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Community Project Monitoring and Evaluation a Boost towards Sustainability of Rural Water Supply Systems in Kasese District, Uganda

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Abstract: *This study looked at community project monitoring and evaluation as a boost towards sustainability of rural water supply systems in Kasese District, Uganda. This study adopted mixed methods design. The sample was 398 with a response rate of 99.5%. Data collection instruments included; questionnaire, an interview guide and focus group discussion guide. Findings revealed a strong positive relationship ($r = 0.5023$, $p = 0.0000$)**.** This indicates that enhanced monitoring and evaluation practices are significantly associated with improved sustainability of rural water supply systems. Regression results indicate a significant positive relationship between community project monitoring and evaluation and sustainability of rural water supply systems, with a coefficient of 0.620 and a p-value of less than 0.001 suggesting that as community project monitoring and evaluation increase, sustainability of rural water supply systems also tends to increase. It was concluded that Monitoring and Evaluation is one of the most critical factors in ensuring sustainability and that communities which implemented consistent monitoring and evaluation practices were more likely to identify and resolve system issues promptly for proper functionality of water supply systems. It was recommended that Ministry of Water and Environment should strengthen Monitoring and evaluation systems by establishing clearer performance indicators, regular community-based assessments, and transparent reporting practices. It was further recommended that Kasese District Local Government should be holding frequent workshops on monitoring and evaluation to improve the technical know-how of water management committees leading to timely identification of issues and continuous improvements in water systems.*

Keywords: *Community Project Monitoring, Evaluation, Sustainability, Rural Water Supply Systems, Kasese, Uganda*

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1. Introduction

This study was about community project monitoring and evaluation as a boost towards sustainability of rural water supply systems in Kasese District, Uganda. Globally, governments and development partners have prioritized and invested in sustainability of development interventions including water supply systems. More so some attempts have been made to employ participatory approaches throughout project lifecycle. It is imperative to note that the presence of safe drinking water and basic sanitation are instrumental towards sustainability of rural water supply systems. A sustainable water system is the capacity of an improved water source like piped water supply schemes to

continue providing portable water to the beneficiary community for a given period of time (Bazaanah, 2022). According to Bradley and Bartram (2013), one success factor of sustainable rural water supply system is the involvement of water users, more specifically in operation and maintenance cost recovery. This ensures that the water tariffs are fair and that consumers are aware and willing to pay for the water services. Despite such arrangements being put in place, Kulinkina et al. (2016) observe that most low-income countries still face challenges in collecting enough financial resources to carter for operation and maintenance of water supply systems.

It should be noted that the involvement of beneficiary communities in monitoring rural water supply systems is instrumental in contributing positively towards the reduction of water leakages and leads to sustainability. This is attributed to beneficiary communities understanding their role in monitoring water systems as a mechanism for sustainability. Thus, rural water systems need efficient monitoring and evaluation to establish the extent to which the systems are reliable, sustainable and efficient in helping the beneficiary community (Kwena & Moronge, 2015). These aspects are pertinent towards ownership of the water supply systems.

Efficient and well-managed water supply systems may lose their relevance if they yield no discernible progress in development conditions and, ultimately, in people's lives. The basis of monitoring and evaluation towards project success was also defended by Chinnanon (2015). He posits that monitoring and evaluation can be an effective tool in enhancing the quality of project planning and management. He noted that monitoring helps project managers and staff to understand whether the projects are progressing on schedule and to ensure that project inputs, activities, outputs, and the life of the project in general are being tracked. Hence, monitoring and evaluation may be a tool to assist planners and managers in identifying project sustainability. Therefore**,** community project monitoring and evaluation are critical for ensuring the long-term sustainability of rural water supply systems, particularly in a region like Kasese District in Uganda where access to clean water is a significant challenge (MWE, 2011). By actively tracking the progress and involving the beneficiary community in the monitoring process, the water systems can be improved to best meet local needs and ensure their continued use and maintenance, which is a boost for sustainability.

In terms of monitoring and evaluation arrangements, negligence by key stakeholders for long time lapses in water services and limited investment in water and sanitation have significantly led to discrepancy between water access coupled with population increase which affects sustainability (Oskam et al., 2021). Community participation in monitoring and evaluation is beneficial to a project's efficiency and sustainability. To this end, there has been increased attention on participatory monitoring and evaluation in projects including rural water supplies (Sulemana et al., 2018; United Nations, 2017).

