



UGANDA MANAGEMENT INSTITUTE

**COMMUNITY PARTICIPATION AND SUSTAINABILITY OF WATER PROJECTS IN  
ISHAKA- BUSHENYI MUNICIPALITY; A CASE OF  
ISHAKA DIVISION WATER PROJECT**

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INSTITUTE**

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**DECLARATION**

I EISENHOWER RUSHAGIKA hereby declares that this dissertation is my original work and has never been presented for any other award or purpose to any other university or institution of higher learning before.

Sign.....

Date.....

**APPROVAL**

We hereby approve that this research was carried out under our supervision and has been submitted for examination with our approval as supervisors.

Sign.....Date.....

Mrs. Aida Lubwama Nyeije

Sign.....Date.....

Ms Susan Najjuma

## **DEDICATION**

This research is dedicated to my beloved mother Mrs. Juliet Mande Mwebaze who struggled so much right from primary one up to this level. The way she inspired me and believed that the future will be better for me will never be in vain.

## **ACKNOWLEDGEMENT**

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I am greatly thankful to my colleagues with whom I shared ideas on the subject

Any errors are entirely mine.

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## **LIST OF ABBREVIATIONS**

- ADF. African Development Bank
- CBMs. Community Based Maintenance system
- CDO. Community Development Officer
- CP. Community Participation
- DWO. District Water Officer
- DWSDCG. District Water and Sanitation Development Conditional Grant
- LC. Local Council
- LDCs. Less Developed Countries
- MDGs. Millennium Development Goals
- MoU. Memorandum of Understanding
- MWE. Ministry of Water and Environment
- NGO. Non Governmental Organization
- O&M. Operation and Maintenance
- PRA. Participatory Rural Appraisal
- RWS. Rural Water Strategy
- UN. United Nations
- WATSUP. Water Atlas Up-date Project
- WB. World Bank
- WUC. Water User committee

## **ABSTRACT**

The study examined the relationship between community participation and sustainability of Ishaka Division Water Project. The objectives of the study were: To establish the relationship between community participation in planning and sustainability of Ishaka Division Water project, to find out the relationship between community participation in implementation and sustainability of Ishaka Division Water project and to establish the relationship between community participation in operation and maintainace and sustainability of Ishaka Division Water Project. Data was collected using questionnaires and interview guide.

The study revealed that community participation in planning had a significant positive relationship with sustainability, community participation in implementation had significant positive relationship with sustainability and community participation in operation and maintainace had insignificant positive relationship with sustainability.

Thus, the study recommends listening to member's views, respecting their preferences and equipping them with necessary information for making informed decisions related to the water systems, establishing proper accountability mechanisms, economically empowering community members and designating specific agreeable times/days for inspecting water systems and effectively addressing water system mul-functionality issues raised by community members respectively.

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Introduction**

This study examined the relationship between community participation and sustainability of Ishaka Division water project Bushenyi- Ishaka Municipality. There are many water projects in Bushenyi Ishaka Municipality mainly WaterAid Uganda, Plan International and Ishaka division water project.

In this study, a case of Ishaka division water project was chosen community participation was conceived as the independent variable and sustainability was the dependent variable. Community participation was measured in terms of planning, implementation and operation and maintenance, while sustainability of water projects was measured in terms of institutional, financial and reliability of water facilities aspects. This chapter presents the background to the study, statement of the problem, purpose of the study, objectives of the study, research questions, research hypotheses, scope of the study, significance of the study, conceptual framework, and operational definitions of terms and concepts.

### **1.2 Background to the study**

The background of the study was presented in historical, theoretical, conceptual and contextual perspectives respectively Amin, (2005) as cited by Barifaijo et.al, (2010:32) and is presented below:



### **1.2.1 Historical Background**

The role of community participation in the management of community based water resources in the late 1970s (McGhee, 2003). Prior to the late 1970s, water resource management and development approaches were highly centralized under government and state agencies. However, these approaches faced severe public criticisms for failure to distribute benefits fairly (Mwakila, 2008). As a result, they collapsed and were replaced with a paradigm shift that put more emphasis on participatory community-based management of water resources. Since then, participatory community-based management of water resources has become a popular way that governments, international donors, and Non-Government Organizations (NGOs) use to pursue water-related development goals (Agrwal, 2000; Cornwall, 2003). The rationale of such approaches was to allow direct participation of beneficiaries in management of their water resources so as to instill a sense of resource ownership, eventually leading to sustainable use of the water resources (Mwakila, 2008; Bardhan, 2001).

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 the case of Uganda, community participation in community-based water and sanitation initiatives has existed since the early 1990s (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.

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 was presumed to be an important factor in management of resources including water resources and water resource issues such as operation and maintainace of water supply systems.

### **1.2.2 Theoretical Background**

The study was guided by the Participatory Theory which was propounded by Brett in (2002). He calls for greater individual and social control over their activities and a more people centered development. Brett notes that participation has emerged in response to global demands for greater individual and social control over the activities of state and private agencies, and especially to the manifest failures of traditional 'top-down' management systems in less developed countries (LDCs). He points out that participation can succeed for specific kinds of projects and programmes in favorable circumstances, but is unsuitable for many others. The theory however commonly fails in contexts where local conditions make co-operative and collective action very difficult, or where it is manipulated by implementing agencies to justify their own actions or poor performance.

Brett, (2002), puts much emphasis on the issue of participatory groups and rural development whereby he calls for a more people-centered development practice that emphasizes the need to strengthen institutional and social capacity supportive of greater local control, accountability and self- reliance. He notes that a high priority is placed on a process of democratization; people are encouraged to mobilize and manage their own local resources, with government playing an enabling role. Brett further points out that participation is very instrumental for it strengthens managerial competence, motivation and performance of workers, social and political solidarity

and the relative position of poor and marginal groups in society. He argues that participation empowers poor people by taking them out of exploitative economic relationships and giving them control over their own organizations; strengthens local organizational capabilities, guarantees that collective organizations serve local needs, are based upon local skills and compatible with local cultures and thus help to eliminate foreign domination and dependency from the development process. He claims that local officials through co-operation increase people's productivity and access to capital and give them better access to administrative staff.

The theory is relevant to the current study in that it points out the salient issues that must be respected and monitored if the community participation in self-help groups is to be real. It also reminds project officers and development change agents that people or beneficiaries of any project must be brought on board right from the project design, through all the other stages up to the end and this is only achieved through encouraging their active participation. It is through this kind of all-inclusive community participation that can lead to sustainability of what has been put in place. Hence the theory guided the report by providing the benchmarks under which community participation can be realized.

### **1.2.3 Conceptual Background**

This study was guided by the concepts of community participation and sustainability. The concept of concept of community participation has two key words embedded in it, "community" and "participation" which need to be understood in isolation if one has to comprehensively discuss the concept of community participation. According to Bakenugura, (2003) a community refers to a group of people living together, with shared interests and responsibilities, within

which are different small groups like the youth, the children, the men , women, rich, poor, literate and non literate who may qualify to be called communities too.

