

## Community Participation and Sustainability of Community Based Water Projects in Mbarara City North Division

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**ABSTRACT :** The study was about the influence of community participation on sustainability of community based water projects in Mbarara City North Division in Mbarara City. The study was aimed at assessing the different ways of community involvement in community based water projects in Mbarara City North Division, examining the level of sustainability of community based water projects in Mbarara City North Division and determining the extent to which community participation influences sustainability of community based water projects in Mbarara City North Division in Mbarara City.

The study used a descriptive survey design for qualitative data and cross-sectional research design for quantitative data. The study employed simple random and purposive sampling techniques. The study used a sample size of 70 of the total of 73 populations. Data was collected from primary and secondary data sources. Questionnaire, interview guide and documentary review guide were used as data collection instruments. Analysis was done quantitatively whereby descriptive statistics and inferential statistics were determined using SPSS. Thematic content analysis was used for qualitative analysis. From the findings, correlation coefficients show that Community participation in implementation stage of the community based water projects has influence on Sustainability of Community Based Water Projects.

Based Water Projects because the P value was .000 or  $P < 0.05$  which means Community participation in implementation stage of the community based water project has significant influence on Sustainability of Community Based Water Projects. Furthermore, correlation coefficient shows that Community participation in maintenance stage of the community based water project on Sustainability of Community Based Water Projects has no influence on sustainability of Community Based Water Projects because the P value was .006 or  $P > 0.05$  which means that Community participation in maintenance stage of the community based water project has no significant influence on Sustainability of Community Based Water Projects. Also correlation coefficient shows that Community participation in evaluation stage of the community based water projects has influence on Sustainability of Community Based Water Projects because the P value was .002 or  $P < 0.05$ , which means that Community participation in evaluation stage of the community based water projects, has a significant influence on Sustainability of Community Based Water Projects. The study concludes that, since community participation in planning stage of the community water project has a significant influence on Sustainability of Community Based Water Projects. It implies that the water committees, donors and the government officials in the ministry of water hold prior consultations with the community members before the water projects are deliberated, more so community members are involved in decision making when designing the project structure, location of water standpoints, determining the source of water among other key issues. The study recommended that the community water projects should hold capacity building sessions for the members and the committee members so as to equip them with appropriate knowledge concerning the designing and development of community water projects. This will enable the members to make suitable contributions to the project design.

**Keywords** - Community Participation, Community Based Water Projects, Mbarara City North Division, Uganda

### I. INTRODUCTION

#### Historical background

Globally, 36% of the world's population 2.5 billion people lack improved sanitation facilities, and 768 million people still use unsafe drinking water sources. Inadequate access to safe water and sanitation services, coupled with poor hygiene practices, kills and sickens thousands of children every day, and leads to impoverishment and diminished opportunities for thousands more. Poor sanitation, water and hygiene have many other serious repercussions. Children and particularly girls are denied their right to education because their schools lack private and decent sanitation facilities. Women are forced to spend large parts of their day fetching water. Poor farmers and wage earners are less productive due to illness, health systems are

overwhelmed and national economies suffer. Without water, sanitation and hygiene, sustainable development is impossible (WHO, 2017). In many African countries, community participation is viewed by both governments and development partners as an invaluable ingredient in ensuring effective and sustainable management of water projects. In South Africa, for instance, the Tonga water resources management project had strong community health education component that resulted in ensuring proper sanitation around community-based water sources (Yilma&Donkor, 1997). In Kalomo (Zambia), the local community was to protect a water catchment area by building a fence around borehole and ensuring regular cleaning of the water point (Kauzeni&Madulu, 2001; Bell, 2001). The cited examples demonstrate the importance of community participation in effective management of community-based water projects.

In Uganda, UNICEF statistics of (2018) reveals that 41% of nearly 4 million Ugandans do not have access to clean water. This implies that Millions of Ugandans are currently underserved and too many citizens continue to drink unsafe water, or are forced to use minimal quantities of water as distance, waiting times, and cost make water inaccessible. This situation has made the United Nations to term Uganda as a chronically water-scarce country, and currently ranks 21<sup>st</sup> for the worst levels of access to potable water in the world. It has been observed that the rural areas perform consistently worse than urban areas in accessing clean water. In urban and peri-urban areas, where 22% of the national population lives, only 49% to 56% have easy access to safe water as compared to rural areas where about 38% to 42% have easy access to safe water (World Bank 2019).

Furthermore, community participation in community-based water and sanitation initiatives has existed since the early 1990s in Uganda (UNICEF, 1996). This followed previous government-controlled/directed water resource management systems that failed to yield desirable results. Because beneficiaries of government-controlled water programs and projects were initially excluded from all the management processes such as planning, implementation and monitoring, numerous government-controlled water facilities ceased functioning due to theft, misuse, vandalism and lack of care (UNICEF, 1996). It is against this background that Uganda government realized the importance of involving beneficiaries or communities in managing community based water systems and adopted the community participation approach. Today, including a component of community participation is a must condition for accessing government funds needed in setting up community based water projects to address community based water needs and problems. In Mbarara City, despite statements and policies promising quality service from water service institutions, the level of service to citizens is still wanting. Many households especially the poor population experience water scarcity even when they are within areas that are well covered through main connections and water kiosks (World Bank 2019).

More still, the proponents of community participation argue that the approach helps the communities to assess their own problems, prioritize the problems and suggest possible interventions to solve these problems (Cornwall, 2003; Argawal& Gibson, 2001). According to Mansuri and Rao (2003), community participation leads to the development of projects that are more responsive to the needs of beneficiaries, better delivery of public services, better maintained community based resources, and more informed and involved citizenry. Bell (2001) argues that community participation in management of community based resources demonstrates the importance of local communities consent in public decision making processes, especially on issues that directly affect their welfare. He further argues that community participation builds trust. The lack of it might lead to protests and antagonism between resource users and stakeholders due to varying interest. Thus, community participation is presumed to be an important factor in management of resources including water resources and water resource issues such as operation and maintenance of water supply systems. The present study therefore attempts to find out from the community water project members if their participation in the water projects lead to sustainability of the water projects in the Division.

### **Theoretical Background**

The study was based on the stakeholders' theory developed by Muchiri (2014). This theory suggests that all persons or groups have full legitimate power and interests to participate in an enterprise or project. This theory insists on the implication of the link between the top management of a project with community which must fully be encouraged in identifying water project and plan the projects by themselves for implementation. This implies that water project managers should appreciate that the success of water projects can be prejudiced to the highest degree participation of all stakeholders hence its applicability in this study so as to examine how stakeholders involvement enhance sustainability of community based water projects in an urban environment.

### **Conceptual Background**

Community participation is used to mean the situation where community plays an active role in its own affairs by sharing and exercising political and economic power. The term community participation is sometimes used interchangeably with community management to refer to community involvement in development projects

(McCommon et al, 1990). In this study, community participation was used to mean a process by which individuals, families or communities assume responsibility for local problems and develop a capacity to contribute to their own community development and were conceptualized as planning, implementation, maintenance and evaluation.

According to Richard (1999), sustainability is the continued delivery of a particular service. Richard further emphasized on the need to involve all stakeholders in consumption and cost recovery strategies to ensure delivery of high quality services and sustainable development projects. Abraham (1998) on the other hand, views sustainability of water projects as a continued flow of water at the same rate and quality, as when the supply system was designed. To him if water flows, then all elements of sustainability would be in place. Kimberly (1998) maintains that sustainability in water projects means, ensuring water supply services and interventions continue to operate satisfactorily and they generate benefits over time as expected. He further pointed out that, sustainability is all about ability to operate and maintain initial project service standards. Sustainability in this study refers to the ability of project beneficiaries to maintain and sustain project activities, services and any measure initiated by a project so as to last long after the expiring of the funding period and was conceptualized as technical sustainability and financial sustainability. Therefore in water projects, one cannot talk of sustainability without mentioning operation and maintenance issues.

### **Contextual Background**

This study was carried out in Mbarara City North Division where sustainability of community based water projects has been presented as a challenge to city stakeholders by the earlier researchers (Babiita, 2007 & Nyirabimana, 2004) who felt that further studies could be done on the concepts of community participation as an influencer of suitability of community based water projects. Furthermore, out of 39 Community Based water projects, only 16 projects are performing to their full capacity (WATSAN Project, 2017). Furthermore, there are several reported cases of vandalism of equipments, mismanagement of the project equipments and lack of funds to sustain the project. It was upon this background that a study was undertaken in Mbarara City North Division to examine the effect of community participation on sustainability of community based water projects.

## **II. PROBLEM STATEMENT**

Under normal circumstances, people are supposed to have access to clean and safe drinking water for both domestic and commercial but this is not the case. Furthermore, although the water Act (2002) institutionalize community based approaches, and more importantly in the water sector, this is basically a new paradigm in Ugandan development perspectives considering that since independence communities have not been encouraged to do much in terms of their development; they have been made to wait for the government to deliver for them. Therefore, there isn't much study to illustrate the effects of participation to community development (Ssekomi, 2020) in Mbarara City. This is due to the fact that community participation mainly revolves around welfare, basic saving schemes and self-help approaches without focus to major serious projects (Lewis, 2020).

