MAKERERE UNIVERSITY

MAKERERE UNIVERSITY BUSINESS SCHOOL

SUSTAINABILITY OF WATER, SANITATION AND HYGIENE DEVELOPMENT PROJECT IN GULU DISTRICT OF UGANDA

BY

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PLAN B

DECLARATION

I Lukone John Frederick, hereby declare that this research report is my original work done by myself as a result of my research and that no portion of it has ever been submitted by any person to Makerere University Business School or any other institution of learning for any academic award. Due acknowledgement has accordingly been done in form of citations, quotations and references to other people's ideas where used.



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APPROVAL

This research report has been fully examined and approved by the following university supervisors:

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Frof. Sudi Nangoli

DEDICATION

This dissertation is dedicated to my mother for her support and encouragement in tough times as well as laying a perfect foundation for me, may the almighty God bless her abundantly.

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Table of Contents

DECLARATION i

APPROVAL ii

ACKNOWLEDGEMENT iv

ABSTRACT viii

CHAPTER ONE 1

INTRODUCTION 1

1.1 Background to the study 1

1.2 Statement of the problem 3

1.3 Purpose of the Study 4

1.3.1 Specific Objectives 4

1.4 Research Questions 4

1.5 Scope of the Study 5

1.5.1 Content Scope 5

1.5.2 Geographical Scope 5

1.6 Significance of the Study 5

CHAPTER TWO 7

LITERATURE REVIEW 7

2.0 Introduction 7

2.1 Project Sustainability 7

2.2 Level of Project Sustainability 8

2.3 Challenges facing Project Sustainability 12

2.4 Strategies for improving project sustainability 16

CHAPTER THREE 20

RESEARCH METHODOLOGY 20
3.0 Introduction 20
3.1 Research Design 20
3.2 Study Population 20
3.3 Sample Size 21
3.4 Data Sources 21
3.5 Data Collection Instrument 21
3.6 Measurement of variables 22
3.7 Reliability and Validity of Data Instruments 23
3.8 Data Processing and Analysis 24
3.9 Ethical Consideration 24
CHAPTER FOUR 26
PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS 26
4.0 Introduction 26
4.1 Response rate 26
4.2 Demographic Characteristics 26
4.3 Descriptive Statistics 30
4.3.1 Level of Sustainability of Gulu Water Supply and Sanitation Project Phase I 31
4.3.2 Challenges of Sustainability of Gulu Water Supply and Sanitation Project Phase I 33
4.3.3 Strategies for enhancing Sustainability of Gulu Water Supply and Sanitation Project Phase I 36
CHAPTER FIVE 39
DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATIONS 39
5.0 Introduction 39
5.1 Discussion of Findings 39
5.1.1 Level of Sustainability 39

5.1.2 Challenges of Sustainability 43
5.1.3 Strategies for enhancing project sustainability 46
5.2 Conclusion 50
5.3 Recommendations 51
5.4 Limitations of the Study 52
5.5 Areas for further study 52
References 53
Appendix I: Questionnaire 57

ABSTRACT

The study examined the level, challenges and strategies for improving sustainability of Gulu Water and Sanitation Improvement Phase 1 in Gulu District. The study was a cross-sectional research design with a descriptive research approach. The study used a sample of 248 households from a population of 720 in Gulu City. Primary data was obtained from household heads using a structured questionnaire. Data was analyzed using Statistical Packages for Social Scientist (SPSS) Version 25 for analysis. Results were presented using frequency and descriptive tables. The study found low level of sustainability of the Gulu Water Supply and Sanitation Project Phase I. The lowest sustainability was reflected mainly in financial capacity, followed by technical, and operational sustainability. On the other hand, the study found that the Gulu Water Supply and Sanitation Project Phase I project was physically sustainable. The study found that the major challenges affecting sustainability were; complexity of the project, limited participation, limited finance, inadequate capacity building, and inadequate communication. The study found out that enhancing two-way communication, building capacity of community members, community awareness campaigns, encouraging involvement, and corporation among community members were the most significant strategies that would enhance sustainability of projects. The study concludes that Gulu Water Supply and Sanitation Project Phase I project is not sustainable. Therefore, it is prudent to undertake specific strategies to revamp the prevailing status quo. The study recommends; promotion of two-way communication; capacity building; investing in community awareness campaigns; involvement; and promoting corporation among community members.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

All projects are time bound which implies they must eventually close operations after a designated period. Moreover, one of the universal goals of any project is to ensure that there is a continued utilization of project outcomes beyond its time of implementation (Fossicker, 2015). This cannot be attained unless a project is sustainable. Project sustainability is fundamental in the sense that it builds a system where project outcomes remain visible over a long spell even when the project officially closed (The World Bank, 2018). This is important because it stimulates reputation and corporate image, promotes project relevance, and provides a foundation for achieving other long-term goals and objectives (Maier, Beck, Francisco Vallejo, Horn, Söhlemann & Nguyen, 2016). Project sustainability also influences communities' attitude, and willingness to participate in future projects (Bremer, 2019; Espinosa, 2016).

From a theoretical perspective, project sustainability is explained by the Resource Dependence Theory (RDT) (Salancik & Pfeffer, 1978). This theory emphasizes that projects cannot ultimately work independently to achieve all intended goals and objectives. Rather, projects must reply on external environment for the necessary support required to achieve long term objectives. Projects must also be able to transmit specific resources to the external environment to ensure they have the necessary capabilities to support. Undeniably, project sustainability is one of the core objectives which cannot be achieved in the short while because its evaluation occurs to projects which were completed. Moreover, this theory appreciates that achieving an objective such as sustainability relies on the support rendered by the external environment for instance,

community members because it is the category which remains in full control of the project when it is officially closed (Bremer, 2019; Heywood & Smith, 2016).

Nonetheless, many Water, Sanitation and Hygiene (WASH) projects sub–Saharan Africa are not sustained. According to United Nations Children's Relief Fund (UNICEF), 2019), between 35-50% of water projects in Africa fail between 2-5 years from the time they are commissioned to community members. It is revealed that most communities do not have the necessary technical capabilities to maintain water sources functional. Moreover, community members find difficulty raising financial resources required to replace some equipment. Mushamba (2020) observed that more than 50% of water projects extended in countries of Chad, Comoros, Nigeria, Niger and Central African Republic become unfunctional within just one year. Community members expressed less capacity to maintain physical facilities, and technically they did not have the skills to operate boreholes and taps.

Similarly, various WASH projects cannot be traced in various areas in Uganda (World Bank, 2019). In most parts of the country where WASH has been extended, community members still find difficulty to conduct minor repairs and maintenance works. In addition, 78% of boreholes that were erected in Northern Uganda do not function after getting spoilt in less than 2 years. One of the projects affected is Gulu Water and Sanitation Improvement Phase 1 (World Bank Report, 2020). Although the project constructed 42 public toilets in public places and institutions, their functionality rate is 45%, 55% of which are considered unfriendly. Community members have also gone ahead to boycott all the 6 motorized boreholes indicating they are complex and difficult to maintain.

This lack of sustainability of water, sanitation and hygiene interventions has devastating has posed a major obstacle to universal access to services, increased water facilities which are not repaired after breakdown, and increased communities' exposure to diseases such as Cholera, Ebola and Malaria (District State of Environment Report (DSoE, 2018). Therefore, there is a need to examine the factors, challenges and strategies/remedies for improving sustainability of water, sanitation and hygiene development projects to contribute to the existing theory and practices.

1.2 Statement of the problem

The Government of Uganda and various donor funding agencies have implemented various water and sanitation services in Gulu District as a means of improving water resources planning and management. However, one of the challenges encountered in the Area is sustaining such projects. This is mainly manifested in the failure of community members to accord the necessary technical, financial and operational capacity to maintain these projects (World Bank Report, 2020). Under the Gulu Water and Sanitation Improvement Phase 1, 42 public toilets were constructed, their functionality rate is 45%. Over 55% of the toilets have damaged taps, which community members indicate do not have technical expertise to fix them. In addition, community members are failing to raise financial resources to keep the toilets clean and fit for use. Likewise, the 6 boreholes that were constructed are non-functional, with community members citing lack of technical and operating expertise. This indicates that there are still gaps in sustainability of water projects which further compromise the performance of water projects. If these problems remain unchecked, for this reason; efficient measures on project sustainability are absolutely required. Therefore, there is need for the government and donor agencies to put in place procedures that will promote project sustainability.

1.3 Purpose of the Study

The study examined the factors, challenges and strategies for improving sustainability of Gulu Water and Sanitation Improvement Phase 1 in Gulu District.

1.3.1 Specific Objectives

i. To assess the level of sustainability of Gulu Water and Sanitation Improvement Phase 1 in Gulu District.

ii. To analyse the challenges facing sustainability of Gulu Water and Sanitation Improvement Phase 1 in Gulu District.

iii. To determine strategies/remedies to improve sustainability of Gulu Water and Sanitation Improvement Phase 1 in Gulu District.

1.4 Research Questions

i. What is the factor influencing level of sustainability of Gulu Water and Sanitation Improvement Phase 1 in Gulu District?

ii. What are the challenges facing sustainability of Gulu Water and Sanitation Improvement Phase 1 in Gulu District?

iii. What are the strategies/remedies for improving sustainability of Gulu Water and Sanitation Improvement Phase 1 in Gulu District?

1.5 Scope of the Study

1.5.1 Content Scope

The study will focus on one variable, that is; project sustainability. It will focus on identifying the factors influencing sustainability, identifying challenges of sustainability, and investigating strategies for improving project sustainability.