The United Nations Development Program agrees with the above definition but definition but emphasizes that community is not a collection of equal people living in a given geographical region. It is usually made up of individuals and groups who command different levels of power, wealth, influence and ability to express their needs, concerns and rights. Bakenugura, (2003) defines participation as a process through which stakeholders' influence and share control over development initiatives, decisions and resources which affect them. It means active contribution and control of all decisions related to the services delivery. Participation in any development project calls for the involvement of the people in planning, implementation and evaluation of the project, (Sessay, 1997).According to Desai (2001), participation signifies the importance of the “voice” of the people in the activities that affect them.

Although many people agree that community participation is critical in development, very few agree on its definition. According to Oakley (1989), the various definitions of participation are; Voluntary contribution to public programs but where people are not given the opportunity to play a role in shaping the program, Involvement in shaping, implementation and evaluating the programs and sharing the benefits and an active process where beneficiaries influence program out comes and gain personal growth.

Considering the above definitions, community participation can therefore be said to range from people passively receiving benefits from the existing programs to people actively making

decisions about the program policies and activities. Desai, (2001), is in agreement with Oakley's definition of active involvement of beneficiaries in the program. However, he further adds that, it is a process by which beneficiary groups actively influence the direction and execution of projects with a view to enhancing their own being.

The concept of sustainable development was popularised by the world commission on environment and development, (1987) in his report "our common future" that was published in 1987. According to this commission, sustainable development refers to a process of change in which the exploitation of resources, the direction of investment ... "the orientation of technological development, and institutional change are all in harmony and enhance both the current and future potential to meet human needs and aspirations". According to bank documents, "sustainability implies that the system works throughout its life and beyond, and is able to generate adequate cash flow for the future expansion/renewal". This definition has gone through some modifications in the present day analysis which deals with the imprecise nature of the concept. According to Solow, (2000), sustainability is a vague concept, and it is wrong to consider it as being precise, or even capable of being précis. It is not easy to judge whether a system is sustainable or non sustainable.

Basing on the vague concept of sustainability, World Bank (2000) and Asian Development Bank (2006) came up with broad admissible dimensions of the complex nature of sustainability to include attributes from: source, finance, technology, quality, institution and human behaviour. Institutional sustainability; refers to formulation of rules and regulations for the transparent and efficient functioning of the systems that ensures sustainability. This means identification of rules

and regulations for efficient operation, maintenance and management of water source (North, 1990). It is therefore the ability of the strengthened institutional structures to continue delivering the results of the project goals to the ultimate end users. World Bank (2000) and Asian development Bank (2006) define the following dimensions of sustainability;

Financial sustainability: implies that the system generates adequate cash flow for future expansion or renewal. If such adequate cash flow can't be generated the system cannot be sustainable. Sustainability of appropriate human behaviour constitutes personal domestic and environmental hygiene and awareness among others. Reliability of the system; in the community based systems constitutes the availability of spare parts and the local skills to operate and maintain the facility to ensure that the system remains functional (Narayan 1995, Wakeman, 1995, Wijn-Sijbesma, 1995)

#### **1.1.4 Contextual Background**

As a response to the poor water coverage in rural areas, the water decade drew a lot of attention and resources into water supply sector in many third world countries Uganda inclusive. On realization of the serious problems faced with the breakdowns in water supply systems government and the various donor funded a lot of attention on developing communities to take up the ownership and Maintenance of their water sources. It is at this point in time that Ishaka division came up with intervention programs to provide water and sanitation facilities to the rural communities (Okuni and Rockhold) 2005). Currently safe water coverage in Bushenyi Ishaka municipality is at 75% below the national average 83%. There are 100 boreholes, 150

protected springs, 26 shallow wells and water tanks installed over 1000 piped water taps all this was after the intervention of Ishaka division water project. (Ishaka division water office 2010)

### **1.3 Problem statement**

Community participation in planning, implementation and Maintenance of development projects is believed to guarantee sustainability of development projects. (Steckler & Goodman, 1989b) The belief is that once communities are involved in the management of projects concerning their wellbeing, they tend to own those interventions which ensure sustainability. The Ministry of Water & Environment revitalized Community Based Maintenance system (CBMs) for rural water projects through involving water users in planning and implementation of water projects in their area of jurisdiction and establishing and training water user committees in the Uganda (MWE.2007), in order to promote ownership of water sources by water users. For every water point constructed, water users are supposed to be involved in planning and implementation of water projects and a well trained WUC must be put in place. It is anticipated that these committees would help in managing the water points on behalf of other users through setting bye-laws which govern their water sources.

Despite all the above, sustainability of Ishaka division water project in particular remains a challenge some of the taps are no longer functional WUC no longer perform their duties. The WATSUP data base (2013) indicates the functionality rate of water source stands at only 75% in Bushenyi district below the national average of 83% which is also much below the MDGs target of 90%. This greatly affects safe water coverage despite huge investment in water sector with the aim of achieving the MDGs target of 72% safe water by 2015. The use of unsafe water is most



likely to increase water related diseases such as diarrhea, cholera, dysentery and intestinal worms which affects the health of the people. This study was intended to establish the relationship between community participation in planning, implementation and operation and Maintainace of water sources and their sustainability in Ishaka division in order to ensure sustainable use of safe water in Bushenyi.

#### **1.4 Purpose**

The purpose of the study was to establish the relationship between community participation and sustainability of Ishaka Division Water Project.

#### **1.5 Specific objectives**

- (i) To establish the relationship between community participation in planning and sustainability of Ishaka division water project
- (ii) To find out the relationship between community participation in implementation and sustainability of Ishaka division water project
- (iii) To establish the relationship between community participation in operation and maintenance and sustainability of Ishaka Division water project

#### **1.6 Research Questions**

- (i) What is the relationship between community participation in planning and sustainability of Ishaka division water project?
- (ii) What is the relationship between community participation in implementation and sustainability of Ishaka division water project?

(iii) What is the relationship between community participation in operation and maintenance and sustainability of Ishaka Division water project?

