledge in promoting sustainable community development.

Pukkalla and Rama Mohan (2021) explored the dynamics of fishing communities in Southern India, revealing that older generations adhere to traditional fishing methods while younger fishermen increasingly adopt modern techniques. Despite the inter-generational tension, the study suggests that a blend of traditional and modern methods remains essential for sustaining fishing livelihoods in Southern India (Pukkalla & Rama Mohan, 2021). This demonstrates the significance of utilizing local knowledge to ensure the success of community-led development initiatives.

Kaya and Seleti (2014) analyzed the relevance of local knowledge in South Africa's higher education system. Their research illustrates how universities, by predominantly focusing on Western cultures, create a disconnect between learning and living. This disconnect hinders graduates' ability to address the immediate societal and development challenges facing their communities. Kaya and Seleti (2014) advocate for the integration of African knowledge into university education, emphasizing the importance of incorporating local languages in teaching and learning to bridge the gap and ensure that knowledge production is rooted in the local context.

Ndalilo, Wekesa, and Mbuvi (2020) explored the application of indigenous and local knowledge in food security systems within coastal communities in Kenya, particularly in the context of climate change. Their research reveals that local knowledge plays a pivotal role in agricultural production and climate change adaptation. The integration of community-level practices, such as crop diversification, conservation tillage, domestication of medicinal plants, and organic pesticide use, into national-level climate change policies can significantly enhance livelihoods and sustainable agriculture (Ndalilo, et al., 2020).

Kiprop, Oriwo, Muga, Othim, and Obonyo (2017) studied indigenous technical knowledge in the production of non-wood forest products in Kenyan water towers. Traditional rules and practices, such as collecting herbs only in the morning and allowing specific age groups to collect herbs, promote the sustainable supply of non-wood forest products (Kiprop, et al., 2017). However, Wambua (2010) warns that indigenous knowledge about forest biodiversity within communities is threatened due to shifts in belief systems and poor documentation practices (Wambua, 2010). In summary, these studies collectively emphasize the essential role of local knowledge in enhancing the success of community-led development initiatives, not only at the community level but also on a broader scale.

2.3 Development of local community capacity in community-led monitoring of development projects

Ananda and Proctor (2012) highlighted that collaborative approaches for water resources management in Australia were not effectively linked to broader natural resources management. Although local communities were engaged in water resources management, these approaches failed to enhance the overall capacity of the community for sustainable natural resource utilization. The study emphasized the need for collaborative implementation, training, and patience to transfer essential skills to the community (Ananda & Proctor, 2012).

Lawrence, Paudel, Barnes, and Malla (2006) conducted research in Nepal, demonstrating that forest user groups could transition from having little or no knowledge of monitoring and indicators to developing their own biodiversity indicators. This evidence underscored the value of interactive learning through participatory monitoring of biodiversity in community forestry. It emphasized the significance of using participatory approaches to build community capacity for project monitoring and overall project cycle management (Lawrence, et al., 2006).

Lennie (2005) evaluated the empowerment effects of capacity-building initiatives for rural communities in Australia, particularly focusing on communication, information, and technology (ICT) resources. The findings revealed that participants in these initiatives not only gained technological skills but also acquired knowledge in participatory approaches for planning and evaluation. They were able to obtain and apply new information and skills in various aspects of their lives (Lennie, 2005). This study emphasized the opportunities for enhancing a wide array of capacity within the community.

Tambo and Wünscher (2017) showed that participatory methods, such as farmer field fora in Ghana, enhanced participants' innovative capacity. These fora significantly increased the likelihood of farmers demonstrating innovative abilities. The opportunities for sharing ideas among members to

solve complex problems within the fora contributed to this capacity enhancement (Tambo & Wünscher, 2017). This study highlighted the importance of expanding community participation in development to broaden capacity at the local level.

Van Aalst, Cannon, and Burton (2008) explained how community risk assessment methods can help communities adapt to climate change and reduce vulnerabilities by increasing resilience. These approaches can also be linked to national and international networks on climate change, emphasizing the significance of involving communities in assessing and managing risks associated with climate change (Van Aalst, et al., 2008).

Thwala (2010) assessed the role of community participation in the success of community water projects in South Africa. The findings revealed that the community was enthusiastic about being capacity-built in community-based water projects planning and decision-making. This included identifying, implementing, and monitoring the projects (Thwala, 2010). The study highlighted the community's preference for active involvement over hiring contractors to carry out the work.

Similarly, de Araujo Lima Constantino, Carlos, Ramalho, Rostant, Marinelli, Teles, & Valsecchi (2012) demonstrated that community empowerment through community-based resource monitoring depends on various factors, including the value attached to biological resources by local people, community rights, the political environment, and partnerships with stakeholders. Increased community involvement in monitoring had a greater impact on empowerment (de Araujo Lima Constantino, et al., 2012).

Mati (2008) shared the Kenyan experience of capacity building for smallholder farmers through case studies of irrigation schemes. The study identified strategies that increased smallholder farmers' capacity, including government extension officials, NGOs, private sector interventions, and farmer peer learning. While each strategy had an effect on farmer capacity, the participatory approaches involving training and tours to more advanced farmers were particularly effective. Mati (2008) stressed the need for concerted efforts from all stakeholders to achieve the desired level of capacity. These studies collectively underscore the significance of community participation and the use of participatory approaches in building local community capacity, ultimately enhancing the success of community-led development initiatives.

2.3 Theoretical Review

The study is anchored in Reed, Vella, Challies, De Vente, Frewer, Hohenwallner-Ries, and Van-Delden's (2018) theory of participation, which outlines four critical factors influencing the outcomes of stakeholder engagement: context, design, power, and scale. Context, according to Reed, et al. (2018), is a decisive factor in determining the success of stakeholder engagement. The context, shaped by prior engagement experiences and available resources like knowledge, skills, and cultural factors, significantly affects the prospects of successful engagement. Thus, understanding and adapting to the context are crucial for effective stakeholder participation.

Design, as expounded in Reed, et al.'s (2018) theory, concerns the opportunities stakeholders have to influence the project's design. Incorporating stakeholders' ideas into the project's design fosters healthy engagement and participation, with

transparency and feedback policies playing key roles. Conversely, top-down and bureaucratic management approaches may deter stakeholders from active participation. The theory's emphasis on power dynamics within stakeholders and the significance of time and space scales further contribute to comprehending the influence of management committees in community-led monitoring of development projects, particularly in the context of gender equality and the utilization of local knowledge.