1.5.2 Geographical Scope

The study will focus on Gulu Water, Sanitation and Hygiene Improvement Project Phase 1 in Gulu District. This project was concluded in October 2020 targeting 1,718 households in Gulu City. The area was selected because it was identified as the area with one of the worst WASH activities where over 60% do not have toilets at all (Uganda Bureau of Statistics, 2019). In specific, Gulu Water and Sanitation Improvement Phase I was selected because most of the sanitation facilities that were implemented are unfunctional much as hardily many years have passed since its implementation (Gulu District Council Service Score Card, 2020).

1.6 Significance of the Study

The findings of the study will provide district administrators to establish the factors influencing sustainability, challenges of sustainability and strategies for improving sustainability as perceived by the community members. These results could be useful in the formulation of realistic strategies for achieving sustainability of projects.

Government, as a policy maker is bound to benefit from this study. By understanding the factors influencing sustainability, factors influencing sustainability, challenges, and proposed strategies for project sustainability from a community perspective, the government could use the

information in developing a clear framework that puts into consideration the concerns of the community. This could prove crucial in enhancing sustainability for future projects.

The findings in this study could also be used for future research. Researchers investigating about project sustainability could extract some information from the report as their source of reference.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The study will review literature written by other scholars in relation to the research objectives. The literature was drawn from textbooks and journal articles which were assessed in terms of their contribution and critically identifying the existing gaps.

2.1 Project Sustainability

Project sustainability is one of the dominant concepts in project management. A critical assessment of the available definitions suggests that project sustainability is a term which is used to assess whether the outcomes of the project are visible overtime much as the project was officially implemented. Notably, Aga, Noorderhaven & Vallejo, 2018) define project sustainability as the ability of the project to continue with a flow of intended benefits for a long period of time after the project's external support is ceased. Another definition proposes that project sustainability is concerned with ensuring that the beneficiaries continue to feel the impact of project after it is surrendered to them and no further resources are received externally (Odenyo & Rosemary, 2018). This is closely similar to the definition by Chen, Yu, Osei-Kyei, Chan and Xu (2019), where project sustainability is defined as the ability of the project to continue a flow of benefits for a long period upon its official closure and seizer of inputs. From these definitions, it is clear for evaluation of sustainability is applicable to projects that are officially closed. This further suggests that project sustainability is vested in the stakeholders to whom the project is commissioned.

Several constructs have been applied to measure project sustainability. For instance, Aga *et al.*, (2018) used dimensions continuation of benefits, project institutionalization and capacity building as the dimensions for project sustainability. On the contrary, Kuria and Wanyoike (2016) explored project sustainability in relation to functional project structure, diversification of activities, continued project benefits and consistent stakeholder participation. Whereas, Bukhala and Ganesh (2016) demonstrate that project sustainability is analyzed by evaluation the extent to which community members finance, provide the technical expertise, possess knowledge of how to operate and maintain the physical structures overtime. Unlike other dimensions, the dimensions indicated by Bukhala and Ganesh (2016) have widely been used by several researchers (Bayai & Ikhide, 2018; Kasolo, 2017; Said, Annuar & Hamdan, 2019; Zhang, Li, Ma, Li & Yuan, 2022).

2.2 Level of Project Sustainability

It is generally agreed upon that project sustainability is a core concept in project management (Aga et al., 2018; Chen et al., 2019; Odenyo & Rosemary, 2018). However, the extent to which the project is sustainable has not been explored as most researches have focused on exploring how different variables relate to project sustainability. Indeed, Ng'ang'a and Kibati (2016) demonstrates that much as project sustainability is important, less is known about the extent to which projects are sustainable. The current research finds it important to contribute to this gap by seeking an understanding of the level of sustainability the Gulu Water and Sanitation Improvement Phase 1 in Gulu District.

Empirical literature has expressed that project sustainability is an ultimate responsibility of community members (Agarwal & Kalmár, 2015; Kativhu, Mazvimavi, Tevera & Nhapi, 2017; Silvius & Schipper, 2014). In congruence, the researcher points out that every project is extended

within the community. In the same way, when project implementers officially surrender the project, they do so to the community. Therefore, exploring level of project sustainability is more realistic when it seeks an understanding of the extent to which the community members are capable of running the project. Moreover, most of the empirical literature on project sustainability indicates that its assessment hinges on mainly four issues, which include; assessing financial sustainability; technical sustainability; operational sustainability; and physical sustainability (Ng'ang'a & Kibati, 2016; Scheirer 2005). Because of the consistence expressed by prior scholars, the current study also attests, and considers them as core in determining the level sustainability in the context of Gulu Water and Sanitation Improvement Phase 1 in Gulu District.

Project management literature indicated that it is necessary to evaluate financial sustainability because finance serves as a key ingredient in maintaining project outcomes (Bayai & Ikhide, 2018; Kasolo, 2017; Said, Annuar & Hamdan, 2019). This study contends with this analogy emphasizing that much as project implementers are able to institute physical facilities within the community, they need to be maintained and repaired. These cannot be achieved if community members do not have adequate financial resources to acquire the necessary equipment. From one perspective, scholars argue that the willingness of members to solicit financial resources in case of breakdown, having a collective financial pool for the project to cater for operational activities, and having a clear strategy for financial resources can demonstrate how the community is financially sustainable (Hodgkin, 2014; House, 2017).

Although, none of the studies goes ahead to explore these aspects in a given project. Others have revealed that checking compliance of community members to provide financial resources whenever a need arises, as well as setting a special budget to address financial needs of the

project are the most relevant (House & McConville, 2017; Skanska, 2015). Much as the current study contends that these aspects can be important to assess financial sustainability, it is evident that the studies which propose these issues are not conducted in Uganda. Therefore, it cannot be understood how these aspects manifest in projects in Uganda's context. Nonetheless, other scholars are of the view that it is necessary to find out whether implementers sensitized communities on financial management skills so that they have the capacity to anticipate and have an internalized budget for the project.

The other issue that has manifested in discussions surrounding project sustainability is technical sustainability. According to Zhang, Li, Ma, Li and Yuan (2022) it is important for project implementers to equip communities with technical skills and abilities that are crucial for maintaining outcomes in the future. Nonetheless, it is evident that this study was not conducted in Uganda, which raises a question as to whether the issues pointed out really apply to Uganda's projects. This can justify why the current study is important to be conducted. Some researchers have gone ahead to express that failure to provide technical skills is one of the major reasons why community members find difficulty in making sure benefits continue to flow. Accordingly, it is necessary to find out if the communities were subjected to technical training activities such as mentoring, coaching, training sessions and workshops. This is further stressed by Bahamian (2014) who postulates that projects must accord communities with technical skills to be competent enough to handle repairs and maintenance works. Likewise, the researcher suggests that technical skills constitute a major component in sustaining projects because it makes communities socially competent. Even then, the study notices that the issues of technical sustainability appear in studies which are somewhat old. On that note, it is necessary to unveil whether these aspects manifest to date, by assessing a recently completed project.

From another perspective, some scholars argue that technical sustainability does not only focus on technical skills possessed by community members, but also being acquainted with the technology used during implementation, ensuring the project is implemented using materials and equipment which are ease to access by community members locally, and possession of management skills to run the project. From the above, the researcher synthesizes that technical sustainability assesses whether communities have the necessary skills, knowledge and abilities to run the project. This is in line with Nayebare, Wilson, Carpenter, Dziewulski and Kannan (2014) who indicate that capacity building should be considered as one of the central activities of the project to because it helps community members to acquire management and maintenance skills to keep all infrastructures or products of the project. Although the study was conducted in Uganda, it is generally old, hence it is unclear whether the raised apply in the current state of projects. This study will seek to contribute to answering this question. Other scholars have gone ahead to stress that can be understood in terms of exploring the perception of local users in terms of affordability of technology, as well as cost of management and maintenance (Said et al., 2019; Zhang et al., 2022).

Nonetheless, other researcher demonstrate that what is important is the assessment of the operational status of project outcomes (Moradibistouni, Vale & Isaacs, 2019; Stanitsas & Kirytopoulos, 2021). They argue that projects institute specific qualitative and quantitative outcomes which are expected to address the needs. Hence, communities are tasked to ensure that the facilities remain functional. However, the researcher argues that assessing physicality of projects may be difficult especially for projects whose outcomes are qualitative in nature. But, Tafara (2013) suggests that operational sustainability can be determined by understanding if beneficiaries were involved in the decision-making process, whether they undertook any

leadership role, and whether they were consulted throughout the process. More so, participation in monitoring and evaluation of the project has also been highlighted as a core issue. From these arguments, it is clear that operational sustainability is aimed at assessing the magnitude of involvement of community members.

Literature has also gone ahead to suggest that local leaders must have the ability to physically sustain the project (Agyekum-Mensah, Knight & Coffey, 2012; Mahonge, 2013). They should be able to replicate structures, processes, systems which implementers used to be successful. Additionally, local users should also be able to maintain the standard, quality and quantity of all physical facilities without finding any difficulty (Abou-Warda, 2014; Ojwang & Bwisa, 2014). Different from this line of thinking Ika (2012) emphasizes that local leaders should be able to use the facilities efficiently because this minimizes damages, and maintenance expenses which could frustrate local users from providing the necessary support to keep the facilities functional. Moreover, it has also been argued that physical facilities should be used for the right purpose and within the right anticipations when the facilities were being put in place (Said, Stevens & Sehlke, 2005). In view of the current research, the issues emphasized under physical sustainability are important and provide a clear assessment of the extent to which local users are capable of maintaining the tangibles of the project. The major issue identified herein though is that the physical sustainability aspects are presented in old research. The current study seeks to close this gap, by testing the same in the current project environment. This will be important in establishing whether the aspects are still perceived as relevant.