### **1.7 Hypotheses**

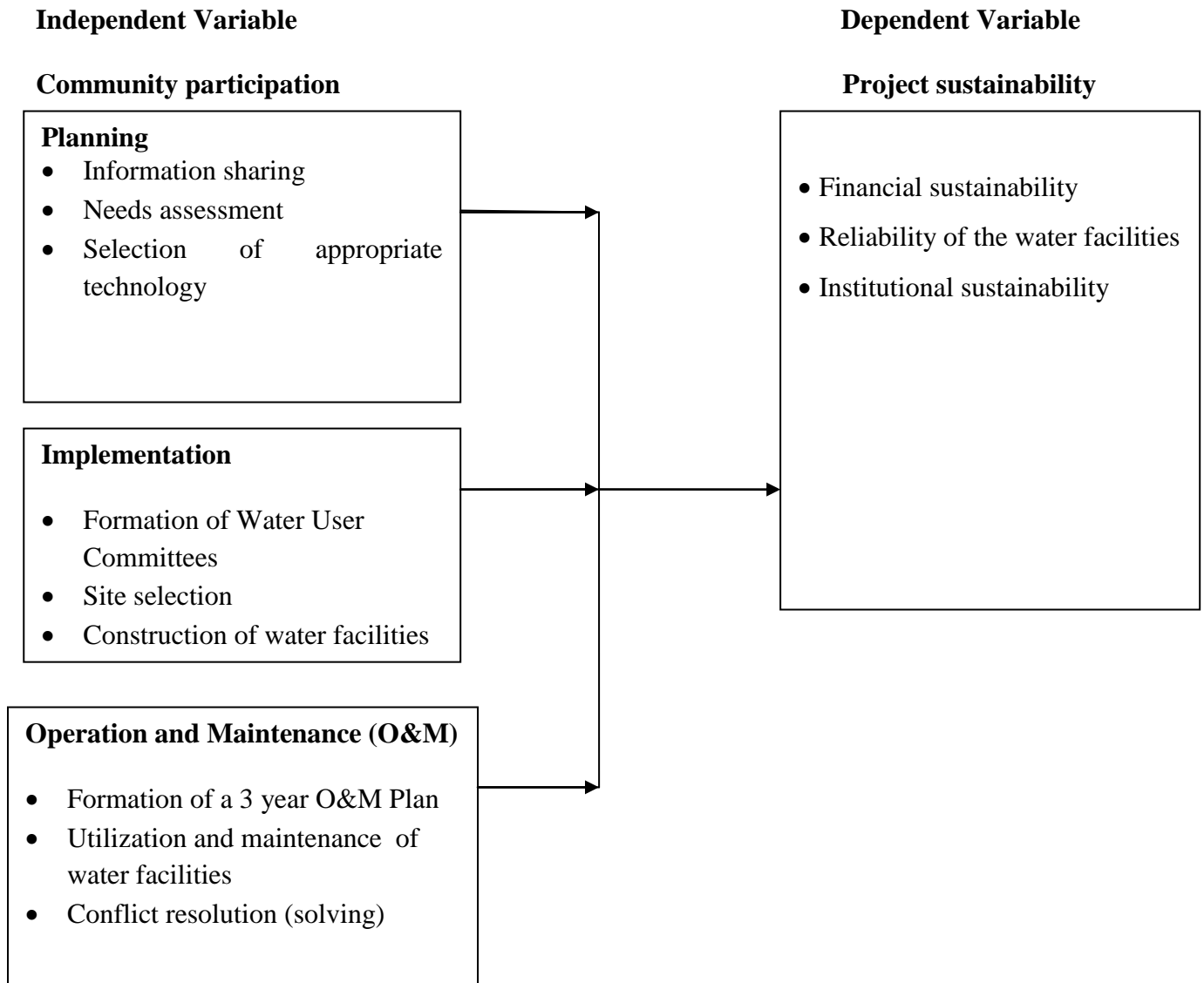
(i). There is a positive significant relationship between community participation in planning and sustainability of water projects.

(ii). There is a positive significant relationship between community participation in implementation and sustainability of water projects.

(iii). There is a positive significant relationship between community participation in operation and maintenance and sustainability of water projects.

## 1.8 Conceptual Framework

The conceptual framework below illustrates the relationship between the independent and dependent variables for community participation and project sustainability.



**Figure 1.1:** A conceptual Framework for understanding the relationship between community participation and sustainability of Ishaka division water project.

*Source: Adopted from Brett (2003) and Putnam (2000) and modified by the Researcher*

As depicted in the figure above, the community participation is related to sustainability of water project in that depending on how participation is promoted, it can lead to sustainability either

positively or negatively affect it. In this figure, it is assumed that community participation is reflected in three aspects namely in planning, implementation and operation and Maintainace. Under planning, participation is reflected in Information sharing, decision making and needs assessment. It is also reflected by implementation through formation of WUC, site selection and construction of water facilities and through operation and maintainace through formation of a 3year O&M plan, utilization of water facilities and conflict resolution. It is further assumed that once community participation is achieved through planning, implementation and operation and maintainace then sustainability of water projects can be achieved through financial sustainability, reliability of the water facilities and institutional sustainability. On whether this ideal relationship between community participation and sustainability of water projects in Ishaka division exist, is still an issue of concern, hence the report assessed the extent to which community participation has contributed towards sustainability of water projects in Ishaka division.

### **1.9 Significance of the study**

To the federations and the entire community, the study may provide lessons that can help them come up with appropriate measures to address problems resulting from poor community participation in project sustainability.

To the academia study may provide new knowledge and can be point of reference and may also open avenues for further research.

This research may be a fulfillment of the requirements for the award of the Masters degree in Management studies (Project Planning and Management) of Uganda Management Institute.

### **1.10 Justification of the Study**

The rationale for conducting this study was to provide the benchmarks under which community participation can be realized and projects are sustained.

### **1.11 Scope of the study**

#### **1.11.1 Geographical Scope**

The study was conducted in Bushenyi-Ishaka Municipality it concentrated in Ishaka division and it focused on Ishaka division water project.

#### **1.11.2 Time Scope**

The research covered a period of 5 years (2009 to 2013). The project has been in operation since 2009 and problems have been manifested in that period therefore provided enough information to evaluate community participations and sustainability of water projects.

#### **1.11.3 Content Scope**

The study intended to examine the relationship between community participation and sustainability of water Project in Ishaka division. Specific emphasis was be on community participation in terms of; planning, Implementation and operation and maintenance on community participation and how they affect sustainability of water project in Ishaka division.

## **1.12 Operational Definitions**

**Participation:** The active involvement of key stakeholders in a given project at all its stages. In this context, the community participation is ideal and meaningful when it is done right from the planning and design stage, to implementation up to operation and Maintenance.

**Sustainability:** The ability of the community to continue to use and maintain the status quo of the new idea or project that has recently been introduced. This is much felt at the end of the project time frame where the direct beneficiaries are left to continue with the activities and maintain and improve on the benefits.

**Community participation in planning:** Involvement in all activities pertaining to decision making in regard to community needs and choice of facilities and their requirements in terms of materials, costs and labour.

**Community Implementation:** Involvement in executing all planned activities to necessary to have the water facility and those involving those involving the actual construction of water facilities.

**Operation and maintenance:** Involvement in all activities after the construction of the water facilities that will ensure the continued operation and maintenance of the water facilities handed over to them by Ishaka Division.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The chapter reviews related literature and views by different scholars on the key variables of the study. The chapter also presents contribution made by other scholars, weaknesses and gaps in the available literature. The purpose of the literature review is to make clarifications on the research problem and provide a theoretical basis for the study. The explanations will be drawn from a variety of secondary sources directly related to the study objectives which include; Journals, publications, reports, textbooks, magazines among other sources. The chapter will take the order of, theoretical review, conceptual review of literature and summary of literature review.

#### **2.2 Theoretical Review**

Participatory Theory was advanced by Brett in (2002) who notes that participation has emerged in response to who global demands for greater individual and social control over the activities of state and private agencies, and especially to the manifest failures of traditional 'top-down' management systems in less developed countries (LDCs). He points out that participation can succeed for specific kinds of projects and programmes in favorable circumstances, but is unsuitable for many others. The theory however commonly fails in contexts where local conditions make co-operative and collective action very difficult, or where it is manipulated by implementing agencies to justify their own actions or poor performance. Brett (2002) puts much emphasis on the issue of participatory groups and rural development whereby he calls for a more people-centered development practice that emphasizes the need to strengthen institutional and social capacity supportive of greater local control, accountability and self- reliance. Muhangi

(2007) in support of the theory points out the rationale for participatory approaches as enhancing empowerment, responsiveness to peoples real needs a sense of ownership of programmes by local people, sustainability and making programmes cheaper by allowing mobilization of local resources.