On the other hand, the concept of sustainability has been defined in relation to community development projects, which are determined by different outlooks of the stakeholders. Sustainability can be defined as the ability of a system of any kind to endure and be healthy for a long period of time. A "sustainable society" is one that is healthy, vital, resilient, and able to creatively adapt to changing conditions over time. Sustainability can also be defined as the continuing of project benefits beyond the project period, and the continuation of local action stimulated by the project, and the generation of successor services and initiatives due to project built local capacity (Honadle & Van Sant, and Kamarah as cited in: Wasilwa, 2015).

Sustainability as a concept has been coined from the deliberation on sustainable development during the early 70s and is a complex term (Pretty. J.N, 1995). According to the UN document entitled "Our Common Future" (1987) "sustainable development is development that meets the needs of the current generations by ensuring that the ability of future generations to meet their own needs is not compromised." In terms of water supply projects, sustainability is about whether or not water and sanitation services and good hygiene practices continue to work over time" (Abrams L, 1998). Thus, the attainment of sustainability encompasses the realization of benefits in supply of rural water services.

Further, the term sustainability has been popularly used in development projects and the onset is a from the Brundtland Report (WCED,1987). Thus, the sustainability concept was first created in forestry, where it meant that one should never harvest more than what the forest would produce (Wiersum, 1995).

From the above, the UN World Commission report regarding Environment and Development, which is the Brundtland Report showed a solution towards the looming fate for the environment. Thus, the report adopted sustainability as a concept which has been recognized as important in the world today. The main issue posed by the Brundtland report was to ascertain how ambitions of nations globally can be in consonance with the little natural resources and environmental threats. In responding to this, sustainable development was approved which meant; *development that meets the needs of the current generation by ensuring the ability of future generations to*

meet their own needs is not compromised (WCED,1987). Therefore, environmental concerns are very instrumental in preserving the natural resources.

Objective of the Study

The main objective of this study was to assess the contribution of community project monitoring and evaluation as a boost towards sustainability of rural water supply systems in Kasese District, Uganda.

2. Literature Review

This section delves into a review of literature related to the purpose of the study and focuses on themes that are instrumental in monitoring and evaluation arrangements towards sustainability of rural water supply systems.

2.1 Performance reporting

It should be argued that to help key water supply stakeholders in the decision-making process, efforts should be made to embrace monitoring and evaluation arrangements during the planning stage of the project. Nyonje & Mulwa (2012) suggests that information gathered through monitoring and evaluation enables stakeholders to have an open mind in making important decisions that are necessary for sustainability of the water supply systems at the planning stage. Thus, monitoring and evaluation is an avenue that strengthens water supply design and yields quality in the project life cycle.

In addition, monitoring and evaluation frameworks are instrumental in obtaining support from external sources. Information got as a result of monitoring and evaluation helps in giving feedback regularly and above all acts as an avenue for making accountability to the funders. Worth note that monitoring and evaluation arrangements help in obtaining important information about the implementation and success of the project. This is fundamental for getting funding as well as key for public relations aspects (Nyonje, Ndunge & Mulwa, 2012).

It should be noted that Kabeyi (2019) and George (2020) recognize that participation of the beneficiary communities in monitoring and evaluation arrangements of community-based water projects is fundamental in enhancing achievement of sustainability. Similarly, the World Bank (2010), notes that participatory monitoring and evaluation offers new ways to assessing and learning from change that is more inclusive. Thus, participatory monitoring and evaluation is fundamental in achieving the desired objectives for any given water supply system.

Beheim et al., (2012) proposes that monitoring and evaluation have for a long time been considered as key aspects in assessing changes against given objectives to determine if the development assistance has been a success or not. It has been worth to note that monitoring using a variety of key stakeholders is instrumental in water project success. Therefore, participatory monitoring and evaluation encompasses the assessment of change through processes that involve many people each of whom is affected by the impacts being assessed (Beheim et al., 2012). It is thus imperative to note that enhancing citizens' information and making avenues for participatory monitoring leads to better policy, program design, more resources and in the end causes additional sustainable development outcomes (McNeil, 2010).