2.3 Challenges facing Project Sustainability

Despite growing interest in the concept of sustainability, a couple of limitations have been presented as compromising its full attainment in a couple of projects. One of the greatest

challenges facing project sustainability that has been pointed out is inadequate commitment from local users (Aghaegbuna, Tasmiyah, Zanoxolo & Nikiwe, 2020; Gachie, 2019; Martens & Carvalho, 2016). They indicate that community members express low dedication, belief, willingness and drive to engage in project activities. The resultant of low commitment is the low bond between community members towards the project, which compromises the extent to which community members are ready to support. This proposal is equally similar to Silvius, Schipper and Planko (2012) who revealed that some local users do not indicate any expressed desire to engage in the project and to a member of it. Rather, they prefer to benefit from the outcomes without taking the initiative to support its sustainability. In a similar manner, the researcher strongly believes that low commitment affects overall attitude and attachment of community members towards any project. These are important because they build a spirit of responsibility and accountability which could encourage community members to provide the necessary support. Even then, this study is concerned that these arguments are not backed up with any empirical evidence. This challenge has simply been deduced in the aforementioned necessitating an empirical investigation which the current research is focused towards addressing.

On the other hand, scholars have demonstrated that the degree of participation remains low among many projects (Kayijuka, 2021; Musaana, 2019). They indicate that this challenge emanates not only from the project implementers perspective, but also the local users of the outcomes. Whereas, the conclusions expressed in these studies are empirically tested, the current study is concerned by the fact that none of them is conducted in Uganda's context. As such, it remains unclear if inadequate participation can explain why many projects in Uganda are facing sustainability issues. The current study is keen to contribute empirical evidence which is fully customized to one of the projects which has been extended in Uganda to establish the extent to

which this challenge manifests. Nonetheless, Aghaegbuna et al., (2020) argue that lack of participation is not itself a challenge, but rather an outcome which emanates from the failure of project implementers to create awareness. According to them, many project implementers hardily create the necessary awareness for community members to understand what is transpiring within their community (Gachie, 2019). This creates a wide gap between implementers and community members, knowledge gap, and less attachment towards the project. This research therefore observes that while stakeholder participation is perceived as a challenge, is perceived as a consequence by others. Although, this study presumes that both awareness and participation are challenges much as they have a linkage.

Furthermore, it has been noted that project sustainability is complex in the sense that it necessitates a significant number of resources which are hard to be mobilized by community members or local users (Abdel-Raheem & Ramsbottom, 2016; Li, Xia, Wen, Wang & Lv, 2019; Spaling, Brouwer & Njoka, 2014). They further reveal that much as community members may not find difficulty in providing nonfinancial resources, their greatest challenge is to raise the necessary financial resources required to run the project (Li et al., 2019; Spaling et al., 2014). It is evident that lack of finance is consistently acknowledged as one of the challenges affecting sustainability of projects. In the same context, the researcher is anticipative that maintaining projects in Uganda is cumbersome due to financial challenges because projects generally require significant resources to be sustained. This can explain why most projects are always funded by different agencies. This argument however necessitates further inquiry given that the studies from which it has been emphasized were conducted elsewhere.

On the other hand, it has been demonstrated that community members do not have a well streamlined mechanism on how to go about with sustainability of projects. Although, this has been largely blamed on the failure of project implementers to coordinate and corporate with community members during its tenure (Kisan, Dadabhau & Singh, 2013; Spaling, Brouwer & Njoka, 2014; Wabwoba & Wakhungu, 2013). However, the current research is concerned by the fact that most of the empirical researches regarding this challenge are generally old. In this case, it makes one to remain wondering whether the issue of systems still applies in a current project environment. The answer to this question will be addressed by the researcher. On the contrary, other scholars have expressed lack of collective effort or teamwork among within the community as one of the prime barriers of sustainability (Martens & Carvalho, 2016; Spaling, Brouwer & Njoka, 2014. According to these scholars, many community members do not consider sustaining project outcomes as their responsibility, and instead presume it is the responsibility of their leaders. Because of this perception, local communities are failing to self-mobilize resources that can ensure that project infrastructures remain operational.

The other challenge that has widely been discussed in lack of communication (Abdel-Raheem & Ramsbottom, 2016; Gachie, 2019; Kayijuka, 2021; Musaana, 2019). In many projects, there is no clear communication between project implementers and local users. The isolative working approach has compromised the extent to which project implementers are able to share knowledge and information which can build the capacity of local users to competently sustain projects. From another perspective, it is indicated that organization's failure to communicate effectively the purpose and strategy of their sustainability effort has compromised the propensity to which local users of projects are determined to sustain the project. Consistent with available literature, the current researcher agrees that communication is crucial in the sense that it enables free flow

of important information which builds competence, and confidence among community members to undertake full responsibility of the project. Studies though which focus to establish challenges of project sustainability seem to be limited in Uganda's context (Foster, 2013). It is therefore necessary to explore the extent to which lack of communication could be compromising sustainability of projects in Uganda.

With a different line of thinking, Warinda, Nyariki, Wambua, Muasya and Hanjra (2020) observed that failure to provide necessary capacity building is affecting the sustainability of projects. They observe that many project implementers do not allocate adequate resources to undertake capacity building activities which makes community members less knowledgeable and technical enough to run projects on their behalf. According to Martens and Carvalho (2016) a lack of capacity building compromises the degree of confidence, raises skepticism and affects self-efficacy of community members. Because of this, community members tend to boycott the project as a way of avoiding mistakes. Overall, different challenges of project sustainability have been identified by scholars. As a major concern, most of the studies have been conducted in other countries other than Uganda. It is therefore important to test the application of the challenges by focusing on a project which has been extended in Uganda.

2.4 Strategies for improving project sustainability

Numerous strategies for enhancing project sustainability have been presented in literature. A critical review indicates that a couple of scholars suggest that sensitization of local users serves is a major cornerstone in promoting project sustainability (Aarseth, Ahola, Aaltonen, Økland & Andersen, 2017; Kativhu, Mazvimavi, Tevera & Nhapi, 2017; Martens & Carvalho, 2016). These explain that sensitization of local users is an important ingredient for addressing knowledge gap and information asymmetry in the community hence raising awareness. This is

bound to increase the understanding of local users in project sustainability hence contributing to individual willingness to engage in project activities. Whether communities in Uganda are sensitized about the project remains unclear because most of the studies identifying this strategy are studied which were conducted in other countries. The answer to this question will be presented in this study given that it is specific to one of the projects which is extended in Uganda.

Instead, other scholars have expressed the need to intensify capacity building programs within the project to increase the propensity of sustainability (Moradibistouni et al., 2019; Zhang, et al., 2022). Their argument is that through capacity building, project implementers are able to disseminate information, share knowledge and skills which local users can apply when the project is officially closed. In support, Aghaegbuna et al., (2020) emphasize that capacity building is inevitable because it builds confidence and self-efficacy among local users regarding their capacity to run the project without any form of support. As such, it is recommended that capacity building activities such as training, frequent seminars and workshops should start during initial stages of the project so that as much information as possible is disseminated. Although capacity building is consistently supported, the context in which it was studied is different in the context in which this study is intended to be observed. The studies focused on other studies which are not necessarily development projects. It is found necessary to establish if capacity building can apply in a project such as Gulu Water Supply and Sanitation Phase 1 Project.

Nonetheless, Kativhu et al., (2017) observes that needs assessment is a core principle in ensuring sustainability of projects. Project implementers should understand the actual needs of affected persons to ensure that all activities are streamlined towards the same. Indeed, a plethora of research demonstrates that needs assessment is necessary since it helps project implementers to

ensure that the project will not be rejected by the local users (Kisan et al., 2013; Said et al., 2019). As such, local users will find the project valuable and become more accountable even if initial implementers are no longer directly involved in the affairs of the project.

Moreover, a study by Ojwang and Bwisa (2014) established that stakeholder involvement is a significant contributor to sustainability of projects. It explains that whenever local users are involved, they not only feel as part and parcel, but also develop the feeling that implementers value them. This environment serves as an enabler for local users to participate in decision making, become more accountable which will increase their aggressiveness and determination to sustain the project. Meanwhile, Silvius et al., (2012) indicate that stakeholder involvement should be carried out throughout the project in order not to create an impression that locals not have specific knowledge to handle some issues.

In addition, almost all scholars indicate the communication is a key ingredient for enhancing projects sustainability. It is considered as a platform through which stakeholders can share information and knowledge in relation to the project. In congruence, Warinda et al., (2020) reveal that communication serves as the glue that binds all stakeholders together and one which guarantees that all important information is shared and applied. Importantly, scholars propose that communication must be two-way such that all stakeholders feel free to express their views and opinions without fear. Ensuring two-way communication makes locals highly absorbed in the project and accountable, something which increases their willingness to support. Rather, some researchers have demonstrated that teamworking among locals is prime. These demonstrate that maintaining outcomes of any project involves significant resources, which requires working together as a team to be able to mobilize them to continue financing the project. This concedes

with Stanitsas and Kirytopoulos (2021) who reflected that working collectively is an appropriate strategy for addressing challenges which are complex.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the methods that were used to address the research questions by discussing the research design, target population, sample size and selection procedure, sources of data, data collection instruments, data collection procedure, reliability and validity of the research instruments as well as data analysis and presentation.

3.1 Research Design

The study adopted a cross-sectional research design with a descriptive research approach. A cross sectional research design was applied given the urgency of the matter under investigation. It was found vivid to understand what is hindering community members from sustaining projects much as they target issues that communities need. In addition, a cross-sectional research design reports the natural view of results as it does not influence what happens in the field (Cresswell & Clark, 2011). The descriptive research approach was used because provides a comprehensive scrutiny of issues. With it, the study is able to obtain an in depth understanding of the subject matter (Creswell & Guetterman, 2018).