The theory is relevant to the current study in that it points out the salient issues that must be respected and monitored if the community participation in self-help groups is to be real. It also reminds project officers and development change agents that people or beneficiaries of any project must be brought on board right from the project design, through all the other stages up to the end and this is only achieved through encouraging their active participation. It is through this kind of all-inclusive community participation that can lead to sustainability of what has been put in place. Hence the theory will guide the study by providing the benchmarks under which community participation can be realized.

### **2.3 Community participation in planning and sustainability of water projects**

Community participation in planning is done by mobilizing the communities to participate in planning project activities. Participation in planning aims at achieving the following: creating awareness and empowering the community to identify their problems, prioritize them, suggest interventions to solve them and the means of sustaining such interventions. According to GOU (2001), community participation in planning also aims at enacting adequate community participation of stakeholders in project planning (GOU, 2001).



One way of ensuring community involvement in planning for community based projects is through inviting them to attend meetings addressing various issues related to the projects. According to Howard-Grabman (2000), meetings provide community members with a platform for discussing issues related to the projects. In case of community –based water projects, this may involve inviting community members to discuss issues related with new water interventions such as provision of piped water supply systems. Bardhan (2001) contends that meetings provide community members with a platform for analyzing their problems and collectively generating appropriate solutions to the problems.

### **2.3.1 Information sharing and sustainability of water projects**

Sharing ideas is done through organizational mobilization of beneficiaries. Organization helps to sensitize them on identifying their problems, examining alternative projects that can suit their needs, selection of the best option and their roles and responsibilities in the option made (De Gabriel, 2002). Ishaka division water project mobilizes beneficiaries to attend sensitization meetings where ideas are shared and resolution about the kind of projects to undertake is reached by consensus.

For the community to be able to carry out a needs assessment of water facilities it has to make an informed decision on the choice of the water facility from the available options and to select the location for the facility, they need to be empowered with the relevant information. Information sharing is equated with professionals giving information to lay people. Empowerment means providing opportunities and experience, to allow community people to be actively involved in the decision making about the programme (Rifkin and Pridmore, 2001).

The technical information that can guide the decision making of the community is knowledge of current existing water sources which may only need rehabilitation, cost of installation and number of intended users, demands for operation and maintenance hygiene and sanitation requirements, life span etc (A community resource book for the water ad sanitation sector 2007 Ishaka Division).

### **2.3.2 Needs assessment**

Needs assessment is a systematic process to acquire an accurate, thorough picture of a systems strengths and weaknesses, in order to improve it and meet existing and future challenges (Edwards & Gaventa, 2001). A community needs assessment indentifies the strengths and resources available in the community to meet the needs of children, youth and families. The assessment focuses on the capabilities of community, including its citizens, agencies and organizations. It provides framework for developing and identifying services and solutions and buildings communities that support and nurture children and families. A community may be limited to a compilation of demographic data from census records, results of surveys conducted by others, and informal feedback from community partners (Gile, Stone & Vaugeois, 2006).

Assessment may be expanded to include focus group discussions, town meetings, and interviews with stakeholders and telephone or mailed surveys to partnership members and the community.

Needs assessment are carried out to make sure that needs of communities are addressed by developing programmes and projects (Liffman, 2002). It involves research and systematic consultation with community stakeholders and project beneficiaries before the project is designed and implemented. Needs assessment helps to identify problems, needs and involves the

people who are meant to benefit from the project in deciding on the project design. Potential problems can be identified early and good needs assessment will help to measure reactions, preferences and priorities before any final decisions are made. Needs assessment must combine getting the facts as well as the opinions of the representative sample of beneficiaries and other stakeholders to ensure that their concerns are heard and incorporated into the project and policy formulation. According to Edwards and Gaventa (2001), the main purposes of needs assessment are to: Provide decision- makers and communities with the facts and data to help them correct decisions, Undertake systematic listening, which “gives voice” to poor and other hard to reach beneficiaries and obtain feedback on preferences and priorities so that government can plan to use limited resources in the best possible way. The community plays a big role in establishing their needs. Any community project to kick, must be addressing the needs contrary to the above, it is said that the process can be time consuming and very hard to administer to the very big communities which is the case with Ishaka division water project.

### **2.3.3 Selection of appropriate technology**

The type of technology suitable for a particular area depends on the ground level, water quantity and hydro geological conditions, (Ahmed & Rahma 2003). The community of water users should make an informed decision on the type of technology that they would like based on suitability, cost and maintenance requirements, life span of the springs, water yields, seasonality and community’s ability to operate the facility especially women and that’s why they should be present to make the choice. Sugden, (2001) using the demand based approach mentions that there is a distinction between what people want and what people need and these two don’t always coincide.

The technology selection process will depend on the basic strategy adopted by planners, and on general trends in the water and sanitation sector. Two basic principles outlined are that communities need to be involved in selecting technologies from the start of the process, and that planners should adopt a demand-driven approach. The provision of water-supply and sanitation improvements can be characterized as either demand-driven or resource-driven. With a resource-driven approach, the intervention area is selected with minimal involvement of the community, and the technology is based on global policies, or replicates a blueprint or successful experience elsewhere. There are several potential problems with this approach that could undermine the sustainability of projects. Such problems include lack of community acceptance and poorly functioning improvements that are underused. O&M costs can also be a concern if the technology was introduced without involving the interested parties (i.e. the communities) and without a proper analysis of local needs and conditions. With a demand-driven project, by contrast, problems and needs are identified with the full participation of the communities. This may involve using extension workers to raise awareness in the communities prior to the start of the project. Communities can then choose a particular technology, with an understanding of the technical, financial and managerial implications of their choice. The advantages of such an approach are that the community is motivated to participate in the planning, construction and O&M phases, and that a community-based approach for managing the services will be better accepted and implemented. It is likely that a demand-driven approach will better foster a sense of ownership and responsibility. Agencies, communities and users should therefore work together as partners, and agree upon planned activities. This has become particularly important, because users and communities are increasingly assuming the responsibilities of operating, maintaining

and managing their water-supply and sanitation systems. (François Brikké and Maarten Bredero, 2003)

To help select the most appropriate technology, they propose that the selection process comprise five steps in which the factors associated with the technologies are considered. The steps are:

Request improved services. The community requests support from a governmental agency, NGO, or ESA to improve the community water supply. The request should preferably be in writing and come from a recognized community group or community leader. The request may be preceded by promotion and mobilization campaigns.