2.4 Conceptual Framework

Figure 1 presents the study's conceptual framework, depicting the dynamic interactions between the management committee as an independent variable and community-led monitoring of borehole water projects as the dependent variable. The management committee acts as a bridge connecting the local community, who are the ultimate beneficiaries of the borehole

water project, and the County Government, responsible for project implementation. Comprising community members, the management committee collaborates closely with County government officials throughout the project implementation phase. As illustrated in Figure 1, the management committee plays a pivotal role in facilitating gender equality at the community level, promoting the utilization of local knowledge, and fostering community capacity development in project monitoring. The study postulates that community-led monitoring of borehole water projects is a long-term outcome achieved through the strengthening of gender equality, the effective utilization of local community knowledge, and the development of community capacity in project cycle management.

The variables and their relationship for this study are as shown in the figure 1

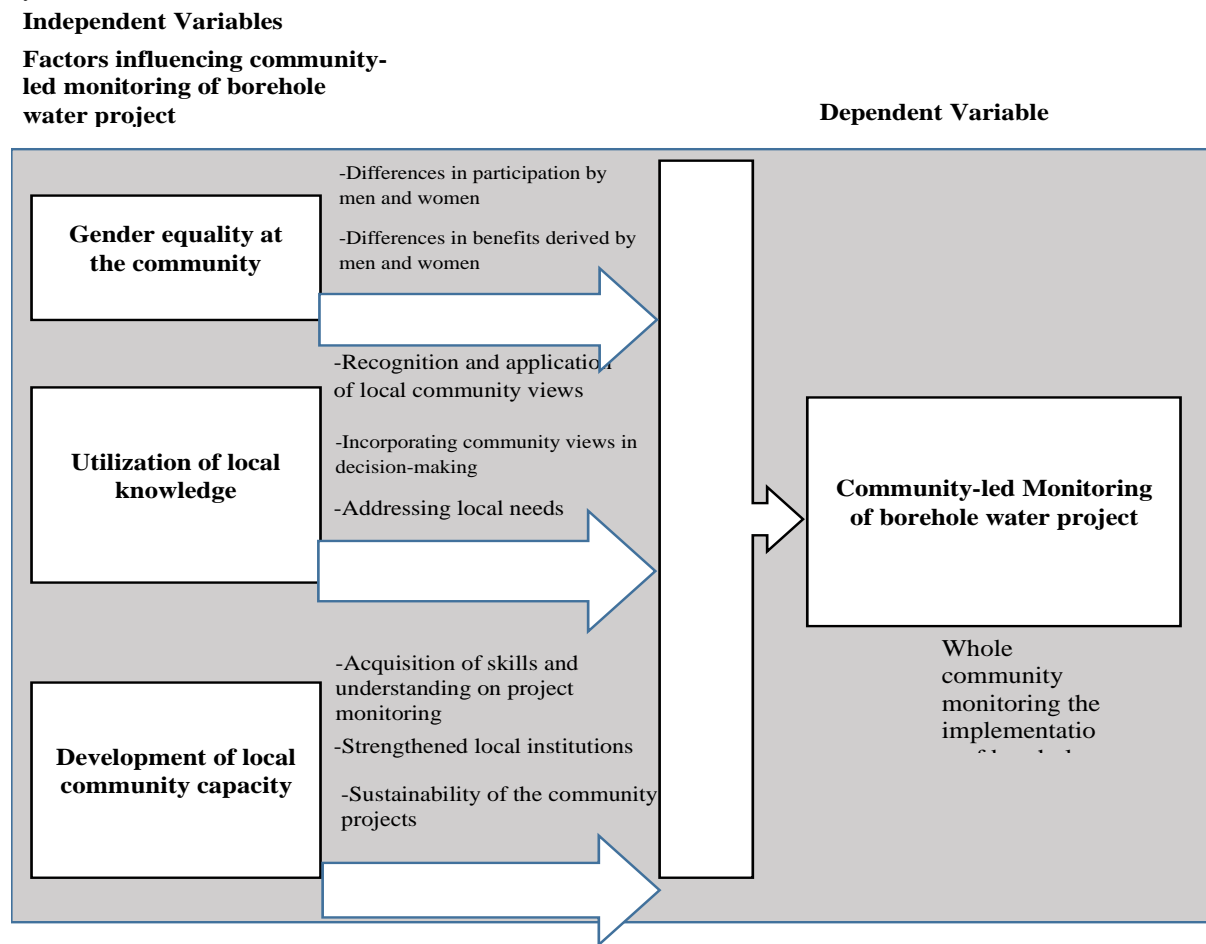


Figure 1: Conceptual Framework

2.5 Gaps in the literature

A noticeable gap exists in the available research regarding the role of management committees in community-led monitoring of borehole water projects, particularly in terms of their influence on gender equality, utilization of local knowledge, and the development of local community capacity in the Kenyan context. This gap holds particular importance within the framework of the initiatives undertaken by Kenya's devolved governments to establish mechanisms for community-led monitoring of

development projects. Notably, there is a lack of comprehensive and explicit research examining the effectiveness of existing approaches, including the role of management committees, in this context.

III. RESEARCH METHODOLOGY

This section delves into the research methodology employed in this study, encompassing various key elements such as the research design, study location, target population, sampling procedures, data collection instruments, the process of data collection and analysis, and the ethical considerations that guided the research.

3.1 Research Design

The study employed a case study design to investigate the impact of the management committee on community-led monitoring of borehole water projects. This design was chosen to facilitate the collection of rich and detailed data from various sources, including household heads, management committee members, and County Government officials in Tana River. The case study design was well-suited to explore variables that encompassed a wide range of perspectives, attributes, attitudes, verbatim quotes, and anecdotal stories, all of which were crucial for assessing the influence of the management committee in community-led borehole water project monitoring. This approach allowed for the use of both unstructured and semi-structured interviews, as well as questionnaires, enabling the collection of comprehensive and in-depth data necessary to address the research questions of the study. Previous empirical studies by Ryder (2013), Cawley (2016), and Thwala (2010) have also employed the case study design to investigate community participation in the management of development projects.

3.2 Sample Size and Sampling Procedure

The study involved a sample of 60 respondents, which constituted 40% of the total population under investigation. The research focused on Bura Sub-County, located within Tana River County, with specific attention given to the Bura Cattle Dip Community Borehole Water Project in the same sub-county. This particular borehole project was chosen as it was the first of its kind initiated by the County Government of Tana River in 2018, under the leadership of senior county officials. It served a larger number of households compared to other boreholes in the same sub-county.

To select the respondents, a systematic random sampling technique was applied. The sample size (n) was determined using the formula $k = N/n$, where k represented the sampling interval, N was the population, and n was the sample size. From a list of 127 beneficiaries of the borehole water project, 38 household heads were sampled, ensuring that all types of households (both female and male-headed) were equally represented in the sample.

All members of the management committee for the Bura Cattle Dip Community Borehole Water Project were included in the study, as well as officials from the Tana River County Directorate of Monitoring and Evaluation and Sub-County administration. Due to the smaller size of these groups, no further sampling was necessary, and the entire population of these categories was considered the sample for the study.

