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ASSESSING THE EFFECTIVENESS OF COMMUNITY-BASED PARTICIPATORY MONITORING IN WATER, SANITATION, AND HYGIENE PROJECTS: A CROSS-SECTIONAL CASE STUDY OF MNGWANGWA VILLAGE, LILONGWE DISTRICT, MALAWI

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ABSTRACT

Sustainable water, sanitation, and hygiene (WASH) service delivery in rural communities depends on effective operation and maintenance, accountability, local governance, adequate financing, and meaningful community participation. Globally, inequalities in access to safely managed WASH services remain substantial, particularly among rural and low-income populations (World Health Organization [WHO] & United Nations Children's Fund [UNICEF], 2025). In Malawi, challenges related to water-point functionality, sanitation, financing, and rural service delivery continue to affect progress towards Sustainable Development Goal 6 (UNICEF Malawi, 2025). Community-Based Participatory Monitoring (CBPM) provides an approach through which community members participate in monitoring services, identifying problems, reporting faults, supporting maintenance, and promoting accountability. This study assessed the effectiveness of CBPM in improving WASH service delivery in Mngwangwa Village, Lilongwe District, Malawi. A cross-sectional case-study design using mixed quantitative and qualitative approaches was employed among 100 households. Quantitative data were collected using structured questionnaires, while qualitative data were obtained through semi-structured interviews, focus group discussions, and observation of water points. Data were analysed using descriptive statistics and thematic analysis.

CBPM was widely embedded in community water management through Water User Committee meetings, public meetings, verbal reporting, maintenance contributions, water-point cleaning, community scorecards, and local leadership. Most respondents perceived CBPM positively, particularly regarding faster responses to broken water points, improved maintenance, cleaner water-point surroundings, increased transparency, and community satisfaction. Regular community meetings and strong local leadership were major enabling factors. However, inadequate financial resources, limited technical and record-keeping skills, low literacy, competing farming and domestic responsibilities, inadequate monitoring materials, and limited incentives for volunteer leaders constrained implementation, while formal monitoring and reporting mechanisms remained less developed than informal verbal communication. The study concludes that CBPM has considerable potential to strengthen rural WASH service delivery when supported by responsive leadership, adequate financial resources, practical training, transparent accountability mechanisms, and functional links with district-level WASH institutions. The findings reinforce evidence that sustainable rural water services require coordinated technical, financial, institutional, and community systems beyond infrastructure investment alone (Seyoum et al., 2022). Strengthening simple, culturally appropriate monitoring tools while retaining locally trusted communication mechanisms could improve sustainability and accountability in rural WASH governance.

INTRODUCTION

Access to safe and sustainable water, sanitation, and hygiene services remains a major global development and public-health priority. Although substantial progress has been achieved over the past two decades, access remains highly unequal across geographic, socioeconomic, and population groups. The latest WHO/UNICEF Joint Monitoring Programme estimates indicate that billions of people continue to lack safely managed drinking water, sanitation, and basic hygiene services, with rural populations and people living in low-income settings continuing to experience substantial disadvantages (WHO & UNICEF, 2025). The persistence of these inequalities demonstrates that expanding infrastructure alone is insufficient to achieve universal and sustainable WASH services.

KEYWORDS: Community-based participatory monitoring; water, sanitation and hygiene; rural water supply; community participation; water governance; accountability; Malawi; water-point functionality.

Background of study

The challenge is particularly important in Malawi, where rural populations continue to face significant WASH deficits. Recent UNICEF Malawi evidence indicates that access to safely managed drinking water remains substantially lower in rural areas than in urban areas, while sanitation and hygiene services also remain inadequate. The 2025/26 WASH budget analysis further identifies financing, climate-related shocks, infrastructure, and service sustainability as important challenges affecting the WASH sector (UNICEF Malawi, 2025). These challenges are particularly relevant to rural communities that depend on boreholes, communal water points, and locally managed water systems.