In Mbarara City, despite the large number of Community based water projects performing ineffectively little has been done to assess the influence of community participation on the sustainability of community based projects (Nagawa, 2019). According to WATSAN (2021), there are about 39 Community Based water projects out of which only 16 projects are performing to their full capacity. Furthermore, there are Challenges leading to the stall of the CBWPs that include vandalism of equipments, mismanagement of the project equipment and lack of funds to sustain the project (UNICEF, 2019). If the above issues are not checked, it may cause serious shortage of water that may bring diseases like typhoid, cough and dysentery hence affecting the health of the people in the city. Owing to the aforementioned situation, this study sought to examine the influence of community participation on the sustainability of community based water projects in Mbarara City with specific reference to Mbarara City North Division so as to proffer recommendations that could be adopted to enhance sustainability of CBWPs thus leading to improved availability and access to clean water by city dwellers.

### *General Objective*

The general objective of the study was to examine the influence of community participation on sustainability of community based water projects in Mbarara City North Division in Mbarara City.

### **Specific Objectives**

- i. To identify the different ways of community involvement in community based water projects in Mbarara City North Division.
- ii. To examine the level of sustainability of community based water projects in Mbarara City North Division.
- iii. To determine the nexus between community participation and sustainability of community based water projects in Mbarara City North Division in Mbarara City.

### III. LITERATURE REVIEW

#### Theoretical Review

The study was based on the stakeholders' theory developed by Muchiri (2014). This theory suggests that all persons or groups have full legitimate power and interests to participate in an enterprise or project. This theory insists on the implication of the link between the top management of a project with community which must fully be encouraged in identifying water project and plan the projects by themselves for implementation. This implies that water project managers should appreciate that the success of water projects can be prejudiced to the highest degree participation of all stakeholders hence its applicability in this study so as to examine how stakeholders involvement enhance sustainability of community based water projects in an urban environment. This theory was the most relevant for this study because it emphasizes equal participation of stakeholders, persons or groups if water projects are to succeed. This is because each holder has a role to play in the planning, implementation, maintenance and evaluation stages of the water related projects.

#### Different Ways of Community Involvement in Community Based Water Projects

According to the 2013 Human Development Report (UNDP, 2013), it recommends that to walk in the human development pathway, people should engage fully in activities that reform the lives and they should be able to participate in policy making process and results. Studies have shown a paradigm shift towards hardware interventions with regards to sanitation access (Murray & Ray 2010). A good example is the physical components that improve waste management by use of different facilities (Van Wyk 2009; Tremolet et al..2010). The existence of WASH infrastructure without sustainability concept results in the destruction of facilities or never used at all (Mara et al. 2010). This results in wastage of resources. Similarly, this study was done in Mbarara City and it found out that WASH facilities are available although some were abandoned like a Borehole in Kacence in Kakiika ward.

In the study conducted by Evans and Tremolet (2010), it was found out that slums require sanitation services that are efficient and effective in all dimensions. Sanitation includes the principles and practices of collection and removal of wastes with a high level of dignity (COHRE et al. 2008). Studies reveal that many development projects in developing nations are faced with challenges of sustainability (Gebrehiwot, 2006). In this study, the researcher established that in Mbarara City, sanitation services are still inadequate in relation to assertion of Tremolet.

The major contributors to failure of water projects in developing countries are among inappropriate legislations; inadequate institutional support; Poor management system and improper financial mechanism (Niyi & Felix 2007). Challenges on health issues have shifted the debate globally as to whether the facilities are improved or not (Gunther et al..2012). However other bodies like Joint Monitoring Programme (JMP) by WHO/UNICEF describes the services as unimproved. This was also found to be the case with Water projects in Mbarara City where this study was done.

Involvement of the community as voluntary labour in construction can reduce agency investment costs. This is especially the case with facilities where unskilled labour and local materials are a major part of the costs. Reports of the value of contributions vary from 3% to 44% of the total construction costs, with the highest values for piped gravity systems (Van wijk, 1981, 101; White, 1981, 66). Some of these figures are based on either monitoring of labour inputs or on estimates of hours of work associated with total length of pipe installed in developing countries. Less is known about agency costs made for adaptations and guidance for effective community labour participation. The few data available indicate that these costs take about one-third of the savings. Because women are most directly concerned with water supply and sanitation, they have greatly stimulated community support for construction and maintenance. A precondition is that they have been adequately informed about the project and have been organized to participate (Van Wijk, 1985, 63, 66). In line with the above author, this study found out that women were more cooperative in participation on water projects than their male counterparts in water projects in Mbarara City.

With the capital saved through participation in construction and maintenance, more funds are available to serve those without improved water supply and sanitation. Moreover, payment in the form of free labour can reduce the investment cost individual families may be required to make for private facilities, such as yard, group and house connections and sanitary latrines. Thus more families can participate. This is one reason for the success of the Latin American water supply programme in concentrated rural settlements. Nevertheless, many communities cannot be served because of high costs, low technical feasibility or lack of payment capacities. More people can, however, be served by assisting them to improve their traditional system with local means (self-reliant development), as is done by primary health care programmes, women's organizations and programmes, community development programmes, centres for appropriate technology, and non-governmental organizations. However, the level of technology in water related projects is still low in Mbarara City where this study was carried out.

Almost invariably villagers, including both men and women, have a detailed knowledge of their physical and social environment. This knowledge can contribute to the quality and long-term results of the

project. Participation is used to avoid design mistakes, for example, in selecting water sources that are unreliable or culturally unacceptable (Malawi), and for working out acceptable sharing of water sources in Africa. The current study was carried out in Uganda specifically Mbarara City and it was found out that all the stakeholders have detailed knowledge about their participation in water projects.

Participation in design and in planning of local maintenance and financing also allows for adaptations to the various needs and circumstances of user categories. Design and siting of water points and latrines have to be adapted to user preferences to ensure general use for all needs in the various seasons, to reduce time and energy expenditure, and to allow equitable access to facilities. For example, in most African countries, washing facilities at hand pump wells had to be adapted so that the women would use them. Also, some payment systems are more realistic than others. For example, in agricultural communities payment can be made after the harvest rather than on a monthly basis in some developing countries. Owing to the above, this study was carried out in Mbarara City and it found out community participate in planning and maintenance phases which eases adaptations to the various user needs.

Without full community participation, it is likely that some groups will not have access to improved facilities, or will not take advantage of them. This may result in continued high rates of death and disability from diarrhea and from communicable diseases. Similarly, full support of improved sanitation and hygienic practices is essential for the investment in water supplies to have a significant health impact. The activities are time-consuming and should not be put off until after water improvements have been made. In addition, involvement in those aspects of the project which concern the community directly creates a sense of ownership and responsibility which cannot be engendered by the mere performance of physical tasks in a project perceived of as belonging exclusively to the government or the executing agency. A sense of pride and ownership is not however, sufficient to maintain facilities; periodic training, monitoring procurement of spare parts, and other infrastructural arrangements should also be assured. In relation to the above, this study found that that there is always full participation of community members on water projects which could be hinged on the fact that the community want improved water facilities to ensure proper sanitation in their surroundings.

Local decision-making and strengthening of local analytical, technical and organizational capacities also stimulates further development. Increased self-reliance and possibly also increased water availability, time and energy for women can stimulate community activities to meet other felt needs. Such developments are more likely where nongovernmental organizations are involved which can work intensively in a relatively small area for a longer period. The African Medical and Research Foundation, a Kenyan NGO involved in preventive health projects, for example, follows up other water-related felt needs. This follow-up often results in the establishment of vegetable gardens and tree nurseries at the wells and in construction of low energy stoves in the homes. These approaches are not necessarily limited to small-scale programmes. In Guatemala and Colombia, (but not Ecuador) communities are encouraged to continue their own community improvements with surpluses from water funds. In Colombia, there were 1,630 community-managed rural water supply schemes in 1981. The programme keeps records of follow-up activities in these communities. This study was done in Uganda specifically Mbarara City and found out that community members are encouraged to maintain these water projects even after withdraw of the funding agency which the community have fairly done well based on the findings of this study.

In addition to being a stimulus for further development through their participatory approach, water and sanitation programmes can also benefit directly from income generated from follow-up projects. In particular, additional income generated and controlled by women is spent on basic needs for their families, such as food, soap, household utensils and payment of water fees (Van Wijk, 1985, 100-102). Such expenditure can contribute to the continued functioning and general use of improved water supplies and the improvement of hygiene conditions and practices. However, effects on further community development and household incomes have not been effectively tested in any of the larger programmes. This study tested the effect of community participation on water projects and found a significant relationship between community participation and success of water projects in Mbarara City.