3.2 Study Population

The study focused on 720 households in Gulu City that were targeted under the Gulu Water Supply and Sanitation Phase 1 Project (Project Implementation Plan, 2017).

Unit of Analysis

The unit of analysis constituted the households within Gulu City that were targeted under the Gulu Water Supply and Sanitation Phase 1 Project.

Unit of Inquiry

From each household, the study targeted one household head. By household head, the study meant either a woman or man in charge of running a particular household. The study focused on households it's where the community members reside. Moreover, community members are the ones that are entirely responsible for sustaining any project. Every project is implemented and commissioned to the community once completed, making them ultimately responsible to its progress.

3.3 Sample Size

The study used a sample of 284 households in Gulu City, determined based on the Krejcie and Morgan (1970). The applied convenient sampling to obtain the targeted sample. This technique was used because the researcher could not clearly identify the actual households that were referred to in the implementation plan. In absence of a clear sampling frame, convenient sampling is regarded as the most effective technique for arriving at the sample (Creswell & Guetterman, 2018). From each household, the researcher targeted one participant, the household head who was either a man or woman.

3.4 Data Sources

The study used a primary data source to obtain data that was used in the analysis and interpretation of results. This source was used because it provides first-hand data regarding the subject matter. Primary source of data also provides data which is recent and customized to the subject matter (Creswell & Creswell, 2017).

3.5 Data Collection Instrument

This study used a questionnaire instrument to obtain data. This instrument was used because the targeted sample not only large, but also dispersed. This instrument is considered an effective in

obtaining data from a sample which exhibits these characteristics (Creswell & Creswell, 2017; Sekaran & Bougie, 2016). This instrument was structured with closed-ended questions, which were subjected to a 5-Point Likert Scale (1=strongly disagree, 2=disagree, 3=not sure, 4=agree, 5=strongly agree). This scale was used because it minimizes bias in the process of providing responses by respondents (Saunders, Lewis & Thornhill, 2007).

3.6 Measurement of variables

Project sustainability was conceptualized using a four-dimensional construct of financial sustainability, technical sustainability, operational sustainability, and physical sustainability (Bayai & Ikhide, 2018; Bukhala & Ganesh, 2016; Kasolo, 2017; Said et al., 2019; Zhang et al., 2022). The researcher adopted items from previous work of Okorley and Nkrumah (2012) which were modified to fit the study context and subsequently subjected to the 5-Likert scale.

Challenges of project sustainability was conceptualized based on the various challenges identified in literature. Some of the challenges of project sustainability expressed in literature include; complexity (Aghaegbuna et al., 2020); inadequate communication (Kayijuka, 2021); inadequate commitment (Gachie, 2019), and failure to build capacity (Li et al., 2019; Musaana, 2019) among others. The researcher developed statements entailing the challenges and subjected them to a 5-Point Likert scale.

Strategies of project sustainability was measured in accordance to the various strategies highlighted in literature. Some of the strategies indicated include; sensitization (Aarseth et al., 2017; Kativhu et al., 2017), needs assessment (Kativhu et al., 2017), stakeholder involvement (Ojwang & Bwisa, 2014), and two-way communication (Warinda et al., 2020) among others.

The researcher self-developed Items and subjected them on a 5-Point Likert scale to seek responses.

3.7 Reliability and Validity of Data Instruments

Validity measures the degree to which the research instrument measures accurately what it is to measure. The study used the project expert judgment to determine the content validity index (CVI) by measuring the extent to which the questions on the instrument and the scores from these questions represent all possible questions that could be asked about the content (factors, challenges and remedies for sustainability) (Creswell, 2005). To ensure content validity, the questionnaires were tested before their final administration to confirm their extent of validity. Furthermore, validity was computed through dividing relevant questionnaires by the total number of questionnaires and the content validity index was calculated as shown in the Table 3.1 below. In other words, a content validity index of 0.7 or more was acceptable or considered good (Nunnally, 1978).

To ensure reliability of the research instrument, a Cronbach Alpha test was computed as a measure of the scale reliability to determine its consistency. According to Nunnally (1978), the reliability coefficients of 0.70 and above are considered good. The items adapted in this study have been used by researchers over time and have been proven to be reliable as indicated in Table 3.1 below.

Table 3.1: Validity and Reliability

Variables	CVI	Cronbach's Alpha	N of Items
Level of project sustainability	0.75	0.71	20
Challenges of project sustainability	0.83	0.71	12
Strategies for project sustainability	0.82	0.70	11

Source: Primary Data

Table 3.1 summarizes results in relation to validity of reliability of the data instrument used by the study. Results indicated that the CVI results for each of the studied variable was at least 0.7. These results meant that the instrument was valid in the sense that it contained Items which were good measures of the variable they intended to measure. In other words, the instrument was fit to for obtaining data for the intended purpose. The reliability results on the other hand (Cronbach Alpha) revealed that each variable attained a coefficient which was above the minimum acceptable coefficient of 0.7. This meant that the results extracted was consistent and hence reliable. Accordingly, the results were fit enough to be used for making conclusions and recommendations.

3.8 Data Processing and Analysis

Data obtained from the field was coded, edited, cleaned and entered in Statistical Packages for Social Scientist (SPSS) Version 25 for analysis. Results were presented using a frequency table and descriptive tables. The frequency table was used to present results related to demographic characteristics. Descriptive tables were used to present results in relation to study objectives. The researcher relied on the mean and standard deviation values to interpret results.

3.9 Ethical Consideration

The study considered the following ethical issues while conducting the research. First, the researcher assured the respondents that all information obtained from them was strictly to be used for academic purpose. Additionally, participation in this study was voluntary in the sense that every potential respondent had the right to either accept in participating or reject participation in this study. The researcher further ensured that the instrument for data collection

does not contain or request either a name or telephone number of the respondents such that confidentiality of respondent's information was guaranteed.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS

4.0 Introduction

This chapter contains the presentation and interpretation of findings based on the study objectives which include; assess the level of sustainability of Gulu Water and Sanitation Improvement Phase 1 in Gulu District; analyse the challenges facing sustainability of Gulu Water and Sanitation Improvement Phase 1 in Gulu District; and determine strategies/remedies to improve sustainability of Gulu Water and Sanitation Improvement Phase 1 in Gulu District. Before that, the chapter present information showing the response rate which was achieved by the study and results related to different demographic characteristics.

4.1 Response rate

Out of 284 households which were targeted by this study, the researcher obtained data from 173, representing a response rate of 60.9%. This response rate is slightly below the minimum acceptable rate of 70%. The failure of this research to attain the threshold rate was attributed to majority of households sampled expressing unwillingness to participate in the research, while others were subsequently followed up on several trials, and failed and never found. Nonetheless, it has been argued that there is no standard response rate in humanities research, although being able to obtain data from at least 50% of the targeted response is considered good enough to be relied on for making conclusions and recommendations (Fincham, 2008; Morton, Bandara, Robinson & Carr, 2012).

4.2 Demographic Characteristics

The study used a frequency table to present results in relation to demographic characteristics. The characteristics obtained were in a three-fold. It includes demographics which sought to

understand individual characteristics specifically; gender, age, education status, monthly income, and number of households. The second category of demographics sought establishing the general awareness of the project, in relation to whether duration of the project, and total cost were known by community members. Whereas the third demographics category sought to establish the magnitude of project information sharing, specifically the frequency of reporting. These results are presented in table 4.1.

Table 4.2: Demographic Characteristics

Demographic Characteristic	Frequency (n=173)	Percent
Gender		
Male	122	70.5
Female	51	29.5
Age Bracket		
Less than 25 years	1	0.6
25-30yrs	34	19.7
31-34yrs	58	33.5
35-40yrs	28	16.2
45yrs above	52	30.1
Education Status		
Primary	63	36.4
Secondary	31	17.9
Diploma	61	35.3
Degree	12	6.9
Others	6	3.5
Monthly Income (UGX)		
Less than 50,000	18	10.4
50,001-100,000	50	28.9
100,001-150,000	54	31.2
150,001-200000	24	13.9
200,001-250,000	13	7.5
250,001-300,000	9	5.2
300,001 above	5	2.9
No of members in household		
Less than 5	69	39.9
5-10 members	78	45.1
11-15 members	17	9.8

16 members above	9	5.2
Awareness of project duration		
Do not know	110	63.6
I know (Specify)	63	36.4
Awareness of project cost		
Yes	64	37.0
No	109	63.0
Frequency of reporting		
Never informed	107	61.8
Monthly	22	12.7
Quarterly	44	25.4

Notes: *1st to 5th demographic relates to individual characteristics; 5&6 relate to awareness of project information; while demographic 7 relates to frequency of reporting*

Source: Primary Data

Table 4.1 indicated that most of the respondent were male, contributing 70.5%, compared to 29.5% female. The dominance of males can be explained by the fact that this study targeted mainly household heads. Moreover, these findings imply that sustainability of the Gulu Water and Sanitation Improvement Phase 1 is mainly inclined to the magnitude to which males within the communities where the project was extended are possessed with financial, technical, physical and operational capacity to maintain deliverables.

Results further obtained that most of the respondents were aged between 31-34 years. In this case, the results meant that most of the communities where Gulu Water and Sanitation Improvement Phase 1 project was extended is dominated by young people. The eagerness to learn that young people exhibit is bound to advance sustainability of this project, albeit gradually they learn through experience.