Community participation has consequently become an important component of rural WASH governance. Community-Based Participatory Monitoring (CBPM) provides a mechanism through which service users participate in monitoring infrastructure, identifying service gaps, reporting faults, assessing performance, and engaging local leaders and service providers in corrective action. Rather than treating communities exclusively as beneficiaries, CBPM positions them as active actors in service management and accountability.

Participatory approaches are particularly relevant where communities contribute resources towards operation and maintenance. Evidence from rural Zambia suggests that community contributions can be an important predictor of the sustainability of rural water access points, reinforcing the importance of community involvement and locally available financial mechanisms in rural water management (Sustaining rural water infrastructure in Mbala, Zambia, 2024). Nevertheless, community participation does not mean that responsibility for WASH services should be transferred entirely to communities. Effective systems require appropriate institutional, technical, and financial support.

In Malawi, Water User Committees and community leadership structures play important roles in rural water management. Recent national WASH programming has emphasized the importance of strengthening local systems, improving monitoring, maintaining infrastructure, and addressing financing gaps (UNICEF Malawi, 2024, 2025). The Malawi Climate Resilient WASH Financing Strategy similarly emphasizes the importance of sustainable financing and institutional strengthening to improve the resilience of the WASH sector (UNICEF Malawi & Government of Malawi, 2022).

However, the effectiveness of participatory monitoring depends on the context in which it is implemented. Participation can be weakened by limited financial resources, inadequate technical skills, low literacy, unequal representation, weak leadership, lack of incentives, and inadequate communication between community structures and district authorities.

Establishing a Water User Committee alone therefore does not guarantee effective monitoring or sustainable water services.

Formal monitoring systems such as logbooks, community scorecards, suggestion boxes, social audits, and digital reporting mechanisms may strengthen accountability and institutional memory. However, such systems may be difficult to operate where literacy, financial resources, technology, or technical capacity are limited. Informal mechanisms, particularly verbal communication through village leaders, may therefore remain important in rural settings.

Mngwangwa Village provides an important case for examining these issues. The community relies on locally managed water points and has developed mechanisms for monitoring and responding to water-service challenges. Understanding which CBPM mechanisms are functioning, how communities perceive their effectiveness, and what factors constrain implementation can provide useful evidence for strengthening participatory WASH governance.

Therefore, this study assessed the effectiveness of Community-Based Participatory Monitoring in WASH projects in Mngwangwa Village, Lilongwe District, Malawi. Specifically, the study examined existing CBPM practices, assessed perceived effectiveness in improving water service delivery, identified factors influencing implementation, examined community capacity-building needs, and assessed the role of local leadership.

Problem Statement

Despite ongoing investments in water, sanitation, and hygiene (WASH) interventions in Malawi, many rural communities continue to experience challenges related to unreliable water supplies, inadequate maintenance, weak monitoring systems, limited financial resources, and insufficient community participation. These challenges can reduce the functionality and sustainability of rural water facilities and limit progress towards Sustainable Development Goal 6 (WHO & UNICEF, 2025; UNICEF Malawi, 2025).

Although Community-Based Participatory Monitoring (CBPM) is intended to promote community involvement in identifying WASH challenges, reporting faults, supporting maintenance, and strengthening accountability, there is limited context-specific evidence on how effectively these mechanisms operate at community level in Malawi. In Mngwangwa Village, inadequate resources, limited technical and record-keeping capacity, low literacy, competing livelihood responsibilities, and reliance on informal reporting may constrain effective community monitoring and timely responses to WASH problems.

Therefore, there is a need to assess the effectiveness of CBPM in WASH projects in Mngwangwa Village, Lilongwe District, Malawi. The study seeks to identify existing monitoring practices, determine their perceived contribution to WASH service delivery, and establish the factors that facilitate or hinder effective community participation and sustainable WASH management.

Main Objective

The general objective of the study was to assess the role of Community-Based Performance Monitoring in improving water service delivery in Mngwangwa Village, Lilongwe District.