#### **Level of Sustainability of Community Based Water Projects**

Sustainable projects have the capacity to achieve their goals, continue with their principles and efforts to the extent of meeting the outcome (US Department of Labour, 2010). Many project beneficiaries confuse the fact that sustainability is about acquiring resources to continue operation after the grant period. A precise meaning of sustainability is to ensure the goals of the project are actualized through various programs which concur with people's needs (US Department of Labour, 2010). This study was done in Mbarara city and if found out that question sustainable water project was not clearly understood according qualitative findings as the community confuse it with acquiring resources to continue operation after withdraw of funding agency.

With the preceding, a closer study of Kenya's sanitation projects leaves no doubt that sustainability is a challenge. The scenario is evident in most slums where such development projects are undertaken with little impact despite resource utilization. Situated in Rift Valley Province, Demographically Nakuru becomes the

fourth biggest town in Kenya. Its population has been on the rise, with the UN Report indicating an annual growth rate between 1990 and 2006 at 13.3% (UN-HABITAT, 2010). The current population is approximately 600,000 of whom 32496 live in the slums of Rhonda. It is found within Mwariki sub-location with seven villages namely; Gikomba, Market, Jasho, Ponda Mali, Posta, Quarry, and Sewage. The population of the settlement has dwelling units ranging from semi-permanent to temporary structures. WASH projects are shared within the settlement. A good example is the bio-centre commissioned by Umande Trust in Partnership with Practical Action organizations. Efforts to improve the livelihood of residents have not succeeded much as envisioned by many NGOs working in the two slums. The question slum is also evident in Mbarara city especially in areas of Kajogo, Biafura and Kiyanja in Mbarara North Division.

Sustainability emphasizes on the functionality of projects over time. There is no definite time limit attached to these projects. In the context of WASH services, it explains the continual gain that brings a long-lasting change to the society. The debate surrounding the concept of sustainability is considered beyond technology. The goal of sustainable development is anchored in various aspects, namely; economic, social and environmental pillars (Jansz, 2011). The concept of sustainability has been used to show how turbulence of the environmental hinders other systems like economic and social. A fundamental question derived from sustainability concept is whether programs of human are self-reliant. In this study done in Mbarara City, the issue of sustainability of was still regarded low probably because most people are connected to the National water grid of National and Sewerage Corporation.

According to Bellagio principles which focus on sustainability and sustainable development in sanitation and wastewater management, he proposes alterations in sanitation practices and policies which are grouped into four principles. The first principles emphasize on the holistic well-being of human together with environmental security that should be prioritized in the new approach; it should be responsive and accountable to the local demands. It goes further to explain that solutions should focus concerns of social, economic and environmental; Protection of the environment to the community and economic opportunities for waste management should be enhanced (Carvalho & Junior, 2011). It was found from this study that the question of environmental protection is given much importance in water projects in Mbarara City.

The second principle is tailored towards good governance in which decision-making should incorporate participation by all stakeholders. It argues that decisions at each level should focus on informed choices, service incentives should be in line with the goals and objectives of the project and that the wider community responsibility should balance consumer's right (Stott & Keatman, 2004). In this study, it was established that good governance of water related projects was put into consideration for any water relate projects in Mbarara City.

The third principle is on waste management. Waste should be considered as a resource; its management should be holistic which include integrated water resource, the flow of nutrients and all processes of waste management. He proposes that there should be reduced input to enhance efficiency and environmental security (Anderson & Janssens, 2011). This study established that waste management was key in water related projects in Mbarara City.

The last principle talks of the domain in which environmental sanitation problems are resolved. He proposed that it should be kept at a reasonable size within the household and wider community. This principle advocate for the management of wastes that should be close to the source; little water should be used for the transportation of wastes and additional technologies be employed for sanitation interventions (WaterAid, 2011). Owing to the above, the researcher found out that environmental sanitation problem is addressed during establishment of water projects in Mbarara City as suggested by Water Aid.

This model is similar to the sustainability of WASH system which is impacted by the interaction of different factors including environmental, social and economic. Water, sanitation and hygiene programs should incorporate structures and systems that monitor the functionality of the facilities to ensure sustainability (Abrams, 1996). Indeed water projects in Mbarara city incorporates water, sanitation and hygiene in their operation at all levels.

Agenda 21 provides the basis for looking into the sustainability of WASH projects. It contends that sustainability concept incorporates environmental, economic and social issues of development that aims at enhancing the standard of living (UNDP-WSP, 2012). On the concept of sustainability, Habtamu (2012) in his research on factors influencing the sustainability of water supply systems recognizes sustainability as an indefinite functionality of the systems. Sustainability is viewed as an approach and policy programs in the development framework (Eckman, 2007). It was for this reason that scholars came to an agreement that sustainable development is critical for any community development. This study was done in Mbarara City and it found out that sustainability incorporates environmental, economic and social issues as suggested by UNDP-WSP).

### Extent of Community Participation on Sustainability of CBWPs

According to Marsden (2007), community engagement is an integral part of stakeholders support. Involvement of the community plays a critical role in the water supply systems sustainability. There is an increase in Sustainability rate of projects due to ownership and management schemes at the community level. Chappel (2005) supports the fact that community participation increases project efficiency. In his study, he recommended that there should be adequate community involvement during the planning stage of the project. Community participation is described as a process by which various individuals from all sects take control of decisions which affect their lives. It involves collaboration of both men and women in decision making, design and implementation of the projects (Mushtaq, 2004). Participation of the community increases project effectiveness because of the objectives which are met and the benefits to the society. It also helps in building beneficiary capacity through active participation and training during project planning and implementation. Owing to the above, this study was done and found out that community participation has been increasing water project effectiveness in Mbarara City.

Communities' willingness to participate both socially and economically is a good indicator of the need for improved water and sanitation service (Bhandari & Grant, 2007). Referring to the findings of Mbata (2006), when the community interest to pay for particular service increases, it implies their awareness towards ownership also rises for the services. Similarly, when members of a given family cooperate by giving cash and through labor necessary for the services, then it can be concluded that the service they receive from the source is of significance to them thereby promoting its sustainability. In this study, it was found out that the community's willing to participate in water projects is a good sign for improved sanitation and services in Mbarara City.

According to Van (2008) women, involvement in water and sanitation projects has a significant impact on the community. Research conducted on community water and sanitation projects in fifteen countries revealed that women involved in specific projects were more sustainable as compared to those projects where they did not participate. This gives emphasis to the result by the World Bank where women participation was linked to water and sanitation projects effectiveness. The women are become active in decision making, providing education to children on matters of sanitation and hygiene, the building of capacity in the community and mobilization of political will (World Bank, 2010). This was also the case in Mbarara City as women were more involved in community based water projects than men and this could be hinged on the fact that women are more involved in domestic activities that require water than men.

Community participation is essential in all sanitation projects implemented within the slums. It involves creating an enabling environment for the community to assist one another. By collaborating and making use of their skills and resources, they are capable of moving away from poverty towards sustainable development. Community participation is that process where stakeholders from all sectors of the community influence decisions which impact on their lives. This will entail participation of beneficiaries, both men, and women in design, implementation and decision making of the project (Keen, 2007). This was not exceptional as all the stakeholders have equal influence on decisions which affect their water and sanitation issues in Mbarara City.

To enhance community engagement, International Rescue Committee (2012) suggests that regional educational centers are established and every move documented in regards to information, good practices, and innovation. The community should focus on capacity building and linkages on increased participation in resource management specifically water to achieve the desired sustainability. Regional learning should also be enhanced and used to promote community commitment in the administration of resources. Modalities should be worked to institutionalize learning as a strategy for identifying best practices on innovation and information sharing (Baur & Woodhouse, 2009). It is also an avenue of influencing policy issues at the national level. Similarly, in Mbarara City, community participation in water projects was seen as an avenue for influencing policy among the stakeholders as suggested by Baur and Woodhouse.

Research conducted by Mclvor (2008), on water and sanitation programs in the Zambezi Valley, revealed that there was the total failure because the local people did not regard the facilities. They considered such projects as originated from outside hence was not their responsibilities to take part in any activity. Further investigation revealed that there was little community involvement before establishing the facilities; people were left with an impression that they do not belong in the management function of the project. This absence of ownership changed the services to appear like open access resource (Harvey & Reed, 2007). The communities were also separated by the technology utilized. It was not regarded as a village level regarding operation and maintenance in most programs (Mwakila, 2008). In a study undertaken to assess the influence of community participation on a water project performance in Kiserian, it portrayed a low level of participation all the way from identification, planning, implementation, and monitoring stage. All those processes influenced the overall performance of the project negatively (Mukunga, 2012). In this study however, most of the projects were a success because people regarded the facilities as theirs and took an upper hand in maintenance in Mbarara City.

On stakeholders ownership, a study conducted by Pollnac and Pomeroy (2005) revealed that many projects fail to bring sustainable benefits because of lack of good will by the stakeholders, they do not show ownership and commitment. Genuine community participation is not well discussed if the main agenda is only running programs which are not transparent. Some practical steps to achieve sustainability suggested by Pollnac and Pomeroy (2005) include ensuring that the design phase is given adequate time and resources and is regarded as an investment in a successful outcome; ensuring that the design involves activities required in the implementation of participatory strategies; Clearly outlining the roles and responsibilities and who is expected to benefit; defining the level and type of participation to be realized and finally ensuring that the team are competent enough and skilled in participatory approaches. Similarly in Mbarara city where this study was done, the issue of stakeholder ownership is often given due diligence and clear explanations are often made to the beneficiaries.