Carry out a participatory assessment. The support agency carries out a participatory baseline survey that includes a needs and problem analysis with the community. All the points listed below should be addressed: Initial service level assumption – what is the adequate level of service, taking into account both the users' preferences (both men and women) and the environment?, What are the advantages of the technology options?, What are the motivations, expectations and preferences of the users (both men and women)?, What reliable water source is available?, Can this source provide the required quantity and quality of water?, What water treatment is needed?, Can all social groups benefit from an improved water-supply system?, What materials (and spare parts) and skills are needed to sustain the desired service level?, What is the ability and willingness of the community (all social groups) to pay for the services?, What is the management capacity of the community?, What is the most appropriate structure to manage and sustain the desired service level?, What are the costs (capital and recurrent) of the options considered? Are financial resources available? What is the present approach to O&M

within the programme or area? What are the causes and effects of poor O&M within the area? What technical, financial and capacity-building assistance can the communities expect? What is the overall impact of the technology option selected? What is the availability and capacity of local expertise?

Analyze data. An analysis of the field data collected by the agency will identify a range of technology options and service levels. To choose the most appropriate technology, the options should be weighed with respect to the following; technical aspects, environmental aspects, management capacity and financial sustainability. Hold discussions with the community. Discussions should be held with the community on the technology options for the given environmental, technical and social context. Each option should be presented and discussed, and all O&M implications, such as committing to the long-term management of O&M, should be communicated. At the same time, any adjustments to be made to the existing O&M system should be clearly stated, and the responsibilities of the actors involved in developing the project should be defined.

Come to a formal agreement on the chosen technology. Once the community has made an informed choice of technology, a formal agreement should be sought between the community and all involved partners. When formulating an agreement, the following questions should be considered: Is the technology and service level affordable, manageable and maintainable at community level, Will all members benefit from the improved system?, How can cost-recovery be organized?, Who will take care of preventive maintenance, small repairs, big repairs?, What

type of support is still needed and what type of contribution is the community ready to give as an initial investment (in cash or kind)? (François Brikké and Maarten Bredero, 2003).

Community participation in planning for community based interventions can be measured in terms of the extent to which the members decide key issues related to the interventions (McIvor, 2000). In community based decisions may pertain to the identification of appropriate water source technology and water resources and water systems sites (Dugan, 1990). The extent to which community members are involved in deciding key issues related to community based interventions determines the success and or sustainability of the interventions in apposite way in developing countries have been partly attributed to community members low and or lack of involvement in decision making related to the projects, among others factors such as the intervention not being desired by the community, and the high costs involved in maintaining the projects (Carter et al,1999;Parry-Jones et al, 2001).

Participation in planning is viewed as a tool for improving efficiency of a project, assuming that where people are involved they are more likely to accept the new project and partake in its ongoing operation. It is also seen as a fundamental right; that beneficiaries should have a say about interventions that affect their lives (Pretty, 1995). Kumar (2002) asserts that participation in planning is a key instrument in creating self reliant and empowered communities, stimulating village level mechanisms for collective action and decision making. It is also believed to be instrumental in addressing marginalization and inequity, through elucidating the desires, priorities and perspectives of different groups of within a project area. Another study by Rosenberg (2004) shows that lack of participation in planning is potentially dangerous to project

success because it can breed lack of ownership on the part of the project beneficiaries. A study by Kernan & Hanges (2002) shows that participatory planning influences sustainability of small water projects.

In Uganda, Kaye and Kasasa (2004) noted that involving community members in planning for a water supply project may lead to positive outcome has conducted research and shown that including sustainability of water system. Okeny (2004) has conducted research and shown that participation in planning leads to success of DANIDA community based water project in Rakai District. Nakaseeta (2002) investigated the factors influencing sustainability of community based water systems in Kayunga District and found a significant positive relationship between participation in planning and sustainability of water systems

Overall, the empirical literature clearly indicates the importance of community participation in planning in community based water project outcomes including sustainability of such projects. The conclusion drawn from this literature is that community participation in planning and project sustainability of water project is positively related. However, much of the literature is based on western countries where participation in management of community based water supply systems differs from that of developing countries like Uganda. Therefore, findings and recommendations drawn from such studies may not be applicable to countries like Uganda. In addition, the review of studies in Uganda revealed a glaring lack of specific indicators of community participation in planning, and how they are related to management of community based resources.



## **2.4 Community participation in implementation and sustainability of water projects**

Project implementation is the operational phase in which all work concerning the project is performed. This stage is believed to be one of the most important phases that predict project sustainability. During this phase sustainability strategies are put in place that can stand the test of time. According to Schediac-Rizkallah and Bone (1998) project implementation includes effectiveness, project financing, involvement of stakeholders and training component.

### **2.4.1 Formation of water user committees facilities**

According to water and sanitation sector Bushenyi District Implementation Manual 1-31<sup>st</sup> March 2009 (pg10), for each and every improved water source put in place there must be well trained water user committee which is an active executive arm of the water user group with the following roles and responsibilities; demanding and planning for improved water sanitation services, contributing funds towards construction and maintenance of water facilities and responsible for operating and maintaining of water facilities including the collection of revenue. They are also mandated to enact and enforce by-laws governing their water sources to ensure full functionality of water sources.

According to the water Act Cap (152) section 50, the concept of community participation in planning, implementation and maintenance of water sources is well described and the roles of water user group explained as follows; to collectively plan and manage the point source water supply system in their area, collect revenue from persons using water supply system for the maintenance of the system and responsible for promoting sanitation and hygiene in the area. These provisions aim at ensuring sustainability of water projects as away of achieving the

millennium Development Goals of attaining 100% safe water coverage by 2015. According to Uganda National Water and Environmental Sector Performance Report (2010), 70% of water points under communal management had actively functioning water user committees an increase from 68% previous year. This was attributed to the revitalization of the Community –Based Maintenance system (CBMS).

#### **2.4.2 Site selection for the water facility**

The rationale for a water supply program is that as many people as possible have uninterrupted access to sufficient quantities of safe water for as many years as possible. For a significant health impact the quantity of water used by people may be of more importance than quality of water. From people's point of view, easy access to safe water is the number one priority. If the water facility is an inconvenience to them they will not bother to use and will not contribute towards its upkeep. In instances where hydro-geological siting of individual sites isn't essential, the siting is done purely demographic and environmental grounds. After determining the number of boreholes required in the village, the village head and his representatives are briefed on the procedures and after wider consultations would provide their recommendations on suitable sites. The community participation and health education team then verify that water consultation had taken place. In this exercise conflicting views can result between the technical team and the water users as the technical team may have legitimate considerations such as rock formation, drilling depth, probability of finding water, and water quality while the users want easy access (Bushenyi District Implementation Manual, March 2007).. The soft ware group has to negotiate these requirements by ensuring that the rules of environmental sanitation are observed e.g. it should be centrally located and shouldn't be near sources of contamination e.g. latrines, kraals

graves etc, and most importantly consensus about the site is reached in a fair way. Hence, identification of the location of the water facility is done by both the community and the technical persons who will confirm availability of water. In case so where the water facility required is a spring well, spring identification has to be undertaken by the team from the district water office guided by community members. The community shows the water team all the existing springs that can be protected in the village, provides information on aspects such as lifespan of the spring, water yield and seasonal fluctuations and clears the bush surrounding the spring to enable the team reach and inspect the spring, (A community resource book for the water and sanitation sector, 2007, DeGabriele, 2002, Okuni & Rockhold, 1995). Consensus is vital as it avoids a situation where the water facility will be under utilized and misused because the location of the water facility isn't convenient to the water users, hence sustainability will not be realized as finances and labour required for maintenance won't be provided by the community (Rifkin, 2000)

Access to land for construction of the water source and the route to the source after site selection falls on the shoulders of the community. To avoid land ownership conflicts there is need to negotiate with the land owner about land for the water source or new site. Hence communities shall be required to satisfactorily prove (e.g. with written agreements, land titles) that all potential and foreseeable land access and ownership issues have been resolved before hand (Bushenyi District Implementation Manual, March 2007). This will ensure that water facility will not be abandoned in future due to conflict over land. The land planned to be used for the water facility is settled upon through the community's decision this is line with the Ishaka division water project.