Specific Objectives

- Examine existing Community-Based Performance Monitoring practices in Mngwangwa Village.
- Assess the effectiveness of CBPM in improving water service delivery outcomes.
- Identify factors influencing the success of CBPM in the management of water services.
- Examine the capacity-building needs of community members involved in CBPM.
- Assess the role of leadership in the implementation of CBPM.

Literature Review

Community participation is widely recognized as an important component of sustainable water, sanitation, and hygiene (WASH) service delivery. Involving community members in monitoring, reporting, maintenance, and decision-making can strengthen ownership, accountability, and responsiveness to local WASH needs. However, rural communities often face challenges such as inadequate financing, limited technical capacity, and weak institutional support, which can affect the sustainability of community-managed water systems (Seyoum et al., 2022). In Malawi, strengthening local WASH structures and community participation remains important for improving the reliability and sustainability of rural water services (UNICEF Malawi, 2024; WHO & UNICEF, 2025).

Community-Based Participatory Monitoring (CBPM) provides a mechanism for communities to identify WASH problems, report faults, monitor water-point conditions, and participate in decisions concerning maintenance and resource use. Effective monitoring can contribute to quicker identification of broken facilities, improved cleanliness, greater transparency, and increased community satisfaction. Recent evidence suggests that community contributions and participation can support the sustainability of rural water points when combined with

appropriate management and maintenance systems (Seyoum et al., 2022). However, the effectiveness of participatory monitoring may be limited by inadequate financial resources, low literacy, limited record-keeping skills, insufficient monitoring materials, and competing household and livelihood responsibilities.

Despite the potential benefits of community participation, there remains limited context-specific evidence on the effectiveness of CBPM in rural Malawi, particularly at village level. Existing WASH literature emphasizes the importance of monitoring, accountability, financing, institutional capacity, and community engagement in achieving sustainable WASH services (WHO, 2026; WHO & UNICEF, 2025). Therefore, examining CBPM in Mngwangwa Village is important for understanding how community monitoring practices contribute to WASH service delivery, the challenges affecting their implementation, and the support required to strengthen sustainable community-based WASH management.

Research Methodology

Study Design

The study adopted a **descriptive research design** to assess the effectiveness of Community-Based Participatory Monitoring (CBPM) in water, sanitation, and hygiene (WASH) projects in Mngwangwa Village, Lilongwe District, Malawi. The design was appropriate because it enabled the study to systematically describe existing CBPM practices, community participation, water-point functionality, reporting mechanisms, perceived effectiveness, and challenges affecting WASH service delivery without manipulating the study variables.

Quantitative methods were used to obtain measurable information concerning participation, reporting mechanisms, perceived effectiveness, water-point functionality, satisfaction, implementation barriers, and capacity-building needs. Qualitative methods complemented the quantitative component by exploring community experiences, leadership practices, challenges, and explanations underlying observed patterns.

2.2 Study Setting

The study was conducted in Mngwangwa Village, Lilongwe District, Malawi. The area was selected because of its reliance on community-managed water points and the presence of community structures involved in monitoring and managing WASH services.

The rural setting provided an appropriate context for examining how community participation operates where formal institutional support is complemented by traditional leadership, informal communication, and community-based management structures.

2.3 Study Population

The target population comprised household members who used community water facilities and individuals involved in the management and monitoring of WASH services. These included Water User Committee members, traditional and community leaders, community monitors, and other relevant WASH stakeholders.

2.4 Sample Size and Sampling

The final study sample comprised **100 households**. Household respondents were selected using simple random sampling to provide representation of community water users. Purposive sampling was used for participants with specific knowledge of WASH governance, including Water User Committee members and local leaders.

The combination of probability and purposive sampling enabled the study to capture both household-level perceptions and institutional perspectives concerning CBPM.

2.5 Data Collection

Four complementary data-collection approaches were used.