However, when projects are executed in partnership with different agencies, it is crucial for sustainability that agencies have an agreement and that there are elaborate channels for giving out resources and receiving feedback. This in most cases is important when the national level body ability is limited to active communication and quick action on the ground (Asamoah, 2003). This issues of executing projects through partnership was however found to be inadequate in Mbarara city where this study was done as suggested by Asamoah).

Communities should participate in all stages of the project development, by doing so, long lasting solutions are found that fit their requirement including resources. Instead of external influences, different agencies should strive to solve communities' problems. Participation is significant especially at the onset of the project. With clear understanding of the system, community will be more concerned and committed to service delivery and feel a sense of ownership. This was also the case in Mbarara City where the study was carried out because people feel a sense ownership attained from their active participation in water projects.

Project Management Institute (2008) studied the aspects of sustainability for water project with regard to community involvement, the extent of community participation in projects. He found that water projects sustainability require economic, environmental factors, organization's human resources and marketplace conditions as 'internal or external environmental factors that surround or influence a project's successes. Evaluating on the rate of community participation in water projects as how it can be best promoted in community in achieving project sustainability has received limited responses and is constantly poorly understood in developing countries including Tanzania and other countries such as Kenya (Ogunniyi, 1986). In connection to that, Project Management Institute (2008) did investigations on the factors that face community participation towards project sustainability. In this study done in Mbarara City, the extent of participation was given importance as a way of enhancing sustainability of water projects.

The study found that government policies hindered factors that influence projects sustainability including water projects. This means that projects failures were due to little or lack of community involvement in water project sustainability. It is also a lesson that project sustainability is the function of holistic community involvement in decision making in undertaking the projects. Moreover, in relation to stakeholders, any reference to typical sustainability stakeholders such as environmental protection, pressure groups, human rights groups or non-governmental organizations are lacking in many water projects this may be a reason for non sustainability of many water projects around the world (Muchiri 2014). In Mbarara city where the study was done, government policies were found to be hindering community water related projects.

Furthermore Project Communications Management is also considered among of the factors for failure of water projects (PMI 2004). Here it is mentioned that the project manager should be able to 'balance the competing demands of scope, time, cost, quality, resources and risk' (Project Management Institute, 2008). In this conception the study fails to recognize social and environmental aspects as relevant factors in project success. This indicates that holistic approach is not considered in practice and confirms that most of water projects are not sustainable due to that reason of considering only few people in a project. The next study was conducted by Eid (2009) concerning community participation and water projects sustainability, where in his study he asked 36 project management practitioners about factors impact community participation on sustainable water development projects, the results show that management gives little room to participate in few stages in all five stages of the project management process groups. Basing on this analysis it can be concluded that the concepts of community involvement in water projects sustainability are not yet fully included in the project management processes and therefore it is just partial inclusive. In this study done in Mbarara City, the issue of project communications management was found to be inadequate which could be impacting on community based water projects in the city.

Further studies were done by Silvius et al. (2009) to determine the efforts taken on community participation in order to achieve project sustainability. It has been observed that in an effort by government and private organization to improve participation in Tanzania and other parts of the world prior to the commencement of colonial administration in Tanganyika, evidences show that communities had engaged in



communal efforts as a mechanism for mobilizing community resource such as water to provide physical improvement and functional facilities for their lives using community labour which was paramount in this period. In addition findings on reforms that have been backed by evidences in increase of the budget starting in 2006 for water projects by including water projects among the priority sectors of the National Strategy for Growth and Reduction of Poverty (Silvius et al. 2009). In Mbarara city, both government and NGOs encourage community in all community based projects and this enhances the question of sustainability of water projects.

#### *Summary of Literature Review*

This chapter has reviewed both the theoretical and empirical literature related to the community participation and sustainability of community based water project. Overall, the review of literature has clearly shown that community participation constructs such as planning, implementation and operation and maintenance are related to sustainability of community based water projects (CBWPs)

## IV. METHODOLOGY

### Research Approach

Mixed approach method was used in collecting and analyzing the data. Mixed method approach involved collecting, analyzing and interpreting quantitative data by use of questionnaires and qualitative data by means of interviews. This helped the researcher to avoid the weakness of using one research approach. This is in line with Kothari (2003) who asserts that mixed method approach helps to avoid bias on the study findings as two approaches are concurrently used to supplement each other.

### Research Design

The research used a descriptive survey design for qualitative data. This is because the study was based on the views and opinion of the respondents who are members of a community water project. Mugenda and Mugenda (2003) define research design as an attempt to collect information from members of a population in order to determine the current status of the population with respect to one or more variables. For quantitative data, cross-sectional research design was adopted. This is because, this design helped the researcher to summarize, present and interpret the data collected, for the purpose of clarification (Orodho, 2000).

### Target Population

A target population is the total collection of elements along which the researcher wishes to make some inferences (Mugenda and Mugenda, 2003). Therefore the target population was all the Community Water Projects in Mbarara City North Division. The target populations of the study were all the beneficiaries of the water projects and project management committee of Community Based Water Projects. Therefore the target population of this study was the 226 projects members and 15 management committee members of Community Based Water Project totaling to 241 (Water and Sanitation Project Report–WATSAN, 2019).

### Sample size determination

It has been observed that after a certain sample percentage (usually 20%); the effect of the sample size on a research outcome remains constant, or normalizes. By these standards, the minimum survey sample is recommended at 10% where large population is involved (Casley and Kumar 1988). Based on the observation of Casley and Kumar (1988) the research adopted a sample size of 30% members and project management committee of Water Project. Thus the smaller the population, the bigger the percentage of the population is required for sampling and vice versa. The table below indicates that the sample size was ultimately determined by the population size. Management committee members were interviewed (qualitative data) and the beneficiaries were given questionnaires (quantitative data).

Category	Population	Sample size
Water project members	226	68
Management committee members	15	5
<b>Total</b>	<b>243</b>	<b>73</b>

Source: (Water department, Mbarara City Council, 2020)

A calculation of how the sample size above was determined as follows;  
(30/100 x 226 = 68 and 30/100 x 15 = 5).

### Sampling Strategy

#### Simple random sampling

The study adopted a simple random sampling procedure to select the beneficiaries of water projects as it allows a known probability that each elementary unit of the population was chosen hence increasing the possibility of collective representation and greater objective and variety of opinion based on gender.

#### Purposive sampling

Omari (2011) defined purposive sampling as process which involves picking units most relevant or knowledgeable in the subject matter, and study them. It is whereby the researcher judges who is to be included in the sample to give the right information which is not easily obtained from any other respondents. Purposive

sampling was used to select management committee members for CBWPs. This is in line with Kombo and Tromp (2006) who state that, “the power of purposive sampling lies in selecting participants who provide the richest depth analysis related to the central issue being studied”

Simple random sampling was administered on the beneficiaries of community based water projects. Simple random sampling was used because it ensured equal and independent chances to the respondents to be included in the study hence less bias on the findings.

### **Data Collection Instruments**

#### **Questionnaire**

The questionnaire was administered to the water project members chosen to participate the study. The researcher opted for the primary data collection technique in the form of questionnaires which was researcher assisted as all respondents may not be literate enough for the purpose of the questionnaire items. The questionnaires was conveyed to the respondents by use of the drop and pick later method. The researcher chose to use a questionnaire because of the following benefits. First, the questionnaire enables the researcher to ask structured questions which are easier to analyze as well as to administer as each question is followed by alternative answers. Secondly, the questionnaire enables the researcher to use open-ended questions thus permitting a greater in-depth response from the respondents. These particular responses enabled the researcher to get greater insight into the feelings, decisions and thinking of the respondents.

#### **Interviews**

Interviews are commonly used method of collecting data. Interview is the interaction between two or more individuals with an aim of collecting or gathering data on a particular subject of interest (Sekaran, 2003). This method was used to collect data from management committee members for CBWPs as key informants. This was liked because it was flexible in a sense that the researcher could adjust the question in case the respondent failed to understand it thus providing the right feedback.

#### **Data Management**

Data collected using questionnaires from respondents was thoroughly checked for consistence and completeness and was coded and entered into SPSS-20.0 version for statistical analysis. For each of the items in the questionnaire, they were measured on a 5-point Likert type scale except for the items on demographics background of respondents. Mean scores and standard deviation were determined and formed the basis for interpretation of the results. Hypothesis was analyzed using the responses from both variables (community participation and sustainability of community based water projects) using regression model analysis.

#### **Data Analysis**

Basic descriptive statistics such as percentages and means were used to describe demographic information of the respondents. After collecting all the necessary raw data, it was sorted, coded, edited and classified as per study objectives. For objective three, Pearson correlation coefficient was used (using SPSS program) to determine the relationship between the variables (community participation and sustainability of community based water projects) as quantitative findings.