### **2.4.3 Construction of water facilities**

A community wishing to have an improved water source must contribute money or materials depending on the water source the community asks for. Piped water is 150,000/=, water tank 100,000/= material contribution is valued in monetary terms and the equivalent amount deducted from the cash required as your contribution. The water user community should be involved in all contacts governing the construction of water facilities. Community members must know the contract price for transparency purposes, expected duration of construction, the responsibilities of the contractor and those of community members. In managing the contract, you are authorized to pass your complaints to the district office or contacting agency through the extension staff or drilling supervisor or your local leaders or the sub county; Complaints such as destruction of crops, unpaid services or misbehavior of the contracting personnel. The community has to prepare the site or spring to be protected by clearing the site and the way to provide access route to the place of construction or drilling. Negotiation with land owners along the access route is necessary. Make it mandatory that the private contractor undertaking the work hires from your community and adequate is made for the work, this empowers the community with skills. The community should monitor or follow up the construction work and take note of the quantities and qualities of materials delivered to the site, make sure the work done meets the required standards. In the case of a spring well being protected, there should be a catchment area, protected and fenced off, a drainage for storm water and drainage for waste water flowing from the point of collection, a well constructed concrete floor, a well constructed retention wall, identification number indicated on the platform and the water should be clean /clear with no smell. While in the case of a borehole the quality standards have to ensure for instance that, the apron has to be well cast without cracks, drainage channel provided, soak pits for waste and

water is of good quality. (Water and Sanitation sector Bushenyi District Implementation Manual 1-31<sup>st</sup> March 2009)

Community participation in implementation is one of the major strategies for achieving community project success (Smith & Cronje, 2001). This suggests that there is a linkage between community participation in implementation and sustainability of community project outcomes. According to Konzil & McGrath (1996), community projects that elicit higher participation of members feel a sense of ownership for the project which encourages them to work for its success. Also, Dockel (2003) argues that involving community members in the implementation of community projects is one way of showing them that their inputs are valued which may compel them to work for success for its success. However, some authors express a totally different opinion that community participation in implementation depends on whether their contribution is towards a technical or non technical aspect (Bussin, 2002). Community participation in implementation may lead to success of community if the members' involvement is restricted to non technical aspects of the community project than the technical aspects (Bussin, 2002).

In spite of the contrasting theoretical arguments, most empirical evidence identified in literature shows a positive relationship between community participation in implementation and sustainability. For instance, Samuel & Chin (2009) examined the extent to which community participation influences maintainance of piped water systems in both urban and semi urban settings in South Africa. They found that participation in implementation among other factors such as availability of complementary resources and technical experience of project operators

were significant correlates of maintenance of piped water supply systems. Pate & Martinez (2000) find that participation in project implementation elicits positive response from project beneficiaries and contributes positively to the success of community based projects'. Banakus & Angel (2003) reported results reflecting positive association between community involvement in community projects and their success, while Choo & Boze (2007) also found that following community members to effectively participate in construction of community water projects increases the chances of their sustainability.

In Uganda, Kasekende (2005) found out that willingness of community to contribute resources such as land and construction of materials was one of the major factors explaining successful implementation of community based water systems in Kasanda Sub County in Mubende district. In addition, Okello (2006) noted that encouraging participation members in the implementation of community activities guarantees the sustainability of community activities. However, the author's claims were not based on empirical findings. Overall, the review of literature overwhelmingly suggests a positive relationship between community participation in implementation and sustainability of water projects. Therefore, the study tested the hypotheses that community participation in implementation significantly influences sustainability of Ishaka division water project. The study revealed that community participation in implementation has a positive significant relation with sustainability of Ishaka division water project as presented in chapter 4 of this report.

## **2.5 Community participation in operation and maintenance and sustainability of water projects**

In international aid programs the financial sustainability of health projects beyond external donor support is typically dependent on one of the two sources of national funding: Host country government support or beneficiary support through cost recovery mechanisms (Bossert 1990). According to Bossert, the availability of national funds after the end of external funding is related to efforts at gaining alternative sources of financial support during the life of the project and gradual independence from external support such as absorption of recurrent costs into governmental budget.

There has been increased reliance on community financing as funding source for health programs in the last three decades as a result of declining government resources and global recession of the 1980s (Abel-Smith and Dua, Gerter and Vander Gaag,1990, Haws et al (1992), proposed user fees and other community contributions for financial sustainability of health projects

### **2.5.1 Participation in the formation of 3 year O&M plan**

Once the water source is handed over to the community the WUC is expected to come up with annual plans and budgets for O&M. This should be done in consultation with other members of the community. The community prepares a 3 year O&M plan that will guide the operation and maintenance of the water facility should be prepared by the community with the support of a local government staff or an extension worker from the sub county and ratified by the village council (LC1). The contents include; a description of the facility,

- A management structure which details out on who the users are, the number or statistics of the users, sanitation status e.g. latrine coverage, committee composition, term, roles and procedures ( meetings, sanctions), replacement mechanisms for the WUC and who the other actors are.
- Description of O&M activities which include; type of activity and frequency, requirements (personnel, cost, material equipment), how to ensure that users participate in O&M activities and make contributions and how to handle those that don't comply. Where and how to access mechanics, plumbers, masons and spares and what the anticipated costs are.
- O&M budget states the expected income and sources and expected costs (preventive maintenance and repair). It stipulates persons expected to implement (the WUC assisted by LCs) the collection and payment of funds and how each person should contribute.
- And regulatory issues such as bye-laws, agreements with mechanics, plumbers. (Water and Sanitation Sector Bushenyi District Implementation Manual 2009). Community participation in the form of O&M plan helps in improving project efficiency because of timely projects inputs. All members are in agreement and are aware of what needs to be done and when, the planned cost of doing it and who should do what. This creates in the users a spirit of commitment carrying out the activities they have helped develop, in making contributions of the resources ( money, materials, labour) they have identified that the programs requires and this exercise equips them with skills that will be required for future project work (Ishaka Division Water Manual 2013).



### **2.5.2 Use and Maintainance of water facility**

According Water and Sanitation Sector –District Implementation Manual –version 1-31<sup>st</sup> March 2007(pg 10), for each and every improved water source put in place there must be a well trained water user committee which is an executive arm of water user group with the following roles and responsibilities; demanding and planning for improved water sanitation services, contributing funds towards construction and maintainance of water facilities and responsible for operation and maintainance including the collection of revenue. They also mandated to enact and enforce by-laws governing their water sources to ensure full functionality of water sources.