Furthermore, results in table 4.1 revealed that most respondents had acquired primary education (36.4%). Moreover, there was also a significant number of respondents who expressed acquiring education to a level of diploma (35.3%). In other words, the communities in which the Gulu

Water and Sanitation Improvement Phase 1 project was extended is comprised of two extremes of people; the less learned, and those who are relatively learned. Therefore, the degree of sustainability of the project will depend upon which category of community members that are participate. Where the less learned are predominant in the affairs of the project, it is possible that the project will characterize low technical skills, knowledge and abilities which will have devastating outcomes on the technical sustainability potential of the project. On the other hand, where the those that are learned express more desire, the project is bound to exhibit high tendencies of technical sustainability, attributed to the acquired knowledge, skills and abilities gained in the advanced levels of education.

The results in relation to monthly income indicated that most respondents earned between 100001-150000 (31.2%). Moreover, those who earned between 50001-100000 was also significant (28.9%). These results meant that most of the community members were earning relatively low income. This is bound to compromise the ability and willingness of community members to provide financial support to the project, making Gulu Water and Sanitation Improvement Phase 1 project highly vulnerable to financial sustainability.

Furthermore, the results in table 4.1 indicated that most respondents revealed having 5-10 members within their household (45.1%). By these findings, it is clear that most households where Gulu Water and Sanitation Improvement Phase 1 project were large. According to this research, a large household has both negative and positive implication towards sustainability of a project. It increase frequency of usage of facilities posing a threat on operational sustainability, but also curtails households' capacity to provide financial support. On the other hand, a large household can serve as a source of nonfinancial support which is also inevitable in sustaining the project.

Table 4.1 revealed that majority of the respondents expressed that they were not aware about the duration of the Gulu Water and Sanitation Improvement Phase 1 project (63.6%). In addition, 63% compared to 37% were not aware about the cost of the same project. From these findings, it meant that most of the community members, who are also the beneficiaries of the Gulu Water and Sanitation Improvement Phase 1 project lacked important project information pertaining the project. This could imply that the project did not take the initiative of ensuring that community members fully understand the basic information of the project. This is likely to compromise the sustainability of the project because it creates a sense of dissatisfaction among community members regarding facilities extended. Moreover, it creates an impression that community members are not relevant, which affects their willingness to provide support to the project.

The results in table 4.1 further indicate that majority of the respondents expressed that they were never informed or reported to information regarding progress of the project (61.8%). The findings meant there was a brokage in communication between project implementers and community members. Hence, most of the activities extended under the Gulu Water and Sanitation Improvement Phase 1 project were extended without the engagement of community members. This poses a threat towards sustainability since most implementations were based on assumptions rather than interests and expectations of community members. The findings further indicate that the level of involvement of community members by Gulu Water and Sanitation Improvement Phase 1 project remains low, which worsens conflicts, lack of coordination and corporation within the project.

4.3 Descriptive Statistics

Objectives of the study were addressed using descriptive statistics of mean and standard deviation. A mean value close to 1 meant that respondents disagreed while close to 5 meant they

agreed. Standard deviation was used to determine the variability between responses from the mean. A value less than 1 reflected low degree of variability while 1 above meant high degree of variability.

4.3.1 Level of Sustainability of Gulu Water Supply and Sanitation Project Phase I

The first objective sought to assess the level of sustainability of Gulu Water and Sanitation Improvement Phase 1 in Gulu District. Sustainability was assessed in terms of its best practices of financial, technical, operational, and physical sustainability. These findings are presented in Table 4.2.

Table 4.3: Level of Sustainability

Statements	Mean	Std. Dev
Financial Sustainability		
Willing to contribute funds to maintain facilities	1.85	0.92
Community willingness to mobilize adequate funds	1.88	0.83
Consistent availability of funds	1.88	0.94
Ability to pay whichever funds	1.97	0.88
Mandate to raise funds intended to maintain facilities	1.99	0.94
Possession of clear strategy to raise finance by the community	2.07	0.69
Average Mean and Standard Deviation	**1.94**	**0.87**
Technical Sustainability		
Offered with technical training	1.83	0.93
Ability to handle routine maintenance works	2.06	0.84
Technologies ease of use	2.25	0.95
Easy accessibility of equipment required to maintain facilities	2.5	1.17
Affordability of equipment required to maintain facilities	2.99	0.96
Average Mean and Standard Deviation	**2.33**	**0.97**
Operational Sustainability		
Functionality of earlier facilities extended	1.9	0.89

Participation of beneficiaries in monitoring and evaluation of the project	1.96	0.85
Involvement of beneficiaries in the affairs of the project	2.01	0.90
Ease to use facilities of the project	3.66	0.80
Ability to use the facilities extended	3.82	0.91
Average Mean and Standard Deviation	**2.67**	**0.87**
Physical Sustainability		
Ease to replicate facilities elsewhere	3.79	0.75
Easy to find facilities	3.94	0.88
Hardily damage facilities	4.02	0.96
Maintain facilities the way I find them	4.16	0.91
Average Mean and Standard Deviation	**3.98**	**0.87**
Overall Mean and Standard Deviation	**2.73**	**0.90**

Source: Primary Data

Results presented in table 4.2 relate to findings obtained in relation which sought to establish the level of project sustainability of the Gulu Water Supply and Sanitation Project Phase I. Overall, responses obtained from respondents revealed an Average Mean=2.73 and SD=0.9. From the results, it meant that overall, most respondents disagreed with notions related to sustainability best practices. Hence, it meant that the level of sustainability of Gulu Water Supply and Sanitation Project Phase I was low. Accordingly, it implied that most of the best practices that depict a sustainable project were not prevalent or in existence, in the case for Gulu Water Supply and Sanitation Project Phase I.

In particular, responses obtained in relation to financial sustainability revealed mean=1.94, SD=.87, technical sustainability indicated mean=2.33, SD=0.97, operational sustainability, mean=2.67, SD=0.87, and physical sustainability, Mean=3.98, and SD=0.9. In this case, it meant respondents disagreed with three aspects, namely; financial, operational, and technical

sustainability indicators or notions, whereas physical sustainability notions were agreed upon by majority of the respondents. By these findings, it implied that level of sustainability of Gulu Water Supply and Sanitation Project Phase I is low because beneficiaries are exhibiting low financial, technical and operational sustainability capabilities. Moreover, further analysis of the mean values indicates that the major disagreement was expressed towards notions related to financial sustainability. This implied that the major underlying reason why Gulu Water Supply and Sanitation Project Phase I was not sustainable relates to shortfalls in desire and willingness to financially sustain the project. Specifically, results indicate that respondents' strongest shortfalls in financial sustainability are exhibited by the failure of community members to; contribute funds to maintain facilities, mobilize adequate funds, and ensuring consistent availability of funds required to sustain the project.

Otherwise, the Gulu Water Supply and Sanitation Project Phase I is physically sustainable mainly due the fact that facilities continue to be maintained the way they were constructed (mean=4.16, SD=0.91), and facilities are hardily damaged (mean=4.02, SD=0.96).

4.3.2 Challenges of Sustainability of Gulu Water Supply and Sanitation Project Phase I

The study explored the challenges of project sustainability in Gulu Water Supply and Sanitation Project Phase I project. This study presented specific challenges on a 5-Point Likert scale for respondents to share their responses on a scale of 1 to 5. Under this scale, 1 meant strongly disagree, 2-disagree, 3-not sure, 4-agree and 5-strongly agree. The results obtained were summarized using mean and standard deviation. These results are presented in table 4.3.

Table 4.4: Challenges of Sustainability of Gulu Water Supply and Sanitation Project Phase I

Challenge	Mean	Std. Dev
Complexity of the Project	4.47	0.69
Limited participation	4.45	0.80
Limited finance	4.24	0.85
Inadequate capacity building during the extension of the project	4.10	0.87
Inadequate communication	4.04	0.98
Extending the project without our information as beneficiaries	3.94	0.88
Inadequate corporation among members	3.84	0.81
Failure to have a clear plan for ensuring sustainability	3.75	0.81
Inadequate accountability	3.74	0.74
Inadequate commitment from fellow members	3.72	0.81
Lack of coordination amongst community members	3.72	0.84
Unclear leadership following the withdrawal of implementers	3.62	0.81
Overall Mean & Standard Dev	**3.97**	**0.82**

Source: Primary Data

From table 4.3, results obtained in relation to the challenges associated with ensuring sustainability of the Gulu Water Supply and Sanitation Project Phase I project were summarized. Overall, mean=3.97 and SD=0.82 were obtained in relation to the challenges of project sustainability. The mean result obtained meant that most of the respondents actually agreed with the challenges that were highlighted. Moreover, the SD also meant that there was a low degree of variance amongst responses which constituted the mean, from those that did not. Hence, it implied that responses obtained were reliable and therefore, they depicted a true replica of reality of the actual challenges that were compromising sustainability of the studied project.

From the results, it was obtained that respondents majorly agreed with five challenges, namely; complexity of the project (mean=4.47, SD=0.69), limited participation (mean=4.45, SD=0.8), limited finance (mean=4.24, SD=0.85), inadequate capacity building during project extension

(mean=4.1, SD=0.87), and inadequate communication (mean=4.04, SD=0.98). The results meant that these were the most significant or strongest challenges which impended sustainability of the Gulu Water Supply and Sanitation Project Phase I project. In this case, it implied these challenges were seriously devasting sustainability of Gulu Water Supply and Sanitation Project Phase I project.

Results further obtained that majority of respondents agreed that extending project without information of beneficiaries (mean=3.98, SD=0.88), and inadequate incorporation among members (mean=3.84, SD=0.81) are challenges associated with sustainability of Gulu Water Supply and Sanitation Project Phase I project. The extent to which respondents agreed with these challenges was moderate though. In this case, it implied that the extent to which these challenges are affecting sustainability of Gulu Water Supply and Sanitation Project Phase I project was modest.