Qualitative data was analyzed using thematic analysis. With thematic analysis, themes were developed in line with study objectives and narrative analysis where the researcher used verbatim quotes to express respondents' views and this is supported by Hsieh (2005).

#### **Procedures for Data Collection**

An approval from BSU Research Ethics Committee was got to go ahead with data collection. An introductory letter was sought from the Coordinator Directorate of Research and Post Graduate Studies, Research and Innovations that introduced the researcher to the Senior Assistant City Clerk of Mbarara City North Division to obtain official permission to carry out the study. The Senior Assistant City Clerk introduced the researcher to the respondents; the researcher explained the purpose and scope of the study and sought their formal consent to participate in the study by signing the informed consent form. After the consent of the respondents, the researcher distributed questionnaires to the respondents. Interviews were administered by the researcher at the time of collecting the filled questionnaires. After questionnaires were dully filled and interviews conducted, the researcher picked questionnaires from the respondents and thanked them for their crucial contribution. At this point in time, the researcher began analyzing the data to finalize the report and submitted it for examination.

#### **Ethical Considerations**

Bearing in mind that this research involved human subjects, the researcher sought approval from BSU Research Ethics Committee was got to go ahead with data collection and the researcher explained to participants the purpose of the study. The researcher assured the participants of the total confidentiality of their responses. Participants were enrolled in the study after obtaining their consent and it was made clear that they had a right to withdraw from the study without any penalty or punishment before or during the study

## V. DATA PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS

### Response Rate

The response rate is the ratio of the actual number of respondents vis-a-vis the target population. Out of 73 respondents that were targeted to participate in the study, only 70 of them participated in the study. The response rate was computed as;  $70/73 \times 100 = 96\%$ . The researcher based on Amin's (2004) recommendations that in a survey, a response rate of over 50% should yield valid findings. Accordingly, the researcher's response rate was 96% which was above what Amin recommended and hence yielded valid responses.

### Demographic data of the respondents

The researcher investigated on gender, age, marital status and academic qualifications and. Results are presented in table 1;

**Table 4.1: Demographic data**

Variable	Categories	Frequency (n = 70)	Percentage (%)
Age (years)	Under 20	4	6
	21 - 30	5	7
	31 - 40	20	29
	41-50	13	19
	50 & above	28	39
Sex	Male	40	57
	Female	30	43
Academic qualifications	O'Level	54	77
	Diploma	11	16
	Degree	5	9
Marital status	Single	14	20
	Married	56	80

Source: Field data, 2022

Findings from Table: 4.1 revealed the majority (39%) of the participants were aged 50 and above while the least were under 20 years which got 6%. Regarding gender, the majority (57%) was males and females were only 43%. On academic qualifications, the majority 77% were of O' Level and the least were of degree level of education with 9% and finally on marital status of respondents shows that 80% were married with 20% being single.

### Community participation in planning stage

This section presents the responses to the following questions that were posed to the respondents: whether respondents were involved in their community water project, whether respondent's community water project practiced any form of planning, If yes, who carries out the planning. The study also asked whether respondents were satisfied with the composition of the project management team of the community water project, and whether respondents found their community water project management team efficient in its services. The section also presents the Descriptive Statistics on Community Participation in Planning Stage.

#### I. TABLE 4.2 COMMUNITY PARTICIPATION IN PLANNING STAGE

##### Are you involved in your community water project

	Frequency	Percent
Yes	68	97
No	2	3
Total	70	100

##### Does your community water project practice any form of planning

Yes	65	93
No	5	7
Total	70	100

##### If yes, who carries out the planning

Management Committee	16	23
The Management And The Community	49	70
Total	65	100

**Are you satisfied with the composition of the project management team of the community water project**

	Frequency	Percent
Yes	60	86
No	10	14
Total	70	100

**Is your community water project management team efficient in its services**

	Frequency	Percent
Strongly Disagree	2	3
Disagree	9	13
Neutral	16	23
Agree	26	37
Strongly Agree	17	24
Total	70	100.0

Source: Field data, 2022

Table:4.2 present answer to the question of whether the members are involved in their community water project, 97% said yes, while 3% said no. On answers to whether community water project practice any form of planning 93% said yes while 7% said no. Further asked if who carries out the planning 23% said Management Committee, with 70% saying the Management and the Community. On answers to the question of whether the respondents were satisfied with the composition of the project management team of the community water project 86% said yes while 14% said no. On answers to the question of whether the community water project management team was efficient in its services, 37% were Neutral while 3% said strongly disagree and 24% Strongly Agreed that the community water project management team was efficient in its services.

**Table:4.3 Descriptive Statistics Community Participation in Planning Stage**

	Likert scale					N	Mean	Std. Deviation
	Very much (5)	Much (4)	Not much (3)	Not at all (2)	Not at all (1)			
To what extent do Information sharing influence the sustainability of the community water project	24	39	1	6	0	70	1.8429	0.82770

To what extent do the nature of Consultation influence the sustainability of the community water project	21	36	1	12	0	70	2.0571	1.00557
To what extent do Decision making process influence the sustainability of the community water project	26	25	1	18	0	70	2.1571	1.18732
<b>Average</b>							<b>2.02</b>	<b>1.0063</b>

Table 4.3 Presents descriptive Statistics on the influence of Community Participation in Planning Stage on sustainability of community based water projects in Mbarara City North Division and shows this has a Mean average of 2.02 on a 5 point Likert scale, which is 40% and a Std. Deviation of 1.0063, which is above 1.00 reflecting a high disparity between respondents opinion on influence of Community Participation in Planning Stage on the sustainability of community based water projects.

**Community Participation in Implementation Stage**

This section presents the frequency on Community Participation in Implementation Stage and presents the answers to the questions; whether the respondents were satisfied with the implementation decision making process used, and how would they rate the flow of implementation information between the management and the community. It also presents answers to the questions on whether community was wholly involved in the implementation stage of the laid out plans. And how they would rate the implementation of the plans made to ensure sustainable technical sustainability of the services, or in what way the community participates in the implementation stage. The section also presents the Descriptive Statistics of Community Participation in Implementation Stage.

**Table: 4.4 Community Participation in implementation stage**

<b>Are you satisfied with the implementation decision making process used</b>	Frequency	Percent
yes	62	87
No	8	11
Total	70	100.0
<b>How would you rate the flow of implementation information between the management and the community</b>		
very good	22	31
Good	44	63
Not sure	2	3
not good	2	3
Total	70	100
<b>Is the community wholly involved in the implementation stage of the laid out plans</b>		
yes	61	87

No	9	13
Total	70	100

**How would you rate the implementation of the plans made to ensure sustainable technical sustainability of these services**

very good	14	20
Good	47	67
Not sure	9	13
Total	70	100.0

**In what ways does the community participate in the implementation stage**

	Frequency	Percent
provision of labour	55	77
cost sharing	13	17
provision of other implementation resources	2	3
Total	70	100.0

Source: Field data, 2022

Table 4.4 Gives Descriptive Statistics on the frequency of Community Participation in Implementation Stage and presents the Community Participation in implementation Stage on answers to the question of whether the respondents were satisfied with the implementation decision making process used, 87% said yes and 11% answered No, on how respondents would rate the flow of implementation information between the management and the community 63% said Good while 3% said not good. Asked whether the community was wholly involved in the implementation stage of the laid out plans 87% said yes while 13% said no. On how the respondents would rate the implementation of the plans made to ensure sustainable technical sustainability of the services 67% said it was good, while 20% said it was very good. On questions of in what ways the community participated in the implementation stage 77% said through provision of labour while 17% said through cost sharing they did Community Participation in Implementation Stage.

**Table: 4.5 Descriptive Statistics: Community Participation in Implementation Stage**

	Likert scale					N	Mean	Std. Deviation
	Very much (5)	Much (4)	Not sure (3)	Not much (2)	Not at all (1)			
To what extent do Sharing of implementation costs influence the sustainability of the community water project	20	38	12	0	0	70	2.06	.99106

To what extent do the Provision of implementation labour influence the sustainability of the community water project	35	27	8	0	0	70	1.73	0.94672
To what extent do Sharing of implementation resources influence the sustainability of the community water project	19	35	1	13	12	70	2.20	1.12417
<b>Average</b>							<b>1.997</b>	<b>1.021</b>

Source: Field data, 2022

Table:4.5 Present Descriptive Statistics on the influence of Community Participation in Implementation Stage and has a Mean average of 1.997 on a 5 point Likert scale, which is 40% and a Std. Deviation of 1.021, reflecting a high disparity between respondents' opinion on influence of Community Participation in Implementation Stage on sustainability of community based water projects.

*Community Participation in Maintenance Stage*

This section presents responses on how respondents rate the flow of maintenance information between the management and the community, it also inquires if the maintenance of the water project ensure uninterrupted supply of clean water. It presents answers on what ways are the stakeholders of the water project involved in the maintenance of the water project and finally on how they rate the maintenance of the plans made to ensure sustainable technical sustainability of the services. The section also presents Descriptive Statistics on Community Participation in Maintenance Stage.