According to the Water Act Cap (152) section 50, the concept of community participation in planning, implementation and operation and maintainance of water sources is well described and the roles of water user group explained as follows; to collectively plan and manage the point water source supply system in their area, collect revenue from persons using the water supply system for the maintainance of the system and responsible for promoting sanitation and hygiene in the area. These provisions aim at ensuring sustainability of water projects as a way of achieving the Millennium Development Goals of attaining 100% safe water coverage by 2015.

### **2.5.3 Resolution of water related conflicts**

Different people have different goals and interests while using the same resource. When people in the course of using a resource reach a point of incompatibility or non-reconciliation, the situation is described as a dispute or conflict. The existence of a competition or a change in the use of the resource may provide a sufficient spark to trigger a conflict. Situations which may trigger conflicts on water as a resource may include: Competition for the resource when there's a

scarcity, differences in organizational station and influence, unmet expectations, unmet interests or needs, unequal power or authority, Jurisdictional ambiguities, incompatible objectives or methods, communication breakdown, interdependence of people and tasks. (A community resource book for the water and Sanitation sector 2007). Some research from the International Water Management Institute and Oregon State University has found that water conflicts among nations are less likely than is cooperation, with hundreds of treaties and agreements in place. Water conflicts tend to arise as an outcome of other social issues.

The WUC or care takers help in resolving conflicts may be getting the conflicting parties to discuss the cause of the conflict and point out what he sees as the weakness and strength in each party's side with out taking sides and point out the effects of not resolving the conflict. If the conflict is with the land owner, refer him or her to the agreement signed and in the absence of the agreement with the land owner, involves the local leadership as this will be a community matter for the common good. Reference should be made to relevant by-laws in resolving conflicts and conflicts that can't be resolved locally should be handled by the help of the sub-county officials. Un resolved conflicts can lead to refusal of members to contribute to the O&M fund leading to dys-functionality of the water source, reluctance of members of the WUC to perform their roles, failure by some members to partake of the water facility and loss of trust in the WUC members (A community resource book for the water and Sanitation sector Uganda). In order to make community participation in operation and maintainace more effective, it should be tied to the expected benefits of the community project. Heathfield (2008) proposes that communities should prioritize operation and maintainace of community projects to guarantee their future survival and sustainability of benefits. According to Heathfield (2008), community based projects in which

beneficiaries are highly involved in their operation and maintenance have higher chances than those where there is low participation in monitoring.

Community participation in operation and maintenance are desired because it has a positive impact on the project success. Nelson (2003) found evidence to support the link between community participation in operation and maintenance and its impacts on success of community based projects. A study conducted by Johnson (2000) shows that most commonly cited factor that led to collapse of community projects was lack of community participation in their implementation. Sartin (2003), Bruce & Pedro (1999), Jordan & Evans (2005), Adams et al (1998), and Heathfield (2008) all find empirical evidence supporting the positive effect of community participation in monitoring on success of community based projects. Overall, the literature review depicts a negligible positive relationship between community participation and project sustainability. Therefore, this study tested the hypothesis that community participation in operation and maintenance significantly influences sustainability of Ishaka division water project and the findings were that community participation in operation and maintenance has a positive insignificant effect on sustainability.

## **2.6 Summary of Literature review**

This chapter has reviewed both the theoretical and empirical literature related to the community participation and sustainability of 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 water projects. Therefore, it has provided a

backing for the research hypotheses outlined on the section 1.7 of the first chapter. These hypotheses were tested and the results presented in the analytical chapter of this report.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter presents the procedures which were followed by the researcher to obtain the research results. It gives a description of methods and strategy that was used in collection and analyzing data. It presents the research design, the study population, sample size and selection, sampling techniques and procedures, data collection methods , data collection instruments , validity and reliability of data collection instruments, procedure of data collection , data analysis and measurement of variables

#### **3.2 Research Design**

This study adopted a case study approach because it enabled in-depth investigation which generated reliable data and findings about the study variables. Amin, (2004) supports this design by pointing out that it saves time and resources. Data collected is normally a lot richer and of greater depth (Yin, 2003). The study collected data from a cross section of population within the division because it enables collection of data in one setting. Also data is collected at one time from a sample selected from a larger population. It employed a triangulation approach of both quantitative and qualitative. Quantitative approach was applied because it yielded numbers, tables that are easy to understand, interpret and apparently more convincing (Mugenda, 2003). Qualitative approach was used because it was not possible to get the information from all employees but through interviews on a selected representative sample the researcher was able to have a cross section of the population.

### 3.3 Study Population

The study population comprised 208 people and was distributed as follows, 40 User committees, 10 Division officials, 150 Consumers and 8 Water source care takers

### 3.4 Sample Size and Selection

A sample of 96 people/respondents was selected from a population of 208 as indicated in the table 3.1 below. These included 30 user committee members, 50 Household consumers, 8 division officials, and 8 water source caretakers.

According to Sekaran, (2000) sample size item larger than 30 and less than 500 is appropriate enough for most studies.

**Table 3.1: Showing Population and Sample size**

<b>Category</b>	<b>Access Population</b>	<b>Sample size</b>	<b>Sampling technique</b>
User committees	40	30	Simple Random sampling
Consumers	150	50	Simple Random sampling
Division officials	10	8	Simple Random sampling
Water source care takers	8	8	Purposive sampling
<b>Total</b>	<b>208</b>	<b>96</b>	

Table 3.1 above shows a sample of 8 Water source care takers were selected using purposive sampling technique because there is specific information that other categories may not be able to provide. 50 consumers were selected using simple random sampling where by every 3<sup>rd</sup>

household was randomly selected 30 User committees and 8 division officials were also selected using simple random sampling because it allows a researcher to pick any respondent.

### **3.5 Sampling techniques and procedure**

Random and non random methods of sampling were used for this research. A simple random sampling was used by the researcher to determine the sample from the population. Purposive sampling was used for those categories of water source caretakers that were instrumental. The researcher grouped the population into water user committees, consumers and division officials. These two methods of sampling were used and guided by sampling frame derived from Krejcie and Morgan's table (Barifaijo et al., 2010).

### **3.6 Data collection Methods**

The researcher used a combination of questionnaire and interview as methods during data collection for the study and these methods were used in order to minimize the weakness of one method with another to enhance reliability of findings.

#### **3.6.1 Questionnaire**

A questionnaire was used in which they were personally delivered and issued to the respondents. Questionnaire was used because of its convenience and efficiency above all respondents were literate and able to read and fill in the answers in the questionnaire. It was also used in order to have a uniform question presentation and to avoid researcher's own opinions to influence respondents to answer questions in a certain manner. Amin, (2005) said that it collects data

easily from a larger number of respondents since they have adequate time to give well thought out answers, low cost even when the population is large and widely spread geographically.

### **3.6.2 Face-to-face Interview**

Kothari, (2003) indicates that the interview method of collecting data involves presentation or oral verbal stimuli and reply in terms of oral-verbal responses. The researcher had a face to face discussion with the respondents where unstructured questions to interview were used because it allows much greater freedom to ask supplementary question and at times omit others as the researcher feels (Kothari, 1990). The target was eight top management staff and was able to access six. This was done in order to get in-depth information and understanding about specific variables of interest in the study. In addition interview was used to probe further the genuineness of the response generated by questionnaires.