From table 4.3, it is revealed that respondents mildly agreed with challenges such as, failure to have a clear plan for ensuring sustainability (mean=3.75, SD=0.81), inadequate accountability (mean=3.74, SD=0.74), inadequate commitment among community members (mean=3.72, SD=.81), and coordination amongst community members (mean=3.72, SD=.84). In this case, it implied that these challenges were not instrumental in compromising sustainability of Gulu Water Supply and Sanitation Project Phase I project much as they prevailed.

4.3.3 Strategies for enhancing Sustainability of Gulu Water Supply and Sanitation Project Phase I

The study investigated strategies for enhancing project sustainability of the Gulu Water Supply and Sanitation Project Phase I project. This study presented specific strategies on a 5-Point Likert scale for respondents to share their responses on a scale of 1 to 5. Under this scale, 1 meant strongly disagree, 2-disagree, 3-not sure, 4-agree and 5-strongly agree. The results obtained were summarized using mean and standard deviation. The results obtained under this objective are presented in table 4.4.

Table 4.5: Strategies for enhancing Sustainability of Gulu Water Supply and Sanitation Project Phase I

Strategies	Mean	Std. Dev
Enhancing two-way communication	4.40	0.75
Building capacity of community members	4.29	0.68
Community awareness campaigns are conducted	4.25	0.83
Encouraging involvement of community members	4.25	0.79
There is corporation among community members	4.03	0.96
Sensitization is improved	3.90	0.79
Financial mobilization is intensified	3.88	0.83
There is a clear distribution of roles and responsibilities	3.68	0.69
Conducting needs assessment	3.64	0.84
Consulting before undertaking any action	3.60	0.85
There is proper accountability	3.45	0.95
Average Mean and Standard Dev	**3.94**	**0.81**

Source: Primary Data

Overall, responses obtained in relation to strategies for enhancing sustainability of Gulu Water Supply and Sanitation Project Phase I project revealed mean=3.94, and SD=0.81. From a mean perspective, majority of the respondents agreed with the proposed strategies. The mean response was also subject to a low degree of variability among responses which expressed otherwise (SD=0.81<1). In this case, the results implied that the responses provided were consistent and

reliable in that they reflected the mechanisms that would be undertaken to enhance sustainability of the Gulu Water Supply and Sanitation Project Phase I project.

Specifically, the table indicates that respondents' strongest agreed strategies were; enhancing two-way communication (mean=4.4, SD=.75), building capacity of community members (mean=4.29, SD=.68), community awareness campaigns (mean=4.25, SD=.83), encouraging involvement (mean=4.25, SD=.79), and corporation among community members (mean=4.03, SD=.96). Each of these strategies also attracted low degree of variation among responses of those respondents who expressed otherwise. From these results, it meant that these strategies were considered as the most effective ways through which sustainability of Gulu Water Supply and Sanitation Project Phase I project would be attained. Hence, the results implied that the most tangible improvement in sustainability of the Gulu Water Supply and Sanitation Project Phase I project would inevitably require enhancing two-way communication, building capacity, community awareness, encouraging involvement, and corporation among community members.

From table 4.4, it is revealed that strategies including sensitization (mean=3.9, SD=.79) and intensifying financial mobilization (mean=3.88, SD=.83) were generally moderately agreed. The results meant the implementation of these strategies would result in modest improvement in sustainability of Gulu Water Supply and Sanitation Project Phase I project. Hence, the results implied that much as these strategies would enhance sustainability of the Gulu Water Supply and Sanitation Project Phase I project, their contribution would be average.

Results presented in table 4.4 indicate majority of respondents mildly agreed with strategies such as; a clear distribution of roles and responsibilities (mean=3.68, SD=0.69), conducting needs assessment (mean=3.64, SD=.84), and consulting before undertaking any action (mean=3.6,

SD=.85). The results implied that the implementation of these strategies would result into a minor improvement in sustainability of Gulu Water Supply and Sanitation Project Phase I project.

CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter provides the discussion of findings, conclusion, and recommendations based on research objectives which include: assess the level of sustainability of Gulu Water and Sanitation Improvement Phase 1 in Gulu District; analyse the challenges facing sustainability of Gulu Water and Sanitation Improvement Phase 1 in Gulu District; and determine strategies/remedies to improve sustainability of Gulu Water and Sanitation Improvement Phase 1 in Gulu District. This chapter also goes ahead to identify the methodological limitations of the study and proposed areas for further inquiry.

5.1 Discussion of Findings

5.1.1 Level of Sustainability

Findings established low level of sustainability of the Gulu Water Supply and Sanitation Project Phase I project. From these findings, it meant that most of the best practices through which sustainability of a project manifests were almost nonexistent. In other words, much as community members are supposed to undertake specific initiatives to ensure that the project remains visible, this is not the case. This has a devastating implication on the survivability of the deliverables that were extended under the Gulu Water Supply and Sanitation Project Phase I. In congruence, previous scholars acknowledge that failure of community members to possess the necessary capacities makes the entire project unsustainable. Community members are not only the beneficiaries, but also the in-charge for running the project in a manner which is sustainable (Agarwal & Kalmár, 2015; Kativhu et al., 2017).

Therefore, from these findings, it could be argued that much as Gulu Water Supply and Sanitation Project Phase I project was extended, it did not undertake comprehensive steps in preparing community members to be able to carry on with the project following its official closure. In the event that initiatives were undertaken, these findings inform policy makers and managers that the community members continue to experience discrepancies, which must be addressed to increase on the possibility of ensuring project sustainability.

In particular, the findings found out that project affected persons did not have the financial capacity, technical capacity, and operational capacity to run Gulu Water Supply and Sanitation Project Phase I. In particular, most of beneficiaries did not feel the drive to contribute funds required to maintain project facilities, mobilize adequate funds amongst themselves, as well as ensure consistent availability of funds required to sustain the project. However, this research is of the view that finance is an important ingredient which facilitates proper functioning of any project. Without finance, it would be practically impossible for project affected persons to conduct maintenance work, such as replacing spoilt equipment, working on faults, and cleaning around the facilities to avoid contamination. Likewise, project management literature indicates that financial capacity is the ultimate determinant for sustaining any project (Bayai & Ikhide, 2018; Kasolo, 2017; Said et al., 2019). The major basis of this remark is the fact that facilities extended by a project require maintenance and repair, which cannot be executed unless community members have adequate resources to purchase tools and equipment.

Accordingly, this study contributes to literature demonstrating that lack of financial capacity is bound to pose a significant threat to projects in Uganda, especially guaranteeing operational sustainability of the project as well. It clearly indicates that financial resources are prime in

conducting any form of maintenance and repair works on project facilities, which elevates operational sustainability of the project. This argument is also envisaged in earlier remarks by Hodgkin (2014) and House (2017) who emphasized that financial resources is the most important ingredient which guarantees functionality of projects. The current research is crucial because it provides empirical evidence which is fully streamlined to Uganda's context, and most importantly; provides recent empirical evidence to affirm that financial sustainability remains vital to date.

This study further finds that community members are portraying low tendencies of technical capacity to sustain Gulu Water Supply and Sanitation Project Phase I. This implies that most community members do not have adequate technical knowledge, skills and abilities which are crucial in conducting maintenance and repair works. However, it is important to note that there is no single project which cannot function indefinitely without necessitating maintenance and repair works. This is in line with Zhang et al., (2022) who emphasized that community members need to be equipped with technical skills and abilities to have the capacity to maintain physical facilities with ease. In this case, the current research teaches policy makers and managers that improving communities' technical understanding of the project is inevitable in stimulating sustainability of projects, more so; Gulu Water Supply and Sanitation Project Phase I.

The findings also established that the overall operational capacity of community members is low. By these findings, it meant that some of the facilities that were extended are nonfunctional. This according to this research is not surprising because community's ability to operate or function facilities is ascribed to the possessed technical skills and knowledge which guide proper usage, but also the financial capacity to facilitate any maintenance demands that are reported timely.

Low operational capacity exhibited by community members contradicts with Moradibistouni et al., (2019) and Stanitsas and Kirytopoulos (2021) who revealed that the onus to maintain facilities extended under any project lies with beneficiaries.

According to this research, the failure to ensure operational sustainability of the project is ascribed the low financial and technical capacity of community members. Without finance, community members cannot be able to execute maintenance works which require finance. A lack of technical capacity on the other hand puts beneficiaries in a state where they cannot address technical issues to keep the facilities functional. Accordingly, this research is of the view that addressing operational issues associated with a given project would require an indirect approach which requires ensuring that community members are financially and technically empowered to run the project.

On a positive remark, the findings established that community members are taking the initiative to ensure physically sustainability of the Gulu Water Supply and Sanitation Project Phase I. The implication is that the project facilities are hardily reporting damages, and some facilities are functioning properly. According to this study, this could insinuate that the facilities that were extended under Gulu Water Supply and Sanitation Project Phase I are high quality. In addition, physical sustainability could indicate that community members are consistently learning through experience to take care of facilities properly. In congruence, Agyekum-Mensah et al., (2012) and Mahonge (2013) emphasize that communities must be able to physically sustain the project. Moreover, they should be able to maintain the standard, quality and quantity of all physical facilities without finding any difficulty (Abou-Warda, 2014; Ojwang & Bwisa, 2014). According to this research, this can be achieved through continuous interacting with facilities extended under the Gulu Water Supply and Sanitation Project Phase I.