**Table 4.6 Community Participation in Maintenance Stage**

How would you rate the flow of maintenance information between the management and the community	Frequency	Percent
very good	35	50
good	35	50
Total	70	100
<b>Does the maintenance of the water project ensure uninterrupted supply of clean water</b>		
yes	56	80
No	14	20
Total	70	100
<b>In what ways are the stakeholders of the water project involved in the maintenance of the water project</b>		
provision of the maintenance resources	27	37
availing maintenance cost	11	16
involvement in the maintenance process	32	46

Total	70	100
<b>How would you rate the maintenance of the plans made to ensure sustainable technical sustainability of the services</b>		
very good	13	19
good	48	60
neutral	9	13
Total	70	100.0

Table 4.6 present the Community Participation in Maintenance Stage on how they rate the flow of maintenance information between the management and the community, 50% said very good, and 50% said good. On whether maintenance of the water project ensures uninterrupted supply of clean water, 80% said yes while 20% said no. On the question of what ways are the stakeholders of the water project involved in the maintenance of the water project provision of the maintenance resources, 37% said availing maintenance cost 16%, while 46% said through involvement in the maintenance process. On how they would rate the maintenance of the plans made to ensure sustainable technical sustainability of the services, 19% said this was very good while 60% saying it was good and 13% were neutral.

**Table 4.7 Descriptive Statistics on Community Participation in Maintenance Stage**

	Likert scale					N	Mean	Std. Deviation
	Very much (5)	Much (4)	Not sure (3)	Not much (2)	Not at all (1)			
To what extent does Sharing of maintenance cost influence the sustainability of the community water project	22	38	2	6	2	70	1.9714	0.97760
To what extent does the Provision of maintenance labour influence the sustainability of the community water project	32	26	12	0	0	70	1.8857	1.07059
To what extent does Sharing of maintenance resources influence the sustainability of the community water project	25	23	1	19	2	70	2.2857	1.28698
<b>Average</b>							<b>0.7619</b>	<b>0.429</b>

Table 4.7 Present Descriptive Statistics on the influence of Community Participation in maintenance Stage and has a Mean average of 0.7619 on a 5-point Likert scale, which is 15% and a Std. Deviation of 0.429, which is below 1.00 reflecting a common opinion on influence of Community Participation in Maintenance Stage on sustainability of community based water projects.



### Community Participation in Evaluation Stage

This section presents the responses on questions; how respondents would rate the flow of evaluation information between the management and the community, how the evaluation of the water project ensure uninterrupted supply of clean water, on what ways are the stakeholders of the water project involved in the evaluation of the water project and how they would rate the evaluation of the plans made to ensure sustainable technical sustainability of the services. This section also presents descriptive statistics on Community participation in evaluation stage.

**Table 4.8 Community Participation in Evaluation Stage**

<b>How would you rate the flow of evaluation information between the management and the community</b>	Frequency	Percent
very good	20	27
good	48	69
not good	2	3
Total	70	100
<b>Does the evaluation of the water project ensure uninterrupted supply of clean water</b>		
yes	52	74
No	18	26
Total	70	100
<b>In what ways are the stakeholders of the water project involved in the evaluation of the water project</b>		
provision of the evaluation resources	24	34
availing of evaluation cost	15	21
involvement in the evaluation process	31	44
Total	70	100
<b>How would you rate the evaluation of the plans made to ensure sustainable technical sustainability of the services</b>	Frequency	Percent
very good	15	21
good	46	66
neutral	7	10
not good at all	2	3
Total	70	100

Source: Field data, 2022

Table 4.8 Present responses on community participation in evaluation stage, how they would rate the flow of evaluation information between the management and the community, 27% said very good, 69% said Good while 3% Not good. When asked whether the evaluation of the water project ensure uninterrupted supply of clean water 74% said yes while 26% said no. In what ways the stakeholders of the water project were involved in the evaluation of the water project 34% said Provision of the evaluation resources, 21% said availing of evaluation cost and 44% said Involvement in the evaluation process. When asked how they would rate the evaluation of the plans made to ensure sustainable technical sustainability of the services 21% said very good, 66% said Good, 10% were neutral while 3% said not good at all.

**Table 4.9 Descriptive Statistics on Community participation in evaluation stage**

Descriptive Statistics	Likert scale					N	Mean	Std. Deviation
	Very much (5)	Much (4)	Not sure (3)	Not much (2)	Not at all (1)			
To what extent do Setting of evaluation objectives influence the sustainability of the community water project	18	44	8	0	0	70	1.9714	0.85077
To what extent do Evaluation of Indicators influence the sustainability of the community water project	15	37	3	15	0	70	2.2571	1.03119
To what extent do Evaluation of control measures influence the sustainability of the community water project	20	41	1	8	0	70	1.9572	0.87536
<b>Average</b>							<b>2.063</b>	<b>2.75732</b>

Source: Field data, 2022

Table 4.9 Present the Influence of Community participation in evaluation stage and has a Mean average of 2.063 on a 5 point Likert scale, which is 41% and a Std. Deviation of 2.76, which is above 1.00 reflecting a high diversity of opinion on influence Community participation in evaluation stage on sustainability of community based water projects.

**Inferential Statistics Spearman's rho**

**Table 4.10: Inferential Statistics Spearman's rho**

Spearman's rho	Sustainability of Community Based Water Projects	Community participation in planning stage	Community participation in implementation stage	Community participation in maintenance stage	Community participation in evaluation stage
Sustainability of Community Based Water Projects	Correlation Coefficient: 1.000 Sig.(1-tailed): . N: 70	Correlation Coefficient: .420 Sig.(1-tailed): .000 N: 70	Correlation Coefficient: .441 Sig.(1-tailed): .000 N: 70	Correlation Coefficient: .297 Sig.(1-tailed): .006 N: 70	Correlation Coefficient: .334 Sig.(1-tailed): .002 N: 70
Community participation in planning stage	Correlation Coefficient: .420 Sig.(1-tailed): .000 N: 70	Correlation Coefficient: 1.000 Sig.(1-tailed): . N: 70	Correlation Coefficient: .479 Sig.(1-tailed): .000 N: 70	Correlation Coefficient: .642 Sig.(1-tailed): .000 N: 70	Correlation Coefficient: .376 Sig.(1-tailed): .001 N: 70
Community participation	Correlation Coefficient: .441	Correlation Coefficient: .479	Correlation Coefficient: 1.000	Correlation Coefficient: .598	Correlation Coefficient: .605

implementationstage	in Sig.(1-tailed) N	.000 70	.000 70	. 70	.000 70	.000 70
Communityparticipa tion	CorrelationC oefficient	.297	.642	.598	1.000	.601
maintenancestage	in Sig.(1-tailed) N	.006 70	.000 70	.000 70	. 70	.000 70
Communityparticipa tion	CorrelationC oefficient	.334	.376	.605	.601	1.000
evaluationstage	in Sig.(1-tailed) N	.002 70	.001 70	.000 70	.000 70	. 70

Source: Field data, 2022

Table 4.10 presents the inferential statistical results of Community Participation and Sustainability of Community Based Water Projects. The use of Spearman's rank order correlation to determine the coefficient of relationship was adopted as the responses were at nominal and ordinal level of measurement. The table shows the correlation of Sustainability of Community Based Water Projects which is the dependent variable against the independent variables of Community participation in planning stage of the community water project, Community participation in implementation stage of the community water project, Community participation in maintenance stage of the community water project and Community participation in evaluation stage of the community water project.

**Influence of Community participation in planning stage on Sustainability of Community Based Water Projects**

The Influence of Community participation in planning stage on Sustainability of Community Based Water Projects has Spearman's Correlation index of 0.420. It falls between +0.400 to +0.600 which means that Community participation in planning stage of the community water project has moderate influence on Sustainability of Community Based Water Projects. The interpretation of correlation coefficient shows that Community participation in planning stage has influence on Sustainability of Community Based Water Projects because the P value was .000 or  $P < 0.05$  which means that Community participation in planning stage has a significant influence on Sustainability of Community Based Water Projects.

**Influence of Community participation in implementation stage on Sustainability of Community Based Water Projects**

Influence of Community participation in implementation stage on Sustainability of Community Based Water Projects has Spearman's Correlation index of 0.441. It falls between +0.400 to +0.600 which means that the Influence of Community participation in implementation stage on Sustainability of Community Based Water Projects is moderate. The interpretation of correlation coefficient shows that Community participation in implementation stage has influence on the Sustainability of Community Based Water Projects because the P value was .000 or  $P < 0.05$  which means Community participation in implementation stage has a significant influence on Sustainability of Community Based Water Projects.

**Influence of Community participation in maintenance stage on Sustainability of Community Based Water Projects**

The influence of Community participation in maintenance stage on Sustainability of Community Based Water Projects has a Correlation index of .297. It falls between +0.200 to + 0.400 which means that Community participation in maintenance stage has slight significance on Sustainability of Community Based Water Projects. The interpretation of correlation coefficient shows that Community participation in maintenance stage has no influence on Sustainability of Community Based Water Projects because the P value was .006 or  $P > 0.05$  which means that Community participation in maintenance stage of the community water project has no influence on Sustainability of Community Based Water Projects.