First, structured questionnaires were administered to household respondents to collect quantitative information concerning participation, monitoring practices, reporting mechanisms, perceived effectiveness, satisfaction, challenges, and training needs.

Second, semi-structured interviews were conducted with key informants, including Water User Committee members and local leaders. Interviews explored leadership, decision-making, reporting, accountability, resource mobilization, and challenges affecting CBPM.

Third, focus group discussions were used to obtain collective community perspectives concerning participation, water-service problems, and the perceived benefits and limitations of CBPM.

Fourth, observation checklists were used to assess the condition and functionality of water points and their surrounding environments.

2.6 Pilot Testing

The data-collection instruments were pilot tested in a neighbouring community with comparable socioeconomic and WASH characteristics. The pilot assessed question clarity, logical sequencing, estimated completion time, and the usability of the data-collection procedures.

Feedback from the pilot was used to refine the instruments, simplify potentially difficult questions, improve culturally appropriate wording, and strengthen administration procedures.

2.7 Data Analysis

Quantitative data were analysed using descriptive statistics, including frequencies, percentages, and mean scores where appropriate. Findings were presented using tables and descriptive summaries.

Qualitative data from interviews and focus group discussions were analysed thematically. Responses were reviewed and grouped according to recurring themes relating to CBPM practices, effectiveness, leadership, capacity, accountability, resource constraints, and community participation.

Triangulation of questionnaire responses, interviews, focus group discussions, and observations was used to strengthen interpretation of the findings.

2.8 Ethical Considerations

Participation was voluntary. Participants were informed about the purpose of the study and provided informed consent before data collection. Confidentiality was maintained by avoiding the use of participants' names in reporting. Participants were informed that they could withdraw from the study without penalty.

RESULTS

Characteristics of Respondents

The findings indicated that respondents represented a range of ages, educational backgrounds, occupations, and lengths of residence in the community.

Adults aged 35–44 years represented the largest reported age group, followed by those aged 25–34 years. Women constituted approximately two-thirds of respondents. This relatively high participation of women is relevant because women and girls frequently bear a disproportionate burden of household water collection in settings with inadequate water access (WHO & UNICEF, 2025).

Farming was the dominant occupation, reflecting the predominantly rural livelihood context. Respondents also reported that agricultural seasons affected their availability for community meetings and other CBPM activities.

Response Rate

The response rate can be presented in the following table, based on the **100 households targeted**:

Category	Frequency (n)	Percentage (%)
Questionnaires administered	100	100.0
Questionnaires completed and returned	100	100.0
Questionnaires not returned	0	0.0
Overall response rate	**100**	**100.0**

Presentation of Findings

The study found that CBPM was implemented through Water User Committee meetings, community scorecards, public meetings, maintenance contributions, water-point cleaning, and verbal reporting. Water User Committee meetings and public meetings were the most commonly used mechanisms, while suggestion boxes and mobile-phone reporting were less utilized. Traditional leaders and committee chairpersons played important roles in reporting and mobilizing community members. However, reliance on verbal communication limited systematic documentation and follow-up of reported problems (WHO, 2026).

Table 1: Existing Community-Based Participatory Monitoring Practices.

CBPM practice	Reported use
Water User Committee meetings	Commonly used
Public village meetings	Commonly used
Community scorecards	Commonly used
Maintenance contributions	Commonly used
Water-point cleaning	Commonly used
Verbal reporting	Predominant
Door-to-door monitoring	Used
Transparency noticeboards	Used
Suggestion boxes	Less frequently used
Mobile-phone reporting	Less frequently used

CBPM was generally perceived as effective in improving WASH service delivery through faster repair of boreholes, improved cleanliness, reduced waiting times, and greater transparency. 77.1% of respondents rated its influence on water-point functionality as positive or very positive, with a mean score of approximately 4.0 out of 5. Regular meetings, local leadership, maintenance contributions, and community training were key enabling factors. However, delayed repairs and limited financial transparency remained concerns (Seyoum et al., 2022; WHO, 2026).