5.1.2 Challenges of Sustainability

This study found out that there are numerous challenges compromising sustainability of the Gulu Water Supply and Sanitation Project Phase I project. The findings obtained that inadequate finance is one of the major challenges beneficiaries encountered. This meant that the community beneficiaries do not have the appropriate financial muscle to maintain and sustain deliverables extended under the Gulu Water Supply and Sanitation Project Phase I project. According to this research, this could further depict that Gulu Water Supply and Sanitation Project Phase I project is highly costly to maintain which further reveals how capital intensive it is. The findings are consistent with numerous studies, such as that of Abdel-Raheem & Ramsbottom (2016); and Li et al., (2019) who revealed that the major challenge associated with sustaining any project is lack of finance. However, these conclusions were drawn from studies conducted elsewhere, and not in Uganda. The current research is therefore pivotal because it clearly demonstrates that financial difficulties remain a core challenge among projects, including those extended in Uganda. Henceforth, this study informs policy makers and managers that addressing financial resources scarcity could necessitate a partnering between project implementers and community members where maintenance works activities which require large resources can be directly addressed by implementers.

On the other hand, the findings revealed that inadequate capacity building is one of the factors which are significantly affecting sustainability of the Gulu Water Supply and Sanitation Project Phase I project. In other words, it demonstrates that community members are still facing a discrepancy in knowledge, skills and abilities required to run the project appropriately. According to this research, inadequate capacity building is bound to affect confidence and raise

skepticism of community members regarding the project which affects their overall willingness to participate in its sustainability. The findings are consistent with Warinda et al., (2020) who observed that failure to provide necessary capacity building is affecting the sustainability of projects. In this case, the study send a signal to policy makers and managers to always undertake numerous capacity building initiatives during implementation.

Moreover, the study finds that limited participation is greatly affecting sustainability of projects, specifically Gulu Water Supply and Sanitation Project Phase I project. This according to this study, limited participation compromises collectivism and ability of community members to pull resources, knowledge and ideas. Moreover, it affects community's ability to builds a sense of responsibility and accountability which would increase their willingness to carry on with the project deliverables. The findings are consistent with Silvius et al., (2012) who demonstrate that limited participation affects morale of community members. In this case, this research is of the view that policy makers and managers need to establish the reasons why community members are not participating in projects much as they are addressing critical issues established within their areas.

Likewise, findings noted that limited communication is greatly affecting sustainability of projects. In congruence, this research notes that limited communication compromises sharing of information and ideas which would be capitalized on to stimulate sustainability of projects. Furthermore, it was indicated that complexity of the project is a major challenge which continues to compromise sustainability of projects, especially Gulu Water Supply and Sanitation Project Phase I project. Similarly, Abdel-Raheem & Ramsbottom (2016); and Gachie, (2019) expressed that there is no clear communication between project implementers and local users in most

projects. The current research indicates that this is bound to create a strong boundary between community members and implementers, much as they require each other to design appropriate sustainability mechanisms. Hence, this study send a signal to policy makers and managers that working collectively is necessary. Moreover, it indicates that working collectively requires improving communication between community members and implementers of the project.

The findings further revealed that challenges including extension of project without information of beneficiaries, and inadequate incorporation among members are affecting sustainability of projects moderately. In other words, much as these issues are compromising sustainability of Gulu Water Supply and Sanitation Project Phase I project, their effect is not as strong. This could imply that much as projects are endeavoring to make community beneficiaries informed, they are not realizing adequate information. This has created a knowledge gap which goes ahead to compromise project sustainability. On the other hand, this research is of the view that incorporate community members poses a threat because it gradually compromises the commitment, responsibility and level of accountability which would motivate members to become determined to contribute towards the sustainability of the project. These findings are consistent with Ojwang and Bwisa (2014) who noted that lack of involvement and corporation compromises aggressiveness and commitment of community members to provide financial and nonfinancial support to the project. Therefore, as policy makers and managers, the study teaches us that it is inevitable to design a model which attracts community members to corporate and get involved in the affairs of the project.

On the other hand, this study found out that failure to have a clear plan for ensuring sustainability, inadequate accountability, inadequate commitment among community members,

and coordination amongst community members is compromising sustainability of projects, more so the Gulu Water Supply and Sanitation Project Phase I project. Although, findings further revealed that the challenges highlighted are causing a mild implication towards sustainability of this project. In this case, it meant that much as the aforementioned are posing a challenge on sustainability of Gulu Water Supply and Sanitation Project Phase I project, their effect remains mild. This implies that much as these challenges manifest; they may not require immediate attention because they hardily result in a tangible devastating scenario. Although, Aghaegbuna et al., (2020) indicate that accountability and lack of coordination are challenges which do not necessarily incline to community members. Although the current research suggests otherwise by explaining that failure of community members to coordinate affects synergy which would encourage them to support the project. Moreover, manifestation of accountability issues affects morale of community members to contribute financial resources for the project for fear that they will be mismanaged.

5.1.3 Strategies for enhancing project sustainability

The study established that there are numerous strategies whose implementation would improve sustainability of projects, more so; the Gulu Water Supply and Sanitation Project Phase I project. According to findings, one of the most prominent strategy is enhancing two-way communication between community beneficiaries and project implementers. With the same view, this research indicates that communication serves as the glue which binds the project and various stakeholders, including the community members who are in most cases the project affected persons. With the advancement of two-way communication, an exchange of ideas, information and knowledge would be promoted to create an environment where all parties learn from one another. Moreover, two-way communication would build confidence and trust more so among

community members which would play a commendable role in changing the mindset of stakeholders. Instead of community members perceiving themselves as recipients, they would consider themselves as contributors and key players in ensuring sustainability of the project.

Likewise, Warinda et al., (2020) reveal that communication serves as the glue that binds all stakeholders together and one which guarantees that all important information is shared and applied. Moreover, Stanitsas and Kirytopoulos (2021) demonstrate that ensuring two-way communication makes locals highly absorbed in the project and accountable, something which increases their willingness to support. On that note, the findings inform policy makers and managers of projects to always promote a two-way communication because its manifestation will eminently increase sustainability of projects. Furthermore, findings established that building capacity of community members results in significant improvement in sustainability of projects.

According to this research, this can be explained by the fact that building capacity is associated with dissemination of important knowledge, skills and abilities to community members to be in position to deal with all project issues which unveil. This is bound to increase sustainability of projects because it makes community members feel confident and possessed with the necessary information to sustain the project. Accordingly, the study provides a justification why projects must invest in capacity building during project implementation. In addition, this research obtained that community awareness campaigns play a fundamental role in improving sustainability of projects. In the same context, Aghaegbuna et al., (2020) revealed that capacity building is inevitable because it builds confidence and self-efficacy among local users regarding their capacity to run the project without any form of support. Hence, it is right to state that

community members are interested in being empowered in such a way that they fully understand the project.

The study also finds that conducting community awareness campaigns is inevitable. To supplement, this research attests that sensitization would enable projects to disseminate important information related to the project to provide a platform upon which community members can analytically and critically think about the most appropriate strategies. In the same manner, Said et al., (2019) emphasized that whenever awareness is created among community members, it creates a spirit of confidence, aggressiveness and determination to sustain the project. This emanates from the fact that community members perceive themselves that they are valued, and that project implementers are notifying them about the dynamics of the project to ably contribute towards bringing a positive change.

The study also evidenced that encouraging involvement and corporation will significantly improve sustainability. This research justified these strategies on the premise that its promotion would build synergy and promote the desire to work as a team. Accordingly, it would encourage community members to develop the desire and willingness to provide financial and nonfinancial support to the project to guarantee financial, operational, and technical sustainability. This contends with Zhang, et al., (2022) who recognizes the fact that sustaining any project necessitates a collective effort.

From the study, it was noticed that sensitization of community members, and intensifying financial mobilization would also improve project sustainability. Important to note though, the findings revealed that these strategies would only translate in moderate improvement in sustainability of projects. In the same context, this study is of the view that when community

members are sensitized, they become highly exposed about the project. This initiative is inevitable because it would guide community members the establishment of appropriate strategies that would translate in a sustainable project. The findings are in line with Aarseth (2017) and Kativhu et al (2017) who emphasized that sensitization of local users is an important ingredient for addressing knowledge gap and information asymmetry which continue to compromise sustainability of projects. This research though provides recent evidence about the same and provides a basis upon which it is right to argue that sensitization of community members remains a relevant strategy for improving sustainability of projects.

Intensification of financial mobilization is also emphasized by this research because it would enable community members to pull resource together to have an aggregate amount that is sufficient enough to financially sustain the project. In addition, communities which mobilize financial resources are more likely collectively account and minimize mismanagement. As a consequence, the project is hardily bound to face difficulties in carrying out efficient repairs and maintenance works, which also contributes to physical sustainability of the project. Similarly, Stanitsas and Kirytopoulos (2021) revealed that being able to raise adequate financial resources which can maintain a given project requires a collective effort. As such, it is clear that policy makers and managers need to establish the best practices for promoting synergy and social networking within communities where projects are extended.

On the other hand, this study revealed that strategies such as; providing a clear distribution of roles and responsibilities, conducting needs assessment, and consulting before undertaking any action would only result in mild improvement in sustainability of the project. What is surprising about these findings is the recognition of needs assessment as a strategy that would only pose

mild improvement towards project sustainability. According to this research, this exercise would allow project implementers to clearly understand the actual interests and preferences of community members before any project is extended. Because of this, it would be expected that conducting needs assessment would guide project implementers to extend projects which are perceived legitimate by community members and hence worthy supporting.