3.3 Data Collection Methods

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3.7 Data analysis techniques

Data analysis for this study involved several techniques. The qualitative data and research objectives were transformed into visual representations such as bar charts, tables, frequencies, and percentages. To facilitate this, the researcher employed a coding system to categorize responses from household heads, management committee members, and key informants, ensuring that similar response patterns were grouped accordingly. The quantitative data collected was subjected to analysis, which included calculating sums and averages. The results were presented using descriptive statistics to provide a clear overview of the data.

To ensure data confidentiality, the researcher adhered to the ethical guidelines and research license conditions of both Mount Kenya University (MKU) and the National Commission for Science, Technology, and Innovation (NACOSTI). No personally identifiable information was collected or analyzed during the study. Participants were fully informed about the study's objectives and their rights. Informed consent was obtained from each participant (see Appendix 1), emphasizing the voluntary nature of their participation and the strict confidentiality of the data collected. Respondents were assured that the data collected would be used solely for academic purposes related to the Master of Arts degree in Monitoring and Evaluation at Mount Kenya University.

IV. FINDINGS AND DISCUSSIONS

In this section, the study's results and findings are presented. We begin with an analysis of the response rate, which indicates the percentage of participants who successfully completed the questionnaires. Additionally, an overview of the socio-demographic attributes of the research participants is provided. This summary includes key details such as age, gender, and educational background to offer insight into the composition of the sample.

4.1 Influence of the management committee on gender equality

4.1.1 Gender-based discrimination

The data presented in Table 4 reveals the respondents' perspectives regarding the presence of gender-based discrimination in the community-led monitoring of the borehole water project. The majority of respondents, including household heads (97%), management committee members (100%), and key informants (100%), indicated that there is no gender-based discrimination in this context. However, one female household head acknowledged the existence of some form of gender-based discrimination during an interview. She expressed, "They thought I had no money to fund the project."

4.2.1 Gender-based discrimination

Respondent category, gender	Response					
	No		Yes		Total	
	F	%	F	%	F	%
Household Heads	37	97%	1	3%	38	100%
Men	19	100%	0	0%	19	100%
Women	18	95%	1	5%	19	100%
Key informants	8	100%	0	0%	8	100%
Men	7	100%	0	0%	7	100%
Women	1	100%	0	0%	1	100%
Management committee	12	100%	0	0%	12	100%
Men	8	100%	0	0%	8	100%
Women	4	100%	0	0%	4	100%
Grand Total	57	98%	1	2%	58	100%

Table 1: Respondents' views on the presence of gender-based discrimination

While the data suggests a lack of intentional gender-based discrimination, it highlights that women are underrepresented in the monitoring of the borehole water project, potentially due to the disproportionate representation of women on the management committee, which is appointed. This finding aligns with previous research (Baum, et al., 2000), which indicates that women tend to participate more in voluntary activities than appointive or elective initiatives. The data also reveals that despite the absence of intentional gender-based discrimination, systemic barriers, such as county-level policies and procedures, hinder women's participation in community development. According to Reed, et al. (2018), the favorable context within which the borehole project

is monitored could be built upon to advance gender equality in community-led monitoring.

4.1.2 Consideration of gender in the management committee leadership

Table 5 presents the views of different respondent categories concerning the consideration of gender in the leadership of the management committee. The data indicates that most household heads (97.4%) and management committee members (100%) believe that gender is not considered when appointing members to the management committee leadership. However, the majority of key informants (100%) reported that gender is taken into account when forming the management committee leadership.

4.2.2 Consideration of gender in the management committee leadership

Respondent category, gender	Response					
	No		Yes		Total	
	F	%	F	%	F	%
Household Heads	37	97.4%	1	2.6%	38	100.0%
Men	18	47.4%	1	2.6%	19	50.0%
Women	19	50.0%	0	0.0%	19	50.0%
Key informants	0	0.0%	8	100.0%	8	100.0%
Men	0	0.0%	7	87.5%	7	87.5%
Women	0	0.0%	1	12.5%	1	12.5%
Management committee	12	100.0%	0	0.0%	12	100.0%
Men	8	66.7%	0	0.0%	8	66.7%
Women	4	33.3%	0	0.0%	4	33.3%

Table 2: Views of different categories of respondents on consideration of gender in the management committee leadership

For instance, one household member remarked, "*Men are always active in what is going on.*" This suggests that the County Government of Tana River envisions considering gender when constituting management committee leadership. However, the vision may not have been realized due to the structure of the management committee or the limited power of the community members to achieve this vision. This finding is in line with research conducted by Fonchingong and Ngwa (2006), which points out that long-held traditions, low literacy, and the absence of property rights hinder women's access to leadership opportunities.

4.1.3 Promotion of gender equality

Figure 2 illustrates the gendered distribution of respondents' views on the influence of the management committee on gender equality in community-led monitoring of the borehole water project. According to the data, most respondents agree that the management committee should ensure the active participation of both men and women in monitoring the borehole water project. Notably, more women (38%) than men (15%) believe that gender equality can be promoted by ensuring the participation of both genders. On the other hand, more men (18%) than women (4%) suggest that gender equality can be achieved by equitably sharing leadership positions between men and women. There are also respondents who emphasize the importance of listening to the views of both men and women. More women (17%) than men (4%) suggest that the management committee should listen to the views of all members, indicating different experiences and perspectives regarding gender equality among men and women.