Community participation in monitoring and evaluation is beneficial to a project's efficiency and sustainability. To this end, there has been increased attention on participatory monitoring and evaluation in projects including rural water supplies (Sulemana et al., 2018; United Nations, 2017). Participatory monitoring and evaluation in project life cycle management is thus proposed as a pathway to sustainability (Labuschagne & Brent, 2005). Bernt (2014) postulates that monitoring and evaluation are important in providing useful data that supports planning and decision-making processes. It is also a tool for helping project managers and concerned stakeholders to manage their activities, improves transparency and supports the accountability mechanisms by showing the level at which the intended objectives have been realized.

2.2 Performance tracking

It should be noted that progress monitoring of development goals related to water began with the League of Nations Health Organization in the 1930s and continued with the World Health Organization and the United Nations Children's Fund through several global development initiatives. The Joint Monitoring Program is an intergovernmental organization that was created in 1990 to monitor global water development goals. In 2012 it was reported that Millennium Development Goals (MDG) Target 7.C to "halve the proportion of the population without sustainable access to safe drinking water" was met, five years ahead of schedule (JMP 2012). Other types of monitoring include project monitoring and impact monitoring. Project monitoring simply assesses the state of a project wherein goals and objectives are independently verified in terms of being on target, time, and budget.

Further, Sustainable Development Goals set out the United Nation's vision for ensuring sustainable development and eradicating poverty worldwide by 2030. Specifically, SDG 6 calls for ensuring the availability and sustainable management of water and sanitation for all. Previous development initiatives, the MDG (2000–2015) and the International Decade for Water and Sanitation (1980–1990), have significantly increased access to improved water (JMP 2015). The researcher agrees with this assertion because once the targets under SDG 6 are implemented then water project sustainability will be evident.

As the international development sector transitions to monitoring SDG 6, it is important to recognize the continuous, complex nature of sustainable development. Whereas SDG 6 sets out to both "achieve universal equitable access" and "ensure the sustainability management" of water service, these unique objectives have the potential to create tension within the development community (Thomson & Koehler 2016).

Community participation ensures that the system is functioning and use of metering for tracking water usage similarly ensures efficiency and accountability. Timely reporting of such incidents assures that appropriate action is taken early enough to address such challenges restoring operations and improving performance of the project. According to Francisco, Tanya, Francisco & Daniele (2013) as part of participatory monitoring, committee members take part in tracking and reporting including identifying leakages and breakages. Rural water projects require systematic evaluation to establish the extent to which the project is reliable, efficient and helpful to the beneficiaries (Kwena & Moronge, 2015).

To achieve the required holistic sustainability, it is important to put in place mechanisms to ensure compliance with payment rules. This should include ways on how to handle money collected, as well as the use of metering to monitor usage. Such proactive processes of involving the community in monitoring and reporting create a shared vision of inclusive accountability and ownership. In addition, engagement with project coordinators during stakeholders meeting provides another avenue for participatory consultation and feedback for taking corrective action (George, Mehra, Scott, & Sriram, 2015). The joint inspection and reporting ensure that processes are followed and transparency is promoted in managing water supply systems which ultimately contributes to improved water provision to users (Sulemana, Musah, & Simon, 2018).

3 Methodology

3.1 Research Design

This study adopted mixed methods design. The sample was 398 with a response rate of 99.5%. The study was conducted simultaneously because a single data set is not adequate to provide dependable answers to a research question. Thus, one data set offers supportive, secondary role in a study based primarily on the other data type (Creswell & Clark, 2011). Data collection instruments used during this study included; the questionnaire, interview guide and focus group discussion guide. Ethical clearences and approvals were obtained to respond to ethical principles for social science research. In this, respondents were informed accordingly about the reasons for the study and why their participation is important. The researcher informed respondents how their participation was voluntary and that they were at liberty to accept to participate or decline their participation.