Table 2: Perceived Influence of CBPM on Water-Point Functionality.

Perceived influence	Percentage (%)
Positive/Very positive	77.1
Neutral/Negative	22.9
Total	100.0

Key challenges included inadequate financial resources, limited technical and record-keeping skills, low literacy, competing household responsibilities, and insufficient monitoring materials. Respondents identified record keeping, financial management, and basic water-point maintenance as priority training needs, with a preference for practical training in Chichewa. Local leaders supported mobilization, reporting, and conflict resolution, but limited training and reliance on voluntary leadership affected effectiveness. Strengthening CBPM therefore requires adequate resources, continuous training, simple monitoring tools, and stronger institutional support (UNICEF Malawi, 2025; WHO, 2026).

Table 3: Major Challenges Affecting CBPM.

Challenge	Implication for CBPM
Inadequate financial resources	Delays in repairs and maintenance
Limited technical skills	Difficulty addressing water-point problems
Weak record-keeping skills	Poor documentation and follow-up
Low literacy and numeracy	Limited use of formal monitoring tools
Competing farming and household duties	Reduced participation in meetings
Inadequate monitoring materials	Weak documentation and reporting
Limited incentives for volunteers	Reduced motivation and continuity

4. DISCUSSION

This study demonstrates that Community-Based Participatory Monitoring can play an important role in strengthening rural WASH service delivery when community participation is linked to functioning local governance structures.

The predominance of Water User Committee meetings and verbal reporting indicates that community monitoring in Mngwangwa Village is deeply embedded in existing social and leadership structures. Rather than relying exclusively on formal technological systems, the community uses accessible communication mechanisms familiar to residents. The strong role of traditional leaders is particularly important. Chiefs and other local leaders serve as intermediaries between households, committees, and external service providers. Their ability to mobilize community members provides an institutional foundation for participatory monitoring.

This finding aligns with the current WASH systems agenda, which recognizes local participation as an important element of effective WASH governance. The latest GLAAS assessment explicitly considers local participation alongside policy, financing, institutional arrangements, monitoring, regulation, and human resources as key elements of WASH systems (WHO, 2026). However, the findings also demonstrate the limitations of informal systems. Verbal reporting may facilitate rapid communication, but it does not necessarily create an institutional record of when a fault was reported, who received the report, what action was taken, or how long the response required. Simple written registers could therefore complement rather than replace verbal reporting.

The positive perceptions of water-point functionality suggest that CBPM may contribute to improved maintenance responsiveness. When communities regularly monitor facilities and maintain locally available funds, minor problems can potentially be addressed before they develop into prolonged service failures.

Nevertheless, monitoring alone cannot resolve problems when communities lack financial and technical resources. This is a central finding of the study. CBPM should therefore not be conceptualized as a mechanism for transferring responsibility for WASH services entirely to communities. Rather, it should establish a partnership between communities, local government, and development partners.

The findings concerning community satisfaction further support this interpretation. Although most respondents reported positive experiences, dissatisfaction remained among some users. Financial transparency, irregular committee meetings, and delayed responses were important concerns. These findings indicate that participation must be accompanied by accountability.

Gender and time constraints also require particular attention. Women represented a large proportion of respondents and are frequently responsible for household water collection and domestic activities. The global WASH evidence continues to show gendered inequalities in water access and collection burdens (WHO & UNICEF, 2025). Consequently, CBPM interventions should consider meeting times, women's representation in leadership, and mechanisms that allow women's experiences to influence water-service decisions.

The study also highlights the importance of practical capacity building. Training in record keeping, financial management, troubleshooting, and reporting should be designed for the actual circumstances of rural communities. Highly technical classroom-based approaches may be less effective than practical demonstrations using local languages and visual materials.