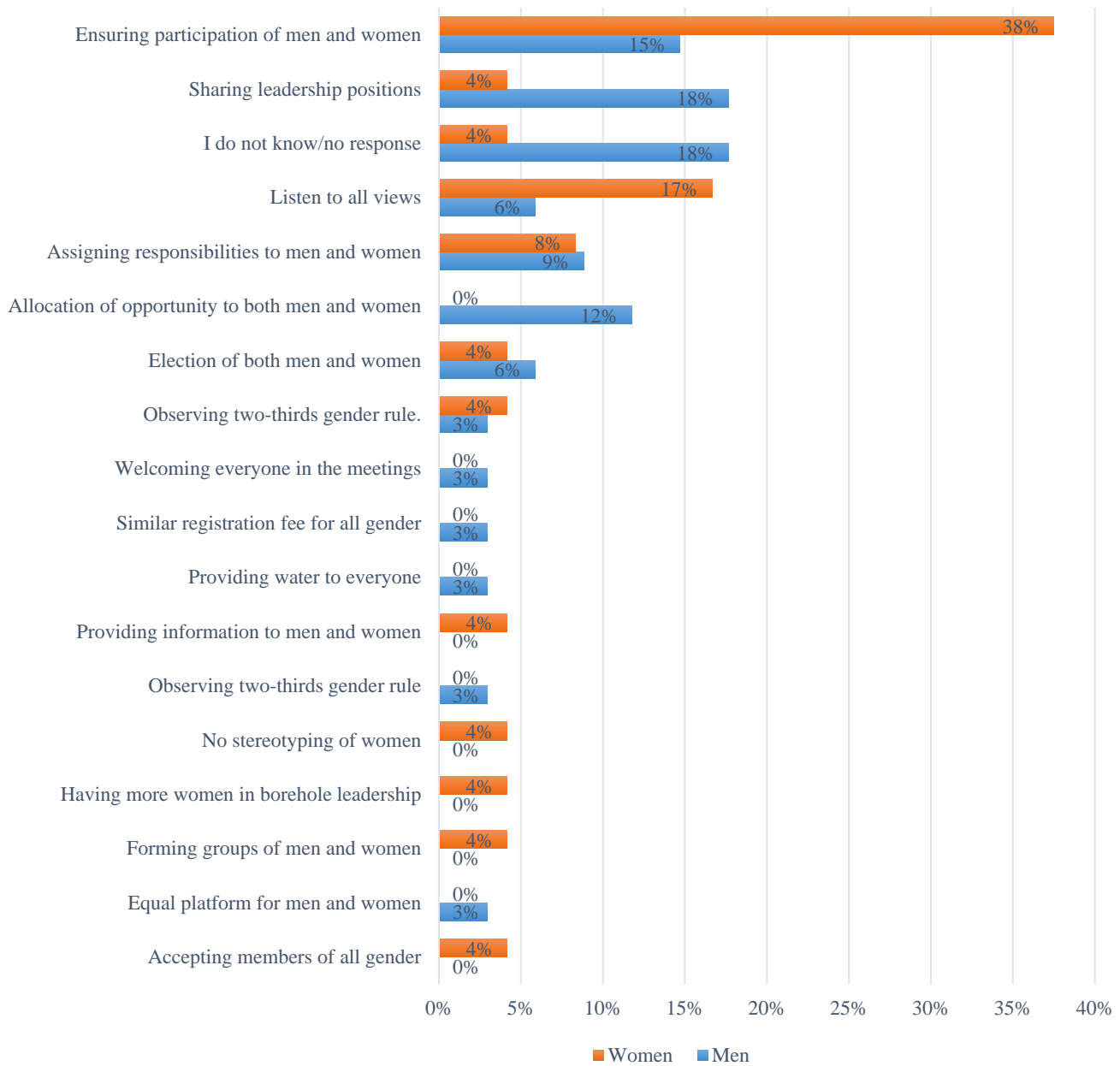


Figure 1: Gendered distribution of respondents' views about the influence of the management committee on gender equality in community-led monitoring of borehole water project

Figure 3 provides a distribution of views by respondent categories on the influence of the management committee on gender equality, taking into account the respondents' age brackets. The data suggests that respondents across different age brackets express varying opinions on how the management committee can promote gender equality. While the majority of older respondents

(aged 50 to 60 years and 60 years and above) believe that the election of both men and women and the assignment of responsibilities would promote gender equality, those aged 30 to 39 years mostly did not state specific actions for promoting gender equality.

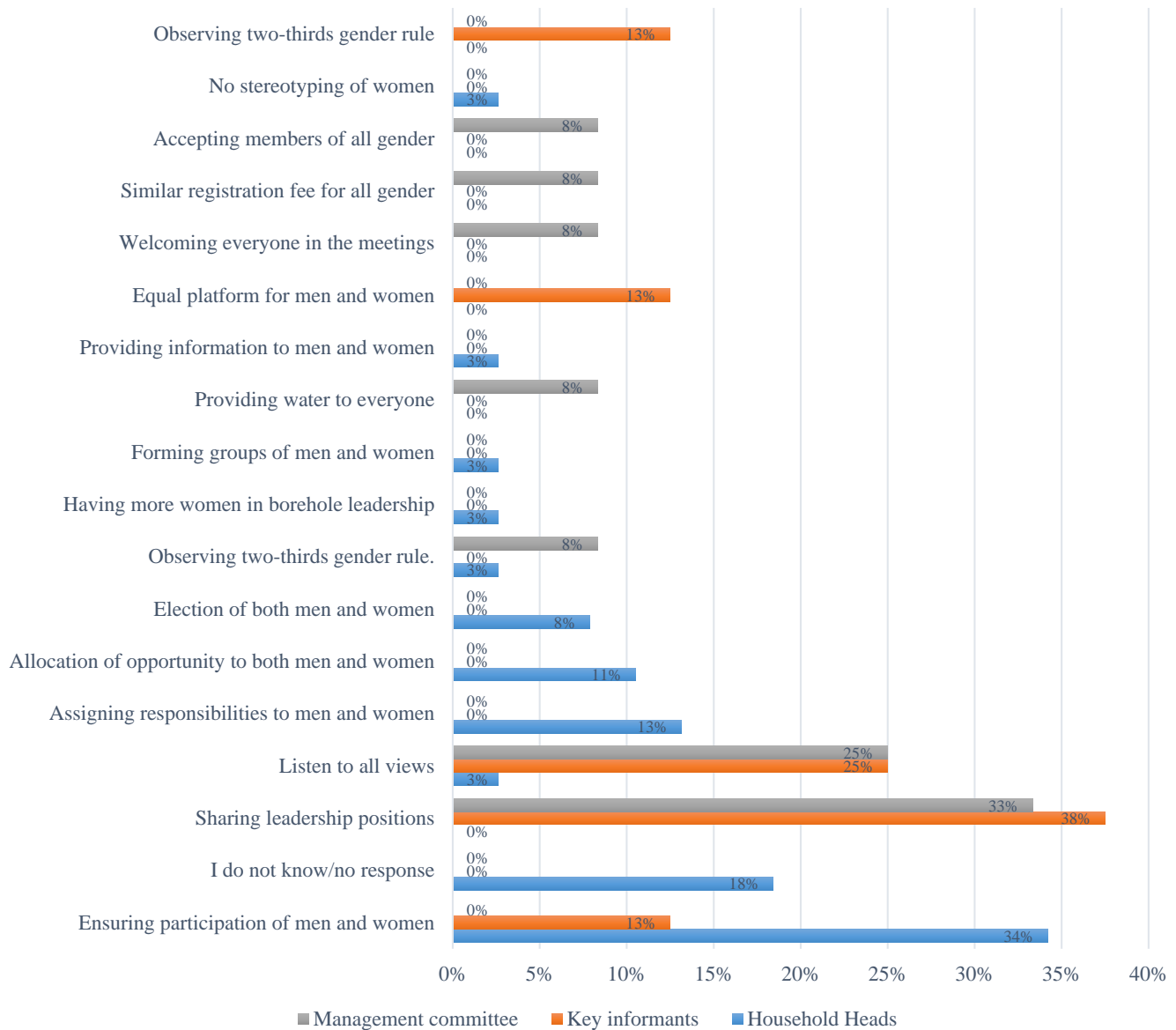


Figure 2: Distribution of respondents' categories views about the influence of the management committee on gender equality in community-led monitoring of borehole water project

The data does not reveal substantial differences in the views expressed by respondents across different age brackets. Assigning responsibilities to both men and women is seen as a step to eliminate cultural biases against women, aligning with findings by Imbaya, et al. (2019). The design of the management committee and the borehole management structure may need to be restructured to enhance effective interaction among various subpopulations, as suggested by Reed, et al. (2018).