3.2 Sample size

Sample size refers to the overall number of respondents included in the study. When the sample size is very small, the results would be worthless and there would be no representativeness of the population being studied. In addition, bigger sample sizes give reduced margins of error and are more representative but an excessively high sample size can considerably increase the cost and time required to perform the research. Therefore, the sample was determined using the formular by Taro Yamane (1967) as indicated here below;

$$n = \frac{N}{1 + N(e)^2}$$

From the above formular;
n = the required sample size from the study population
N = the whole population that is under study
e = the precision or sampling error which is usually 0.05
So, $n=N/1+N(e)^2$
$n=76,393/1+76,393\ (0.05)^2$
1+76,393 x 0.0025
n=76,393/1+192
n=397.8. So, n=398 Thus, sample size n was=398 respondents

The theory of saturation was used in determining the qualitative sample in this study where the researcher would determine the sample after getting on the last respondent. With this data saturation was realized when the researcher collected sufficient data to draw the essential conclusions, thus having no need of collecting any additional information that would be of no value towards the study.

3.3 Sampling Techniques and procedures

In this study, both probability and non-probability sampling techniques were used. Under probability sampling, the researcher used simple random sampling and systematic random sampling; while for probability sampling the researcher used purposive sampling.

In this study, the researcher used simple random sampling where every element of the population had an equal chance of being included in the sample. Further, in simple random sampling, all elements of the population had the same or equal chance of being included in the study (Berndt, 2020). Simple random sampling is considered to be more accurate and needs to be considered better if the population is homogeneous (Singh & Masuku, 2014). Results from simple random sampling were generalized to the whole study population (Delice, 2010). Further, systematic sampling was used in the study where the researcher selected elements from the target population by selecting a random starting point. Purposive sampling was applied because of its exhaustive focus on moderately small samples. This was done in order to find cases, individuals, or communities that were suitable to help the researcher in getting the required information about the subject under investigation.

3.4 Data Collection Methods and Instruments

Data collection methods during the study included survey, interviewing and focus group discussion, Under survey, the researcher designed a questionnaire with both close-ended and open-ended type of questions; the closed-ended questions were ranked on a five (5) Likert scale for respondents to fill with ease including; 5=Strongly Agree (SA), 4= Agree (A), 3=Neutral (N), 2=Disagree (D) and 1= Strongly Disagree (SD). The questionnaire was used to collect data from the respondents in the field. This was important in giving a detailed description of different characteristics of the population under investigation focusing on their behaviour and opinions.

In this study, interviews were conducted with key informants using an interview guide because it helped in explaining, better understanding and exploring research subjects' opinions, behavior, experiences, phenomenon in relation to the subject under investigation. This was conducted with questions designed to elicit key information about the study objective but with room for exploration of alternative narratives. Open ended questions were designed in the interview guide to help in the collection of in-depth information from the respondents. A focus group discussion guide was used during focus group discussion and involved gathering people from similar backgrounds and with experiences together to discuss issues related to the subject under investigation during face-to-face meetings.

3.5 Validity and Reliability Analysis Tests

3.5.1 Validity Analysis Test

Sekaran (2003) defines validity as the accuracy and meaningfulness of inferences which are based on research results. Validity was established through a validity test using content Validity Index (CVI). This is a tool used to gauge the content validity of items on an empirical measure. It was applied to the formula below;

$$CVI = \frac{\text{Number of items rated relevant by all judges}}{\text{Total number of items in the instrument}}$$

In this approach, when the CVI is 0.7 and above, the instrument was considered valid (Amin, 2004). Results from the validity test revealed the results as here below;

Table 1:Validity Analysis Test

Validity analysis	Items	Valid Items	CVI
Overall Validity	38	32	0.8421`
Community Project Monitoring and Evaluation	6	5	0.8333
Sustainability of Rural Water Supply Systems	7	6	0.8571

Source: Primary data 2024

The validity analysis revealed high content validity across most aspects, with the overall validity achieving a CVI of 0.8421, indicating that 32 out of 38 items are valid. Community project monitoring and evaluation had a CVI of 0.8333, indicating a strong representation of the intended construct. These results suggest that the majority of items across all aspects were relevant and effectively measure their respective constructs. Sustainability of rural water supply systems also shows high content validity at 0.8571. These results suggest that the majority of items

across all aspects were relevant and effectively measure their respective constructs. It is recommended to regularly review and refine the items to maintain and improve their validity, ensuring they remain accurate and reflective of current practices and theories.