Influence of Community participation in evaluation stage on the Sustainability of Community Based Water Projects. Influence of Community participation in evaluation stage on Sustainability of Community Based Water Projects has a Correlation index of .334. It falls between +0.200 to + 0.400 which means that the Community participation in evaluation stage of the community water project has slight significance on Sustainability of Community Based Water Projects. The interpretation of correlation coefficient shows that Community participation in evaluation stage of the community water project has influence on

Sustainability of Community Based Water Projects because the P value was .002 or  $P < 0.05$ , which means that Community participation in evaluation stage has a significant influence on Sustainability of Community Based Water Projects.

### **Qualitative Data Analysis**

#### **Participation in project activities**

The respondents were asked if they were satisfied with the Sustainability process adopted by the project team majority said yes, while on being asked they rate the flow of Sustainability information between the management and the community, majority said it was good.

Furthermore, respondents were asked what steps have been taken by the funding agency to make sure that the project is understood, accepted and institutionalized, given the experiences of people about mistrust of some government and other development agencies officials and they indicated that the funding agency involves the community from the initial stages of planning to implementation and lastly to maintenance stage. In fact one of the respondents had this to say *“when community members are engaged from the initial or early stages of the water projects, they feel a sense of ownership of the project and therefore puts in all their efforts to be able to benefit from it and ensure sustainable use of such water projects”* (Interview, October, 2022).

During the field, respondents were asked about communication methodologies are employed to communicate with the people during all stages of the project implementation and one of them asserted that: *“We use various communication methodologies including radios, televisions, local newspapers, through extension workers and water committee members”* (Interview October, 2022).

Again respondents were asked about problems associated with community participatory planning and the majority mentioned illiteracy of community members, language barriers, and lack of civic will by some of the community members and inadequate sensitization of the community members by the local leadership on the importance of participation in community based water projects. In an inter with one of the respondents, he had this to say *“Most of the community members are less informed about their role in participating t the community based water projects and this largely limits their participation in such community based water projects”* (Interview, October, 2022).

#### **Management of Project Funds**

Respondents were asked about who manage the project funds and one of the all the respondents mentioned that the project funds are managed by the project financial committee elected by members (Interview October 2022). During the interview, one of the respondents indicated that *“there is a bank account where all the project funds are kept and if need be, the signatories of the Bank account withdraw the money and bring it to project members, it used and accounted for”*

Again, respondents were asked about the Bank signatories and who select them and what are the Selection criteria; they said that bank signatories are selected from water committee members but usually the chairperson and the secretary often act as signatories on the approval of members. One of the respondents asserted that *“The selection of signatories follows this criteria; names are suggested by members, seconded and approved, then votes are cast against those proposed and the winners by majority vote are considered successful”* (Interview, October, 2022).

#### **Sustainability of the project**

Respondents were asked the strategies put in place to ensure sustainability of the project and the majority of them indicated involvement of the beneficiaries, financial contribution from members to support maintenance, provision of security guards as well as water project custodians to coordinate the members and beneficiaries and liaise with funders of the water projects.

Respondents were also asked whether they think participatory approach alone leads to sustainability of water project and the majority said yes reason being that it inculcates a sense of belonging and ownership to the beneficiaries and the entire community at large. In an interview with one of the respondents, she had this to say *“I enjoy being part of the community water projects as part of my social belonging”* (Interview, October 2022). On whether there are there any resources set aside to monitor the project Performance after the expiry of funding period and the majority overwhelmingly said yes.

#### **Capacity building**

Respondents were asked on whether there any capacity building /training done to the community/project leaders to enable them sustains project interventions and the majority said yes. Regarding the kind of training, the majority indicated face to face interaction, participatory training with question answer approach.

Furthermore, respondents were asked on whether the community have been empowered enough to carry on the project activities and the majority mentioned yes. One of the respondents said that *“I believe community have been empowered because they can now demand for accountability form the project managers as they are involved from the early stages of the projects”* (Interview, October, 2022).

Last but not the least, respondents were asked why some of the development projects fail after the expiry period of funding and the majority mentioned that its due to lack of funding as the funders form a bigger

percentage of the maintenance costs and poor community attitude towards such projects on the account that they tend to think that the pulling out of the funding agency would duplicate services previously enjoyed.

## VI. SUMMARY, DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS

### Introduction

This chapter presents the summary of the research findings on the influence of community participation stages on sustainability of community based water projects in Mbarara City a case of Mbarara City North Division and the interpretations and conclusions. It also presents the project title with a direct link between the variables and the findings to the empirical and theoretical literature review in the study. The chapter ends with recommendations for the research and suggestions for further research to fill gaps identified as important by the researcher.

### Summary of Findings

The study investigated the influence of community participation stages on sustainability of community based water projects in Mbarara City; specifically the case of Mbarara City North Division, the study was guided by the following objectives: to establish the influence of community participation in planning stage, community participation in implementation stage, community participation in maintenance stage and community participation in evaluation stage on Sustainability of Community Based Water Projects while the study response rate 96%. The study presents the demographic information and shows that the majority (39%) of the participants were aged 50 and above while the least were under 20 years which got 6%. Regarding gender, the majority (57%) was males and females were only 43%. On academic qualifications, the majority 77% were of O' Level and the least were of degree level of education with 9% and finally on marital status of respondents show that 80% were married with 20% being single.

The study has revealed the influence of Community Participation In Planning Stage on sustainability of community based water projects in Mbarara City and shows this has a Mean average of 2.02 on a 5 point likert scale, which is 40% and a Std. Deviation of 1.0063, which is above 1.00 reflecting a high disparity between respondents opinion on influence of Community Participation In Planning Stage on sustainability of community based water projects. The study has further observed the influence of Community Participation in Implementation Stage which has a Mean average of 1.997 on a 5 point likert scale, which is 40% and a Std. Deviation of 1.021, reflecting a high disparity between respondents opinion on influence of Community Participation In Implementation Stage on sustainability of community based water projects.

The study presents Descriptive Statistics on the influence of Community Participation In Implementation Stage and has a Mean average of 0.7619 on a 5 point likert scale, which is 15% and a Std. Deviation of 0.429, which is below 1.00 reflecting a common opinion on influence of Community Participation in Maintenance Stage on sustainability of community based water projects. The study also sights Influence of Community participation in evaluation stage and has a Mean average of 2.063 on a 5 point likert scale, which is 41% and a Std. Deviation of 2.76, which is above 1.00 reflecting a high diversity of opinion on influence of Community participation in evaluation stage on sustainability of community based water projects.

The interpretation of correlation co-efficient shows that Community participation in planning stage of the community water project has influence on Sustainability of Community Based Water Projects because the P value was .000 or  $P < 0.05$  which means that Community participation in planning stage of the community water project has a significant influence on Sustainability of Community Based Water Projects.

The interpretation of correlation co-efficient shows that Community participation in implementation stage of the community water project has influence on Sustainability of Community Based Water Projects because the P value was .000 or  $P < 0.05$  which means Community participation in implementation stage of the community water project has a significant influence on Sustainability of Community Based Water Projects.

The interpretation of correlation co-efficient shows that Influence of Community participation in maintenance stage of the community water project on Sustainability of Community Based Water Projects. The P value was .006 or  $P > 0.05$  which means that Community participation in maintenance stage of the community water project has no significant influence on Sustainability of Community Based Water Projects.

The interpretation of correlation co-efficient shows that Community participation in evaluation stage of the community water project has influence on Sustainability of Community Based Water Projects. The P value was .002 or  $P < 0.05$ , which means that Community participation in evaluation stage of the community water project, has a significant influence on Sustainability of Community Based Water Projects.

### Discussion

The discussion is based on the findings of the study in relation to other studies conducted by other researchers, some agree others contradict.

***Influence of Community Participation in Planning Stage on Sustainability of Community Based Water Projects***

This study agrees with Brikke (1997) who found that sustainability of project services are to be realized if water sources are not overexploited, facilities for operation and maintenance are in place, and funds are readily available. And that both women and men are involved in the designing, planning and management of the scheme, and technology choice corresponds to needs and desires.

Furthermore, findings are in agreement with According to the Human Development Report (UNDP, 2013) which recommended that to walk in the human development pathway, people should engage fully in activities that reform the lives and they should be able to participate in policy making process and results.

Additionally, it was found out that community involvement in form of labour was vital in planning stage. This is supported by (Van wijk, 1981) who states that involvement of the community as voluntary labour in construction can reduce agency investment costs. This is especially the case with facilities where unskilled labour and local materials are a major part of the costs. Reports of the value of contributions vary from 3% to 44% of the total construction costs, with the highest values for piped gravity systems.

It was also found out that community participation in planning stage encourages savings culture among the members as they are required to contribute towards the success of the proposed water projects. This is in line with White, (1981) who asserts that with the capital saved through participation in construction and maintenance, more funds are available to serve those without improved water supply and sanitation. Moreover, payment in the form of free labour can reduce the investment cost individual families may be required to make for private facilities, such as yard, group and house connections and sanitary latrines. Thus more families can participate.