The study's results and findings indicate a range of perspectives and experiences related to gender-based discrimination and the promotion of gender equality in community-led monitoring of the borehole water project, reflecting the importance of considering gender dynamics in development initiatives.

4.2 Influence of the management committee on utilization of local knowledge

4.2.1 Recognition of Local Knowledge

Table 7 displays the respondents' views on the recognition of local knowledge during the monitoring of the borehole water project. The data shows that household heads (57.9%), management committee members (100%), and key informants (100%) believe that local knowledge is recognized during project monitoring through the management committee. However, a substantial proportion of household heads (42.1%) expressed that their local knowledge is not recognized and valued during project monitoring. It is worth noting that more men (31.6%) than women (26.3%) household heads believed that local knowledge is recognized.

Respondent category, gender	Response					
	No		Yes		Total	
	F	%	F	%	F	%
Household Heads	16	42.1%	22	57.9%	38	100.0%
Men	7	18.4%	12	31.6%	19	50.0%
Women	9	23.7%	10	26.3%	19	50.0%
Key informants	0	0.0%	8	100.0%	8	100.0%
Men	0	0.0%	7	87.5%	7	87.5%
Women	0	0.0%	1	12.5%	1	12.5%
Management committee	0	0.0%	12	100.0%	12	100.0%
Men	0	0.0%	8	66.7%	8	66.7%
Women	0	0.0%	4	33.3%	4	33.3%

Table 3: Respondents' views on recognition of local knowledge in monitoring the borehole water project

An example provided by a female household head illustrates the recognition of local knowledge: *"When I told them about reducing the amount to be paid for maintenance."* This finding suggests that mechanisms for integrating locally available knowledge in monitoring the borehole water project may exist but have not been fully implemented at the local level. This aligns with research by Mafimisebi, et al. (2012), which emphasizes the importance of local and indigenous knowledge for sustaining socioeconomic activities. The utilization of local knowledge in large-scale development projects is also supported by Komwihangilo, et al. (2007). The data underscores the need for effective interaction and decision-making between the government and the beneficiaries, in line with the theory of participation by Reed, et al. (2018).

4.2.2 Management Committee Decisions Influenced by Local Knowledge

Figure 4 illustrates the gendered respondents' views on how the management committee has recognized local knowledge when monitoring the borehole water project. A significant proportion of respondents, 41.7% of men and 23.5% of women, reported that they could not identify management decisions influenced by local knowledge. Some respondents, 29.2% of men and 17.6% of women, noted that the management committee listens to opinions and applies local knowledge. Others indicated that the management committee has used local knowledge to make decisions regarding fees, the sharing of water among beneficiaries, equipment usage, and maintenance. According to Kaya & Seleti (2014), integrating local knowledge into development interventions is crucial. The perception that the management committee does not base its decisions on locally available knowledge suggests that beneficiaries may lack the power to influence project management, as indicated by Reed, et al. (2018).

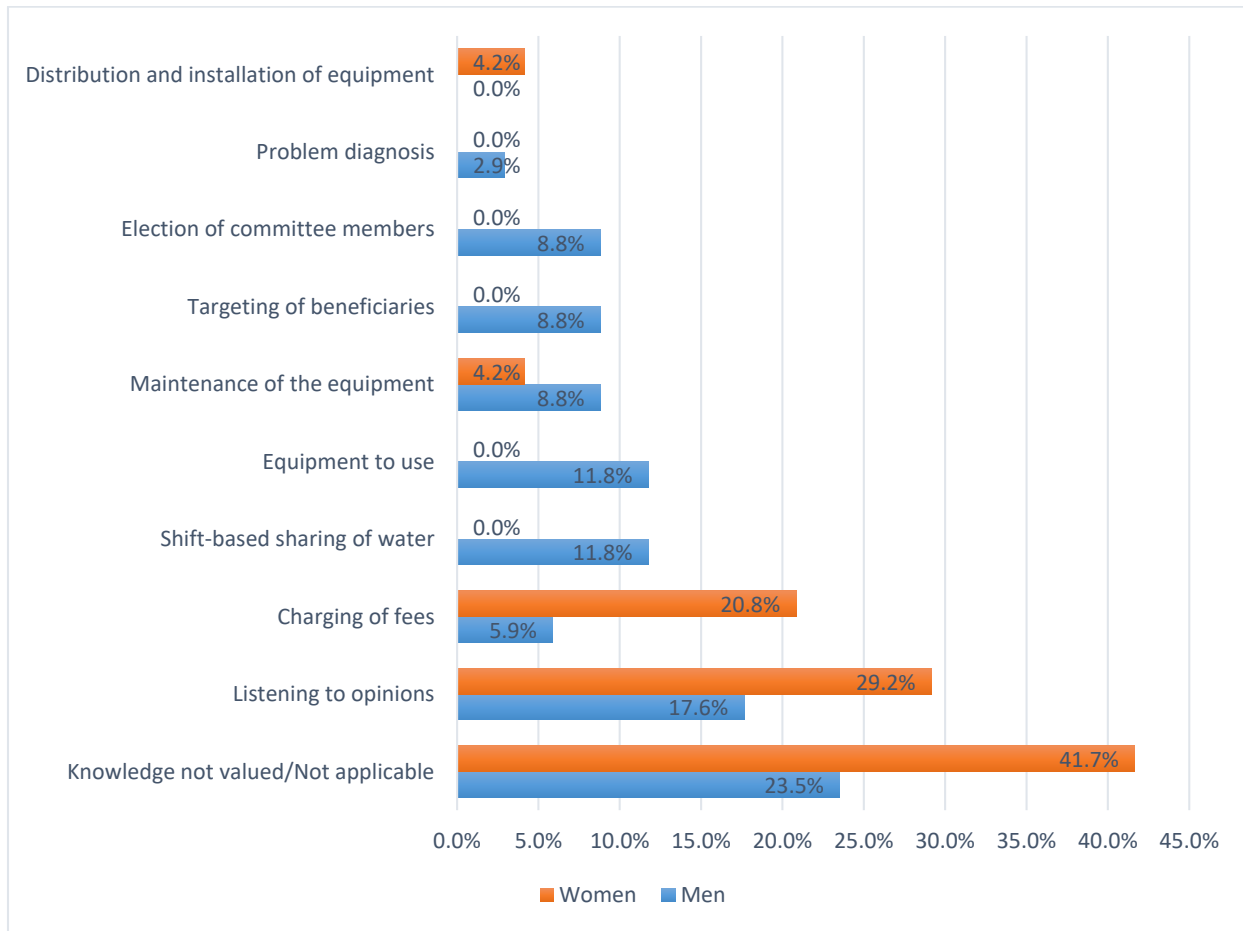


Figure 3: Gendered respondents' views on ways the management committee has recognized local knowledge when monitoring the borehole water project.