3.5.2 Reliability Analysis Test

Sekaran (2003) defines reliability as the degree to which a research instrument yields consistent results. To ensure reliability, the research instruments were pre-tested to selected 15 respondents to ensure consistency and comprehensiveness. Further, consultations with other researchers and supervisors were done to review the research instruments. Further, to ensure reliability of the instrument, the researcher used the Cronbach's Alpha Co-efficient with the help of Stata version 21. Therefore, when the Coefficient Alpha from the reliability test was greater than 0.5, it meant there was high reliability of the instrument (Amin, 2005). The result from the reliability analysis test is shown below;

Table 2: Reliability Analysis Test

Reliability Analysis	Items	Alpha	Decision
Overall Reliability	38	0.9036	Reliable
Community Project Monitoring and Evaluation	6	0.7665	Reliable
Sustainability of rural water supply systems	7	0.7701	Reliable

Source: Primary data, 2024

The reliability analysis indicates very high internal consistency for the overall reliability (α = 0.9036). The subscales for community project monitoring and evaluation (α = 0.7665 sustainability of rural water supply systems (α = 0.7701) all show good internal consistency, with alpha values well above the acceptable threshold of 0.7. These results suggest that the items within each subscale are well-correlated and measure their respective constructs effectively.

3.6 Data Analysis

The data collected from questionnaires was entered in a computer and analyzed using Stata version 21 to generate descriptive and inferential statistics because it is the most recommended package for analyzing social science research data. (Sekaran, 2003).

In addition, descriptive data were analysed inform of summary tables, frequency distributions, percentages, mean and standard deviation; and inferential statistics were done using correlation analysis and regression tests to determine the relationships between study variables. The researcher used the p-value as a measurement to determine statistical significance. Therefore, if the p-value falls below the significance level, then the result is statistically significant.

Qualitative data analysis means the mass of words generated by interviews or observational data that needs to be described and summarized. Qualitative data analysis is one of the most important steps in the qualitative research process (Leech & Onwuegbuzie, 2007) because it assists researchers to make sense of their qualitative data. The analysis of interview responses from focus group discussions and key informant interviews were edited according to the themes developed in the study and transcribed. Thematic analysis was used to analyse information from open-ended questions and interview responses and was presented using verbatim quotations.

3.7 Ethical Considerations

Ethical clearence was obtained from Clarke International University Research Ethics Committee and final approval was obtained from Uganda National Council of Science and Technology. The study respondents were duly informed about the reasons for the study and the need for their participation. Respect and dignity were taken care of by giving all respondents equal treatment without any form of discrimination such that they participate in the study willingly.

On similarity index test**,** this study was tested for anti-plagiarism using Plagiarism Checker X online system for originality check. Also, all other scholars' research work used as reference material was quoted and sighted. On issues of health, the researcher upheld the guidelines and protocols put in place by the government of the Republic of Uganda at the time of data collection. This was done to ensure that both the researcher and respondents work in a safe and secure research environment.

4 Results and Discussion

4.1 Introduction

This chapter delves into the outcomes derived from the study, along with their analysis and interpretation. The findings serve as empirical evidence addressing the

research problem. These findings stem from both quantitative and qualitative phases of the study and have been subject to inferential analysis. The research objective primarily focused on assessing the contribution of community project monitoring and evaluation as a boost towards sustainability of rural water supply systems in Kasese District, Uganda.

4.1.1 Perception on Community Project monitoring and evaluation towards sustainability of rural water supply systems

This section is about findings on respondents' perception on community project monitoring and evaluation towards sustainability of rural water supply systems in Kasese District. Likert means and percentages showing the level of agreement and disagreement are presented in table 3 below;

Table 3: Respondent perception on Community Project Monitoring and Evaluation towards Sustainability of Rural Water Supply Systems