It was also established that participation in design and in planning of local maintenance and financing also allows for adaptations to the various needs and circumstances of user categories. This is supported by UN-HABITAT, (2010) which states that design and siting of water points and latrines have to be adapted to user preferences to ensure general use for all needs in the various seasons, to reduce time and energy expenditure, and to allow equitable access to facilities

***Influence of Community participation in implementation stage on Sustainability of Community Based Water Projects***

The study agrees with Claud (1998) who found that though Community Participation is essential in ensuring sustainability of rural development projects, it has its own shortcomings. Participatory planning is time consuming and a complex process. The process takes about six months or more to be understood. As a result, beneficiaries expecting to get quick results get discouraged and, that participatory planning is a threat to experts and the community they are serving.

The study is also in agreement with Marsden (2007) who says that community engagement is an integral part of stakeholders support. Involvement of the community plays a critical role in the water supply systems sustainability. There is an increase in Sustainability rate of projects due to ownership and management schemes at the community level. He supports the fact that community participation increases project efficiency.

Furthermore, findings are in line agreement with Bhandari & Grant (2007) who assert that communities' willingness to participate both socially and economically is a good indicator of the need for improved water and sanitation service. Again when referring to the findings of Mbata (2006), when the community interest to pay for particular service increases, it implies their awareness towards ownership also rises for the services.

Similarly Chappel (2005) contends that when members of a given family cooperate by giving cash and through labor necessary for the services, then it can be concluded that the service they receive from the source is of significance to them thereby promoting its sustainability.

It was found out that community participation is essential in all sanitation projects implemented within the slums. It involves creating an enabling environment for the community to assist one another. Study findings are in line with Keen, (2007) who says that by collaborating and making use of their skills and resources, they are capable of moving away from poverty towards sustainable development. Community participation is that process where stakeholders from all sectors of the community influence decisions which impact on their lives. This will entail participation of beneficiaries, both men, and women in design, implementation and decision making of the project.

On stakeholders' ownership, the study revealed that many projects fail to bring sustainable benefits because of lack of good will by the stakeholders; they do not show ownership and commitment. This is supported by Pollnac and Pomeroy (2005) who assert that genuine community participation is not well discussed if the main agenda is only running programs which are not transparent.

The study also established that from qualitative results that communities should participate in all stages of the project development, by doing so, long lasting solutions are found that fit their requirement including resources. However, Ogunniyi (1986) disagrees and says that instead of external influences, different agencies should strive to solve communities' problems. Participation is significant especially at the onset of the project.

With clear understanding of the system, community will be more concerned and committed to service delivery and feel a sense of ownership.

### **Influence of Community participation in maintenance stage on Sustainability of Community Based Water Projects**

The findings in this study agree with Mulwa and Francis(2008) who found that some of the factors that could lead to collapse of grass root organizations, include hijacking of the project from above, heterogeneous membership that threatens harmony, limited social awareness that lead to increased vulnerability, crushed and crippled spirit as a result of poverty, non-democratic political environment contradicting the process of empowerment and comprises on unity of purpose as a result of large projects that are difficult to manage.

The findings in this study are further in line with Project Management Institute (2008) studied the aspects of sustainability for water project with regard to community involvement, the extent of community participation in projects. He found that water projects sustainability require economic, environmental factors, organization's human resources and marketplace conditions as 'internal or external environmental factors that surround or influence a project's successes. Evaluating on the rate of community participation in water projects as how it can be best promoted in community in achieving project sustainability has received limited responses and is constantly poorly understood in developing countries including.

The study found that government policies hindered factors that influence projects sustainability including water projects. This means that projects failures were due to little or lack of community involvement in water project sustainability. It is also a lesson that project sustainability is the function of holistic community involvement in decision making in undertaking the projects. This is supported by Muchiri (2014) who says that in relation to stakeholders, any reference to typical sustainability stakeholders such as environmental protection, pressure groups, human rights groups or non-governmental organizations are lacking in many water projects this may be a reason for non-sustainability of many water projects around the world.

It was found out that water projects' communication management was among the factors for failure of water projects. Findings of this study are supported by PMI (2004) which states that Project Communications Management is also considered among of the factors for failure of water projects. Here it is mentioned that the project manager should be able to 'balance the competing demands of scope, time, cost, quality, resources and risk'. In this conception the study fails to recognize social and environmental aspects as relevant factors in project success. Indeed this indicates that holistic approach is not considered in practice and confirms that most of water projects are not sustainable due to that reason of considering only few people in a project.

Study findings are also supported by the study that was conducted by Eid (2009) concerning community participation and water projects sustainability, where in his study he asked 36 project management practitioners about factors impact community participation on sustainable water development projects, the results show that management gives little room to participate in few stages in all five stages of the project management process groups. Basing on this analysis it can be concluded that the concepts of community involvement in water projects sustainability are not yet fully included in the project management processes and therefore it is just partial inclusive.

### ***Influence of Community participation in evaluation stage on Sustainability of Community Based Water Projects***

On the Influence of Community participation in evaluation stage this study agrees with David and Brikke, (1995) who found that benefits for the water supply should continue to be realized over a prolonged period of time far after the summative evaluation.

However, the findings of Silvius et al. (2009) are in disagreement with current study findings whereby he says that to determine the efforts taken on community participation in order to achieve project sustainability. It has been observed that in an effort by government and private organization to improve participation in Tanzania and other parts of the world prior to the commencement of colonial administration in Tanganyika, evidences show that communities had engaged in communal efforts as a mechanism for mobilizing community resource such as water to provide physical improvement and functional facilities for their lives using community labour which was paramount in this period.

In addition findings on reforms that have been backed by evidences in increase of the budget starting in 2006 for water projects by including water projects among the priority sectors and this is supported by Silvius et al, (2009) who says low budgets for water projects is a major issue that affect water provision to the community members.

Furthermore, community participation in evaluation increases that emphasizes on the functionality of projects over time. There is no definite time limit attached to these projects. In the context of WASH services, it explains the continual gain that brings a long-lasting change to the society. This is supported by (Jansz, 2011) who asserts that the debate surrounding the concept of sustainability is considered beyond technology. The goal of sustainable development is anchored in various aspects, namely; economic, social and environmental pillars. The concept of sustainability has been used to show how turbulence of the environmental hinders other systems

like economic and social. A fundamental question derived from sustainability concept is whether programs of human are self-reliant.

### **Conclusions**

From the findings of this study and the summary, the study concludes that, since community participation in planning stage of the community water project has a significant influence on Sustainability of Community Based Water Projects, it implies that the water committees, donors and the government officials in the ministry of water hold prior consultations with the community members before the water projects are deliberated, more so community members are involved in decision making when designing the project structure, location of water standpoints, determining the source of water among other key issues.

The study further concludes that, since Community participation in implementation stage of the community water project has a significant influence on Sustainability of Community Based Water Projects, this can be attributed to the locally based administrative structures developed by the water committee and the members which has enhanced Sharing of implementation costs, Provision of implementation labour, and sharing of implementation resources.

The study also concludes that, Community participation in evaluation stage of the community water project has a significant influence on Sustainability of Community Based Water Projects, which can be accredited to the members' involvement in setting of evaluation objectives, evaluation of Indicators and evaluation of control measures.

The study however concludes that, since Community participation in maintenance stage of the community water project has no significant influence on Sustainability of Community Based Water Projects, it suggests that sharing of maintenance costs provision of maintenance labour and sharing of maintenance resources may be not be the appropriate approach to community participation during that maintenance stage of a community water project

### **Recommendations**

Having established that Community participation in planning stage of the community water project has an influence on Sustainability of Community Based Water Projects, this study therefore recommends that the community water projects should hold capacity building sessions for the members and the committee members so as to equip them with appropriate knowledge concerning the designing and development of community water projects. This will enable the members to make suitable contributions to the project design.

Having found that Community participation in implementation stage of the community water project has an influence on Sustainability of Community Based Water Projects, the study further recommends strict adherence to members sharing of implementation costs, provision of implementation labour, and sharing of implementation resources. More so the study recommends that the committee members should be accountable and transparent to the project members to maintain the goodwill of the members to continuously participate in the provision of implementation resources.

Having established that Community participation in evaluation stage of the community water project has a significant influence on Sustainability of Community Based Water Projects, the study also recommends that the committee members should convene public meetings to track the progress of the project through the monitoring and evaluation measures put in place.

Having found that Community participation in maintenance stage of the community water project has no influence on Sustainability of Community Based Water Projects, the study therefore recommends that community water projects should explore other approaches of community participation in maintenance stage other than sharing of maintenance costs, provision of maintenance labour and sharing of maintenance resources.

### **Areas for Further Study**

The study concludes that, since Community participation in maintenance stage of the community water project has no influence on Sustainability of Community Based Water Projects further studies should be conducted to establish as to why this is so.

A further study should also be carried out to find out other approaches to community participation at maintenance level which can have a significant influence on the sustainability of the community based water projects.

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