Figure 5 differentiates the views of various respondent categories on the recognition of local knowledge by the management committee when monitoring the borehole water project. Household heads (47.4%) mostly believed that the management committee had not incorporated local knowledge, while 50% of key informants and 50% of management committee

members indicated that local knowledge is recognized through listening to local opinions and influencing decisions, particularly regarding maintenance fees. These findings support Kaya & Seleti's (2014) assertion that local knowledge and processes play a significant role in both local and non-local development interventions.

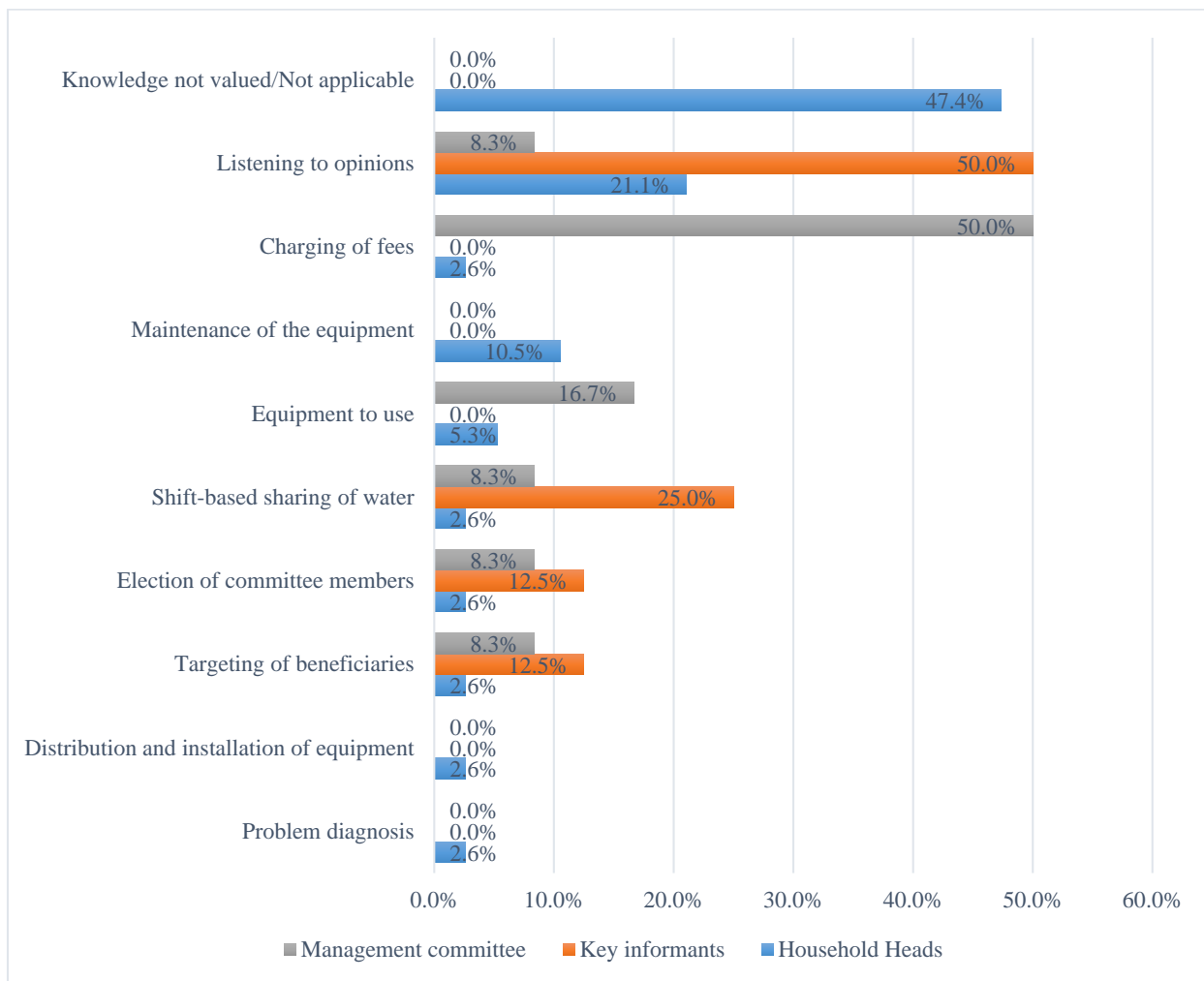


Figure 4: Differentiated categories of respondents' views on ways the management committee recognizes local knowledge when monitoring the borehole water project

The data demonstrates that the interaction between the community and the project management structures must be strengthened to ensure the effective utilization of local knowledge. Furthermore, it suggests that community members might perceive their lack of power or opportunities to influence management committee decisions based on previous experiences, in accordance with Reed, et al. (2018).

Table 8 presents the distribution of respondents' views across different age brackets concerning the management committee's decisions influenced by local knowledge. The data indicates that

across all age groups, most respondents believe that local knowledge is not valued or applied by the management committee during project monitoring. The findings highlight the need to bridge the gap between local knowledge and large-scale development projects, as emphasized by Wambua (2010). Community belief systems can evolve over time, which may impact how indigenous knowledge is utilized. According to Reed, et al. (2018), these shifts in beliefs can influence the community's interaction with project management over time and across different contexts.

Responses	Age bracket							Grand Total %
	Not stated %	Under 25 Years %	25 to 29 years %	30 to 39 years %	40 to 49 years %	50 to 60 years %	60 years and above %	
Knowledge valued/Not applicable	0.0%	100.0%	100.0%	38.9%	20.0%	11.1%	50.0%	31.0%
Listening to opinions	50.0%	0.0%	0.0%	11.1%	33.3%	11.1%	50.0%	22.4%

Charging of fees	0.0%	0.0%	0.0%	11.1%	20.0%	22.2%	0.0%	12.1%
Shift-based sharing of water	25.0%	0.0%	0.0%	0.0%	0.0%	22.2%	0.0%	6.9%
Equipment to use	0.0%	0.0%	0.0%	5.6%	20.0%	0.0%	0.0%	6.9%
Maintenance of the equipment	0.0%	0.0%	0.0%	16.7%	0.0%	11.1%	0.0%	6.9%
Targeting of beneficiaries	12.5%	0.0%	0.0%	5.6%	0.0%	11.1%	0.0%	5.2%
Election of committee members	12.5%	0.0%	0.0%	0.0%	6.7%	11.1%	0.0%	5.2%
Problem diagnosis	0.0%	0.0%	0.0%	5.6%	0.0%	0.0%	0.0%	1.7%
Distribution and installation of equipment	0.0%	0.0%	0.0%	5.6%	0.0%	0.0%	0.0%	1.7%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4: Age distributed respondents' views on ways the management committee recognizes local knowledge when monitoring the borehole water project

4.2.3 Influence of the management committee on development of local community capacity

In Table 9, data indicates that all members of the management committee and key informants (officials of the County Government of Tana River's monitoring and evaluation department and Bura Sub-county Administration) believe that community participation in monitoring the borehole water project enhances the community's understanding and skills in project monitoring. However, more than half of household heads (57.9%)

disagree, suggesting the need for further evaluation of community-level strategies to enhance their capacity for project monitoring and evaluation. This finding aligns with Ananda & Proctor (2012), emphasizing the importance of additional knowledge and skills transfer, especially in project monitoring and evaluation, alongside community participation in development. This approach supports Reed et al.'s theory of participation (2018), which advocates for revisiting management structures to facilitate local capacity development within the community.