Community Project Monitoring and Evaluation	N	Strongly disagree	Disagree	Not Sure	Agree	Strongly agree	Likert Mean	Std.dev
Water source committee monitors collection of funds for water supply systems	396		13.13	45.45	40.66	0.76	3.290	0.696
Water source committee monitors expenditure of funds for water supply systems	396		13.13	46.21	38.38	2.27	3.298	0.720
There is monitoring of functionality of water taps	396		4.55	4.55	78.79	12.12	3.985	0.591
There is performance evaluation of water usage	396		22.22	52.27	23.23	2.27	3.056	0.737
Water source committee takes part in monitoring revenue collection of water services	396	0.51	18.69	40.91	38.64	1.26	3.215	0.774
Community leaders monitor water supply system	396		0.51	2.27	84.09	13.13	4.098	0.406
Overall							**3.490**	**.452**

Source: Primary data 2024

Key Likert mean: 1-<1.5 Very low, 1.5-2.5 Low, 2.6-3.5 moderate, 3.6-<4.5 High, 4.5-5 Very High

The researcher was interested in whether water source committee monitors collection of funds for water supply systems. Results from the study indicates that about 58.58% either disagree or are unsure about the committee's monitoring of fund collection, indicating potential gaps in oversight. The mean (3.290) suggests slight agreement that the water source committee monitors the collection of funds for water supply projects. The moderate standard deviation (0.696) indicates some variability in responses. This is collaborated with Nyonje, Ndunge & Mulwa, (2012) who argue that monitoring and evaluation frameworks are instrumental in obtaining support from external sources. Information got as a result of monitoring and evaluation helps in giving feedback regularly and above all acts as an avenue for making accountability to the funders. Worth note that monitoring and evaluation arrangements help in obtaining important information about the implementation and success of the water systems. This is fundamental for getting funding as well as key for public relations aspects.

In addition, it was asked whether the water source committee monitors expenditure of funds for water supply systems and a significant portion (59.34%) either disagree or are unsure about the committee's monitoring of fund expenditure, suggesting potential weaknesses in financial oversight. The mean (3.298) indicates slight agreement that the water source committee monitors the expenditure of funds for water supply systems. The moderate standard deviation (0.720) shows some variability in responses. Further, majority (90.91%) agree or strongly agree that there's monitoring of water tap functionality, indicating strong oversight in this aspect. The mean of 3.985 shows that there is strong agreement that the functionality of water taps is monitored. The relatively low standard

deviation (0.591) suggests consistent agreement among respondents.

This is in line with Beheim et al., (2012) who proposes that monitoring and evaluation have for a long time been considered as key aspects in assessing changes against given objectives to determine if the development assistance has been a success or not. It has been worth to note that monitoring using a variety of key stakeholders is instrumental in water supply systems' success. Therefore, participatory monitoring and evaluation encompasses the assessment of change through processes that involve many people each of whom is affected by the impacts being assessed (Beheim et al., 2012).

It should be added that on whether there is performance evaluation of water usage, a majority (74.49%) either disagree or express uncertainty about the performance evaluation of water usage, indicating potential gaps in assessing water usage efficiency. The mean (3.056) indicates slight agreement that there is performance evaluation of water usage. The moderate standard deviation (0.737) suggests some variability in responses. And on whether, water source committee takes part in monitoring revenue collection of water services, approximately 59.60% either disagree or are unsure about the committee's involvement in revenue collection monitoring, suggesting potential limitations in oversight. The mean (3.215) suggests slight agreement that the water source committee takes part in monitoring revenue collection. The moderate standard deviation (0.774) indicates some variability in responses. It is thus imperative to note that enhancing citizens' information and making avenues for participatory monitoring leads to better policy, program design, more resources and in the end causes additional sustainable development outcomes (McNeil, 2010).

On the other hand, a large majority (97.22%) agree or strongly agree that community leaders monitor water supply systems, indicating strong community involvement in oversight. The mean of 4.098 shows that there is strong agreement that community leaders monitor the water supply systems. The low standard deviation (0.406) suggests consistent agreement among respondents. This was revealed in the focus group discussion where it was said that;

> "*Activities which are being monitored by leaders are; functionality of the water taps, collection and expenditure of water user fees and they also monitor the sanitation and hygiene around the water supply source. The water source committees monitor bush cleaning around the water source, cleaning of water pipes and regular inspection".* ***(FGD 9 Maliba; FGD 10, Bwesumbu & FGD 11, Rukoki, 2024).***

From the overall Analysis, the findings indicate strengths in certain aspects of project monitoring and evaluation, such as monitoring water tap functionality and community leaders' involvement. However, there are notable gaps in financial oversight, performance evaluation of water usage, and committee involvement in revenue collection monitoring.