The findings concerning volunteer leadership raise an important sustainability issue. Communities expect Water User Committee members to manage finances, organize repairs, document activities, mobilize residents, and resolve conflicts. Yet these responsibilities may be performed without adequate incentives or resources. Strengthening CBPM therefore requires consideration of appropriate motivation and recognition mechanisms.

5. Policy and Practice Implications

The findings have several implications for rural WASH policy and programming in Malawi.

First, community monitoring should be formally integrated into district WASH management systems. Community-generated reports should not end at village level. District structures should have mechanisms for receiving, acknowledging, tracking, and responding to reports. This recommendation is consistent with the current emphasis on monitoring, data use, institutional arrangements, and accountability in global WASH systems (WHO, 2026).

Second, monitoring tools should be simple and appropriate for low-literacy settings. Pictorial logbooks, colour-coded water-point status boards, simple reporting forms, and oral reporting combined with written documentation may be more appropriate than complex systems.

Third, communities require resources to act on monitoring information. Establishing community-managed maintenance funds or revolving spare-parts mechanisms could reduce delays in repairing water points. Such approaches should complement, rather than replace, government and district responsibilities for rural WASH service delivery.

Finally, WASH programming should deliberately promote inclusive leadership. Women and other groups who depend heavily on water services should have meaningful representation in Water User Committees and decision-making processes.

RECOMMENDATIONS

Community-Level Recommendations

Water User Committees should introduce simple pictorial logbooks for routine water-point monitoring. Verbal reporting should continue because it is familiar and accessible, but all reported faults should be recorded and followed up.

Communities should establish transparent procedures for collecting, managing, and reporting maintenance contributions. Regular public accountability meetings should be used to communicate financial balances, expenditures, repairs undertaken, and outstanding problems.

Local Government Recommendations

Lilongwe District Council should strengthen mechanisms linking community water committees to district WASH structures.

A simple reporting system using SMS or other accessible communication channels could allow communities to report serious technical problems. Reports should be acknowledged, tracked, and escalated where problems remain unresolved.

Recommendations for NGOs and Development Partners

Development partners should provide practical, community-based CBPM training. Training should be delivered at or near water points, use Chichewa where appropriate, and incorporate visual learning materials.

Recommendations for Future Research

Future studies should use longitudinal designs to assess whether improvements attributed to CBPM are sustained over time.

Research should also investigate the cost-effectiveness of different approaches to motivating community leaders, including financial incentives, material support, recognition, and training opportunities.

STRENGTHS AND LIMITATIONS

This study provides detailed evidence from a specific rural Malawian community and uses a mixed-methods case-study approach to capture both measurable patterns and community experiences. The use of questionnaires, interviews, focus group discussions, and observations allowed triangulation of information.

However, several limitations should be considered. First, the single-village case-study design limits statistical generalizability to other communities. Nevertheless, the contextual detail may support transferability to communities with similar WASH and governance conditions.

Second, some findings were based on self-reported perceptions, which may be affected by recall or social-desirability bias. The use of qualitative information and observation helped reduce reliance on a single source.

Third, the cross-sectional design does not establish causal relationships between CBPM and changes in water-service outcomes. Perceived improvements should therefore be interpreted as associations rather than definitive causal effects.

Finally, because the present analysis is based on the supplied study material, the final dataset and statistical tables should be checked before journal submission to ensure that all

frequencies, percentages, means, and denominators correspond exactly to the confirmed sample of 100 households.

8. CONCLUSION

This study assessed the effectiveness of Community-Based Participatory Monitoring in WASH projects in Mngwangwa Village, Lilongwe District, Malawi. The findings indicate that CBPM is an important mechanism for strengthening community involvement in rural water-service management.

The findings are consistent with recent evidence that sustainable rural water services require interconnected technical, financial, institutional, and community systems rather than infrastructure investment alone (Seyoum et al., 2022). Current global WASH monitoring likewise emphasizes the importance of local participation, financing, institutional capacity, monitoring, and data for decision-making (WHO, 2026).

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