Respondent category, gender	No		Yes		Total	
	F	%	F	%	F	%
Household Heads	22	57.9%	16	42.1%	38	100.0%
Men	13	34.2%	6	15.8%	19	50.0%
Women	9	23.7%	10	26.3%	19	50.0%
Key informants	0	0.0%	8	100.0%	8	100.0%
Men	0	0.0%	7	87.5%	7	87.5%
Women	0	0.0%	1	12.5%	1	12.5%
Management committee	0	0.0%	12	100.0%	12	100.0%
Men	0	0.0%	8	66.7%	8	66.7%
Women	0	0.0%	4	33.3%	4	33.3%

Table 5: Views on management committee's ability to assist community to gain skills and understanding on project monitoring

Figure 6 shows that many respondents have not acquired significant capacity in project monitoring. While more women (41.7%) than men (38.2%) reported not gaining skills and

understanding in project monitoring, some respondents (20.8% of women and 5.9% of men) claimed to have learned skills related to water pipe connection.

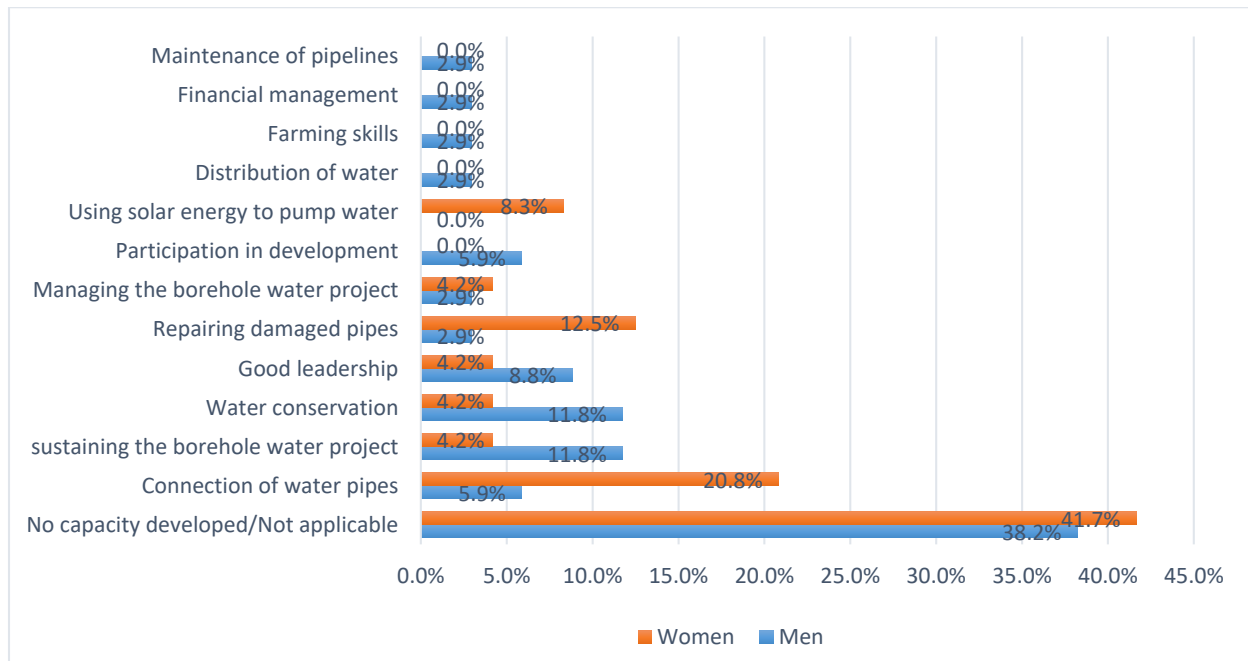


Figure 5: Gendered respondents' views on project monitoring skills and understanding gained when monitoring the borehole water project

The development of community capacity in project monitoring could leverage these technical skills, as demonstrated by Lawrence, Paudel, Barnes, & Malla (2006). However, to optimize community engagement with project managers and enhance skills acquisition, Reed et al.'s theory of participation (2018) suggests that there is a need for better design of management structures for monitoring the borehole water project. Figure 7 illustrates the distribution of respondents' views on the acquisition of capacity in project monitoring. Household heads (60.5%) make up the majority of respondents who reported not

acquiring capacity in project monitoring. Most respondents who claimed to have acquired the capacity to connect water pipes were also household heads (18.4%). On the other hand, those who mentioned the capacity for water conservation were mostly management committee members (41.7%). Additionally, most key informants (officials of the Tana River County Government's monitoring and evaluation department and Bura Sub-county administration) reported that the community had gained skills and understanding in sustaining the borehole water project (62.5%) and participating in community development (25.0%).