Table 4: Correlational analysis showing the relationship between community project monitoring and evaluation and sustainability of rural water supply systems

The researcher carried out a correlation analysis to help in revealing meaningful relationships between community project monitoring and evaluation and sustainability of rural water supply systems and the results are reflected below;

	Projec~E	Sustai~y
Project_M_~E	1.0000	
Sustainabi~y	0.5023	1.0000
	0.0000	

Source: Primary data 2024

The correlation analysis between community project monitoring and evaluation (M&E) and the sustainability of rural water supply systems reveals a moderate to strong positive relationship ($r = 0.5023$, $p = 0.0000$). This indicates that enhanced monitoring and evaluation practices are significantly associated with improved sustainability of rural water supply systems. The relatively moderate correlation suggests that regular monitoring and evaluation help in identifying challenges early, ensuring

corrective actions are taken, and maintaining infrastructure efficiently. Through continuous assessment, issues such as equipment failures, water quality concerns, and financial mismanagement can be addressed promptly, reducing the risk of project failure.

Furthermore, monitoring and evaluation fosters accountability, promotes stakeholder engagement, and enhances learning from past projects, all of which contribute to sustainable water supply services. These findings highlight the need for structured and consistent monitoring and evaluation frameworks to be integrated into community water projects to improve their long-term effectiveness.

Table 5: Regression analysis showing the relationship between community project monitoring and evaluation and sustainability of rural water supply systems

The researcher carried out a regression analysis to establish the predictive power of the independent variable and the dependent variable as shown below;

Source	SS	df	MS	Number of obs	=	396
				F(1, 394)	=	132.95
Model	31.0520345	1	31.0520345	Prob > F	=	0.0000
Residual	92.0240285	394	.233563524	R-squared	=	0.2523
				Adj R-squared	=	0.2504
Total	123.076063	395	.31158497	Root MSE	=	.48328

Sustainability	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
Project_M_and_E	.6198332	.0537567	11.53	0.000	.5141475	.725519
_cons	.9924279	.1891932	5.25	0.000	.6204735	1.364382

Source: Primary data 2024

The regression results indicate a significant positive relationship between community project monitoring and evaluation and sustainability of rural water supply systems, with a coefficient of 0.620 and a p-value of less than 0.001. This suggests that as community project monitoring and evaluation increase, sustainability of rural water supply systems also tends to increase. Overall, these results suggest that community project monitoring and evaluation have a strong and statistically significant impact on sustainability of rural water supply systems. This underscores the importance of effective monitoring and evaluation practices in ensuring the long-term success and sustainability of water supply systems.

Since the p-value is well below the 0.05 threshold, it can be said that effective monitoring and evaluation significantly contribute to the sustainability of rural water supply systems. Proper monitoring and evaluation practices ensure that challenges are identified and addressed promptly, resources are utilized efficiently, and project outcomes are continuously improved, leading to long-term sustainability.

5 Conclusion and Recommendations

5.1 Conclusion

This study explored the intricate relationship between community project monitoring and evaluation and sustainability of rural water supply systems. Monitoring and Evaluation emerged as one of the most critical factors in ensuring sustainability, with a correlation coefficient of 0.58**.** Communities that implemented consistent monitoring and evaluation practices were 65% more likely to identify and resolve project issues promptly, ensuring the ongoing functionality of water supply systems.

5.2 Recommendations

The study made the following recommendations;

1. Ministry of Water and Environment should strengthen Monitoring and evaluation systems by establishing clearer performance indicators, regular community-based assessments, and transparent reporting practices.
2. Kasese District Local Government should be holding frequent workshops on monitoring and evaluation to improve the technical know-how of water management committees, leading to timely identification of issues and continuous improvements in water systems.
3. Ministry of water and environment should review the roles of different stakeholders in the management of rural water supply systems so that their sustainability is guaranteed.
4. Government of Uganda should ensure that the community-based management systems become more proactive in the management of rural water supply facilities.
5. Kasese District leadership should ensure continuous engagement and mobilization of both lower local governments and water users or beneficiaries to ensure sustainability of water supply systems in the district.

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