5.2 Conclusion

Overall, Gulu Water Supply and Sanitation Project Phase I project is not sustainable. The communities do not have adequate financial, and technical capacity to maintain and sustain the project with or without any support. Community members do not have the necessary financial resources to conduct any repairs and maintenance works to ensure the deliverables remain functional. Their technical skills, knowledge and abilities required to carry out any form of repairs and maintenance works to facilities extended under the Gulu Water Supply and Sanitation Project Phase I project is low. It is also ascertained that some of the facilities that used to function properly are no longer operational after. They community members neither have the financial resources, nor technical capacity to revive their status. The study establishes that sustaining Gulu Water Supply and Sanitation Project Phase I project is difficult because of a couple of reasons. Although the most significant challenges include; limited participation, limited finance, limited capacity building; inadequate communication, and general complexity of the project. Moreover, it is noticed that several avenues or strategies can be undertaken to enhance sustainability of the Gulu Water Supply and Sanitation Project Phase I project. The major suggestions include; promoting two-way communication, building capacity, promoting community awareness campaigns, involvement, and corporation of community members.

5.3 Recommendations

Gulu Water Supply and Sanitation Project Phase I project should promotion of two-way communication to enhance sustainability of the project. Implementers should adopt a communication system which promotes free flow of information within, but also with community members to understand their actual concerns upon which further adjustments can be based. In this case, they should promote meetings, introduce toll free communication lines, institute suggestion boxes, and share important contacts for top officials which community members can directly call and raise their queries.

Gulu Water Supply and Sanitation Project Phase I project should reconsider conducting capacity building to community members to advance their skills, knowledge, and abilities. The project should therefore intensify grassroot trainings and workshops, and assign community members with challenging tasks to facilitate a more practical learning approach.

Gulu Water Supply and Sanitation Project Phase I project should invest community awareness campaigns. They should increase on the number of project advertises on local and national mass media, and employ foot soldiers who can directly explain to communities the key objectives of the project. This will minimize the prevailing information-gap and change the mindset of community members towards the project.

Gulu Water Supply and Sanitation Project Phase I project should increase the involvement of community members. They should involve them in designing of further project extensions, planning, implementation, and monitoring of outcomes to increase a sense of accountability and commitment amongst community members.

Gulu Water Supply and Sanitation Project Phase I project should promote corporation among community members. This should involve allocating different tasks and responsibilities to communities within teams, encouraging socialization, and ensuring dialogue whenever disagreements arise.

The people of Gulu should embrace Government programs like PDM, EMYOGA to improve on their household income.

5.4 Limitations of the Study

The research evaluates sustainability focusing on only one project, that is; Gulu Water Supply and Sanitation Project Phase I project. In this case, the findings may not be good enough to inform the status quo of sustainability of different Water, Sanitation and Hygiene (WASH) projects.

The study obtained data using a questionnaire instrument which was structured. In this case, it restricted respondents from raising any other issues in terms of challenges and strategies other than those that were predetermined.

5.5 Areas for further study

i.) Examining the management system for project sustainability among various WASH projects in other parts of Uganda.

ii.) Examining drivers of and barriers to successful adoption and implementation of sustainable WASH projects in Uganda.

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Appendix I: Questionnaire

Dear Respondent,

I am Lukone John Fredrick, a student of Makerere University pursuing a Master's Degree in Business Administration (Project Management). I am conducting a study on a topic ***"Sustainability of Water, Sanitation and Hygiene Development Projects in Gulu District".*** I kindly and humbly request you to spare a little of your valuable time and fill this questionnaire. The purpose of this study is entirely for academic purposes, therefore all the information given will be treated with highest level of confidentiality.
I thank you very much in advance for the cooperation offered.

SECTION A: BACKGROUND INFORMATION (Please tick appropriately):

1. **Gender:**

Male	Female

2. **Age**

Less than 25 years	25-30yrs	31-34yrs	35-40 yrs	41-44yrs	45yrs above

3. **Education Status**

Primary	Secondary	Diploma	Degree	Others

4. **Monthly income (UGX)**

Less than 50,000	50,001-100,000	100,001-150,000	150,001-200000	200,001-250,000	250,001-300,000	300,001 above

5. **No of members in household**

Less than 5	5-10 members	11-15 members	16 members above

6. **Do you know the duration of the Gulu Water Supply and Sanitation Phase 1 Project?**

Do not know	I know (Specify)

7. **Do you know the total cost of the Gulu Water Supply and Sanitation Phase 1 Project?**

Yes	No

8. **How frequently are you informed about Gulu Water Supply and Sanitation Phase 1 Project**

Never informed	Weekly	Monthly	Quarterly

Section B: Level of Project Sustainability

Kindly tick one option for the statements presented below. SCALE: 1- strongly disagree, 2-disagree, 3-not sure, 4-agree, and 5-strongly agree

Code	LEVEL OF PROJECT SUSTAINABILITY	SD	D	NS	A	SA

	Financial sustainability					
FS1	I am willing to contribute funds to maintain facilities under the Gulu Water Supply and Sanitation Phase 1 Project.	1	2	3	4	5
FS2	I am able pay whichever funds I am asked for maintaining facilities of Gulu Water Supply and Sanitation Phase 1 Project.	1	2	3	4	5
FS3	I am mandated to raise funds intended to maintain facilities under the Gulu Water Supply and Sanitation Phase 1 Project.	1	2	3	4	5
FS4	Our community mobilizes adequate funds to maintain facilities under the Gulu Water Supply and Sanitation Phase 1 Project.	1	2	3	4	5
FS5	I have a clear strategy of how I can raise funds for the Gulu Water Supply and Sanitation Phase 1 Project.	1	2	3	4	5
FS6	The funds needed to maintain facilities under the Gulu Water Supply and Sanitation Phase 1 Project are always available.	1	2	3	4	5
	Technical sustainability					
TS1	I am able to handle routine maintenance works on facilities extended under the Gulu Water Supply and Sanitation Phase 1 Project.	1	2	3	4	5
TS2	I was availed with technical training during the Gulu Water Supply and Sanitation Phase 1 Project extension.	1	2	3	4	5
TS3	The technologies required to maintain facilities of the Gulu Water Supply and Sanitation Phase 1 Project are easy to use.	1	2	3	4	5
TS4	It is easy to access equipment required to maintain facilities under the Gulu Water Supply and Sanitation Phase 1 Project	1	2	3	4	5
TS5	The equipment required to maintain facilities under the Gulu Water Supply and Sanitation Phase 1 Project is affordable.	1	2	3	4	5
	Operational sustainability					
OS1	I am able to use the facilities extended under the Gulu Water Supply and Sanitation Phase 1 Project.	1	2	3	4	5
OS2	Most of the facilities which were extended under the Gulu Water Supply and Sanitation Phase 1 Project are functional.	1	2	3	4	5
OS3	I am involved to deliberate on a couple of issues related to the Gulu Water Supply and Sanitation Phase 1 Project.	1	2	3	4	5
OS4	I am encouraged to participate in the monitoring and evaluation of Gulu Water Supply and Sanitation Phase 1 Project.	1	2	3	4	5
OS5	I find it easy to use most of the facilities that were extended under the Gulu Water Supply and Sanitation Phase 1 Project.	1	2	3	4	5
	Physical sustainability					
PS1	I leave facilities extended under the Gulu Water Supply and Sanitation Phase 1 Project in the status I find them.	1	2	3	4	5
PS2	I hardily damage facilities extended under the Gulu Water Supply and Sanitation Phase 1 Project.	1	2	3	4	5
PS3	It is easy to find facilities which were extended under the Gulu Water Supply and Sanitation Phase 1 Project.	1	2	3	4	5

PS4	It is easy to replicate some of the facilities extended under the Gulu Water Supply and Sanitation Phase 1 Project elsewhere.	1	2	3	4	5

SECTION C; Challenges facing project sustainability

Kindly tick one option for the statements presented below. SCALE: 1- strongly disagree, 2-disagree, 3-not sure, 4-agree, and 5-strongly agree

Code	CHALLENGES FACING PROJECT SUSTAINABILITY	SD	D	NS	A	SA
	It is challenging to sustain Gulu Water Supply and Sanitation Phase 1 Project because of;					
CS1	Complexity of the Gulu Water Supply and Sanitation Phase 1 Project	1	2	3	4	5
CS2	Extending the project without our information as beneficiaries	1	2	3	4	5
CS3	Lack of coordination amongst community members	1	2	3	4	5
CS4	Inadequate capacity building during the extension of the project	1	2	3	4	5
CS5	Inadequate communication	1	2	3	4	5
CS6	Inadequate commitment from fellow members	1	2	3	4	5
CS7	Inadequate corporation among members	1	2	3	4	5
CS8	Limited finance	1	2	3	4	5
CS9	Limited participation	1	2	3	4	5
CS10	Unclear leadership following the withdrawal of implementers	1	2	3	4	5
CS11	Inadequate accountability	1	2	3	4	5
CS 11	Failure to have a clear plan for ensuring sustainability	1	2	3	4	5

SECTION D; Strategies for enhancing project sustainability

Kindly tick one option for the statements presented below. SCALE: 1- strongly disagree, 2-disagree, 3-not sure, 4-agree, and 5-strongly agree

Code	STRATEGIES FOR ENHANCING PROJECT SUSTAINABILITY	SD	D	NS	A	SA
	Enhancing sustainability of Gulu Water Supply and Sanitation Phase 1 Project can be achieved if;					
SIS 1	Conducting needs assessment	1	2	3	4	5
SIS 2	Enhancing two-way communication	1	2	3	4	5
SIS 3	Building capacity of community members	1	2	3	4	5
SIS 4	Sensitization is improved	1	2	3	4	5
SIS 5	Consulting before undertaking any action	1	2	3	4	5
SIS 6	Encouraging involvement of community members	1	2	3	4	5
SIS 7	Community awareness campaigns are conducted	1	2	3	4	5
SIS 8	There is a clear distribution of roles and responsibilities	1	2	3	4	5
SIS 9	There is proper accountability	1	2	3	4	5
SIS 10	There is corporation among community members	1	2	3	4	5
SIS 11	Financial mobilization is intensified	1	2	3	4	5