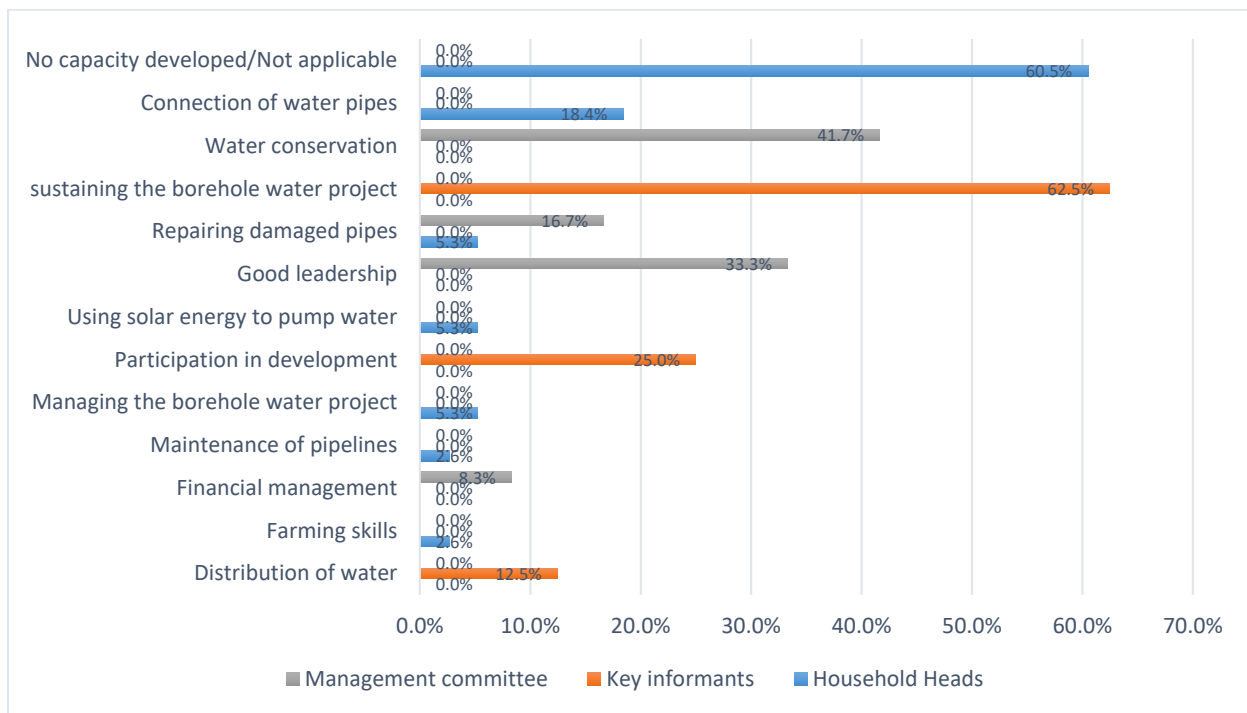


Figure 6: Distribution of different categories of respondents' views on project monitoring skills and understanding gained when monitoring the borehole water project

These findings emphasize the potential for communities to tap into a wide range of capacities when actively engaged in community development, as suggested by Lennie (2005). Furthermore, Lawrence et al. (2006) concur that community-led development presents opportunities to enhance a wide array of capacities within the community. Although the community's acquired skills and understanding may not directly relate to project monitoring and evaluation, there are opportunities to develop these capacities in the medium and long term. To bridge the reporting gap between the community and officials of the management committee or the County Government, a robust framework for engagement needs to be adopted, aligning with

Reed et al.'s (2018) theory of participation, to ensure the transfer of relevant capacity from officials to the community.

Table 10 shows the respondents' views on the types of skills and understanding acquired through community-led monitoring of the borehole water project, differentiated by age. The data reveals that respondents' views do not significantly differ across the age spectrum. Most respondents stated that no capacity had been developed through participation in monitoring the borehole water project, aligning with the potential for the community to further develop its capacity in project monitoring, as demonstrated by Lawrence, Paudel, Barnes & Malla (2006).

Responses	Age bracket							
	Not state d	Under 25 Years	25 to 29 years	30 to 39 years	40 to 49 years	50 to 60 years	60 years and above	Grand Total
Connection of water pipes	0.0%	0.0%	0.0%	22.2%	20.0%	0.0%	0.0%	12.1%
Distribution of water	12.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%
Farming skills	0.0%	0.0%	0.0%	0.0%	6.7%	0.0%	0.0%	1.7%
Financial management	0.0%	0.0%	0.0%	0.0%	6.7%	0.0%	0.0%	1.7%
Good leadership	0.0%	0.0%	0.0%	5.6%	20.0%	0.0%	0.0%	6.9%
Maintenance of pipelines	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%	1.7%

Managing the borehole water project	0.0%	0.0%	33.3%	5.6%	0.0%	0.0%	0.0%	3.4%
No capacity developed/Not applicable	0.0%	33.3%	33.3%	55.6%	33.3%	44.4%	100.0%	39.7%
Participation in development	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.4%
Repairing damaged pipes	0.0%	0.0%	0.0%	11.1%	6.7%	11.1%	0.0%	6.9%
sustaining the borehole water project	62.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.6%
Using solar energy to pump water	0.0%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	3.4%
Water conservation	0.0%	0.0%	0.0%	0.0%	6.7%	44.4%	0.0%	8.6%

Table 6: Age distribution of respondents' views on skills and understanding gained by the community when monitoring the borehole water project

V. CONCLUSIONS AND RECOMMENDATIONS

This section presents a concise summary of the findings, conclusions, and recommendations derived from our comprehensive study on the impact of the management committee in community-led monitoring of borehole water projects. The conclusions drawn are grounded in the extensive research findings, and our recommendations are aimed at various stakeholders, including authorities, beneficiaries, and other interested parties. The section also provides suggestions for potential areas of further research.

5.1 Conclusions

Based on the findings presented, the role of the management committee is pivotal in the community-led monitoring of borehole water projects and, more broadly, in the implementation of community-led development initiatives. However, several key issues have been identified:

- i. **Gender Gap:** The management committee of the borehole water project and the County Government of Tana River have not effectively addressed the gender gap in community-led monitoring of borehole water projects. Gender disparities persist in this context.
- ii. **Underutilization of Local Knowledge:** The management committee and the County Government of Tana River have not fully harnessed the wealth of local knowledge available for the monitoring of borehole water projects, as originally intended.
- iii. **Limited Local Community Capacity:** The acquisition of local community capacity has been suboptimal, indicating that the development of local skills and abilities within the community has not been fully realized.

These findings collectively suggest that the objectives of community-led monitoring of the borehole water project have not

been fully achieved. Moreover, it is evident that the measures implemented by the County Government of Tana River and the borehole water project to promote gender equality, leverage local knowledge, and enhance local community capacity may either be ineffective or inadequately implemented at the local level. Further efforts and adjustments are needed to address these issues and fulfill the goals of community-led development initiatives effectively.

5.2 Recommendations

- i. The County Government of Tana River, the management committee, and all development practitioners should prioritize community education on gender discrimination, empowering community members to recognize and address gender-based disparities. Affirmative action measures should be implemented to enhance the representation of women in leadership roles. Moreover, the County Government of Tana River should evaluate the effectiveness of local-level policies aimed at promoting gender equality.
- ii. Both male and female beneficiaries of the borehole water project should actively engage in management committee meetings and diligently monitor leadership for gender disparities. Beneficiaries, as constituents, must hold the County Government accountable for eliminating barriers that hinder women's participation in development initiatives.
- iii. The Government of Kenya, County governments, development partners, and implementing organizations should collaborate closely with local communities to ensure a holistic community approach to project monitoring and management. All stakeholders should incorporate gender-sensitive development indicators and foster collaboration between national and county

- governments and local NGOs to enhance women's participation in development.
- iv. The extent to which development organizations effectively utilize local knowledge.
 - v. The impact of community participation in borehole water projects on the utilization of local knowledge.

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