## **3.7 Data Collection Instruments**

The main data collection instruments that were used for the study were self administered questionnaire and interview guide. Both the questionnaire and interview guide were designed to answer all the research questions raised. To supplement questionnaire responses, an interview guide was used to provide an opportunity for an in depth study through further probing which was not possible in the questionnaire.

### **3.7.1 Questionnaires**

The researcher used questionnaires during data collection which were issued to the different respondents in order to gather all the necessary qualitative data. These were used on all



respondents because they were literate and able to read, write and were convenient. Questionnaires were designed to handle individual objectives from which the relationship was assessed (Amin, 2005:269). The interview was conducted with the officials in administrative positions to get their views about effect of community participation in planning, implementation and operation and Maintainace influence on sustainability. The interviews were carried out in their offices using questions from Division officials interview guide (Appendix 1).

### **3.7.2 Interview guide**

The researcher used the interview guide which comprised of the themes and topics of discussion in the interview which enabled the researcher gather the necessary data for the study during interview with respondents. Also interview schedules were used during interviews for in-depth inquiry in the subject matter to ascertain specific details and facts about the study variables. This guide was used to dig deeper and get in-depth investigating and understanding of community participation in planning, implementation and operation and Maintainace as well as sustainability from key informants (Amin, 2005).

### **3.8 Quality control**

This was done as a way of eliminating or reducing errors in the study instruments. In order to ensure quality of the research findings, the researcher carried out reliability and validity tests of the research instruments to be used in data collection as below:

### **3.8.1 Validity of the study instruments**

This refers to the accuracy or fruitfulness of a measurement. Establishing the validity of instrument is a critical factor in research as validity reflects the extent to which the instrument measures what it was developed to measure. The researcher ensured instruments were correct to justifiable and truthful data during the study and ensured that names and anything that could reveal the identity of respondents were avoided so that respondents provide correct and unaltered information. The researcher also ensured content validity through judgment of the items by three people considered to be experts in social sciences. They rated the data collection tools prior to use to determine their validity for the research. Base on the result of their rating, the researcher computed the content validity index (CVI) for the questionnaires and interview guide using the formula provided by Amin (2005: pg 48). The CVI for the questionnaires were 0.78 and for interview guide were 0.79 respectively. The instruments were considered appropriate for the study since their validity were above the minimum acceptable value of 0.7 as recommended by Amin (2005).

### **3.8.2 Reliability of study instruments**

This is synonymous with repeatability. A measurement that yields consistent results over time is said to be reliable. If it is prone to random error, it is said to be unreliable. The reliability of the instruments used in the study banked so much on the validity of the instruments; that is, if a measure is perfectly valid it is also perfectly reliable (Malhotra & Birks, 2000). The researcher ensured that the research instruments are reliable by constructing conceptual framework in which the study variables to be used in data collection instruments were explained. The researcher made use of the subject expert's judgment (2 supervisors) who reviewed the instrument and it

was pre-tested on 10 staff members of HealthPartners Uganda. Cronbachs alpha was calculated using SPSS version 18.0 and 0.736 reliability result was generated which indicated adequate stability. This made the instruments very reliable. Amin, (2005) recommended that where a correlation coefficient of 0.7 and above is often good enough in most studies.

Below is the summary of reliability results for the instruments used:

**Table 3.2 Reliability Analysis on questionnaire**

<b>Reliability</b>	<b>Cronbach's Alpha</b>	<b>Number of items</b>
Community participation in planning	.639	14
Community participation in implementation	.470	15
Community participation in O&M	.743	19
Sustainability	.591	17
<b>All</b>	<b>.736</b>	<b>65</b>

From the table above, reliability of each section of the questionnaire, which comprised questions for measuring the different variables of the study, was computed using SPSS version 19.0. Reliability of questions of community participation in planning of respondents yielded Cronbachs alpha 0.639 for 14 questions; community participation in implementation yielded 0.470 for 15 questions, community participation in O&M yielded 0.743 for 19 questions and that of the dependent variable was alpha 0.591 for 17 questions. The reliability of all the questions (65) computed together was alpha 0.736, it can be concluded that the instrument was reliable and therefore appropriate for the study. The scores found at 0.7 and above alpha values will indicate good credits hence better for use (Amin, 2005).

### **3.9 Data collection procedure**

The researcher ensured that the research instruments were discussed with the two supervisors before using them in the field. The researcher also obtained an introductory letter from Uganda Management Institute to allow the study to be undertaken in Ishaka Division. This enabled the respondents in the field to co-operate willingly without any suspicion. The respondents were given sufficient time of at least two weeks to respond without being inconvenienced. The researcher gave out more questionnaires than the required number to cater for those that were likely not to be returned if filled improperly. To every questionnaire, a letter explaining the purpose of the study was attached. The respondents were assured of anonymity and confidentiality in order to encourage honest responses. After instruments were collected they were pre-tested.

### **3.10 Data Analysis**

Data was collected and processed using both qualitative and quantitative approaches.

#### **3.10.1 Quantitative data analysis**

Data from the field was cleaned, compiled, sorted, edited and coded to have the required quality, accuracy and completeness. It was entered into the computer using the Statistical Package for Social Sciences (SPSS V18.0) for analysis. The data was analyzed according to the research questions objective by objective. Frequency tabulations were used to describe sample characteristics using descriptive statistics of mean, percentage and frequencies. Inferential statistics of Pearson's Correlation Coefficient was used to establish the strength of significance

between the study variables. The regression analysis was used to examine the relationship between community participation and sustainability.

### **3.10.2 Qualitative data analysis**

Data in form of recorded interviews was analyzed using interpretational analysis. It was transcribed and themes were extracted from the transcription. The researcher made analysis and drew conclusions from the data that was generated from the field.

### **3.11 Measurement of variables**

The researcher measured the variables using the Likert scale where statements were followed by five category responses continuum of strongly agree, agree, undecided, disagree, and strongly disagree. The respondent selected the best response that best described the reaction. Then responses were weighed from 1 to 5 and averaged for all items. The researcher used this measurement because of its flexibility and ease in its construction (Amin, 2005). Also the qualitative data was generated through interviews with the respondents on the relevant aspects of the research.

## CHAPTER FOUR

### DATA ANALYSIS, PRESENTATION AND INTERPRETATION

#### 4.1 Introduction

This chapter presents the analysis and interprets findings of the study on community participation and sustainability of water projects in Ishaka-Bushenyi municipality. The findings are presented in accordance with the research objectives and research questions. It shows the response rate, demographic characteristics and empirical findings related of the study presented objective by objective as discussed below.

#### 4.2 Response rate

For the study to validate, the findings made analysis of the response rate using gender as shown in table below.

**Table 4.1 Response rate**

Frequency		Percentages	
Questionnaire	Interview	Questionnaire	interview
24	3	25.0	50.0
72	3	75.0	50.0
96	6	100	100

*Source primary data from the field*

The number of questionnaires issued out was 96 and the number of returned questionnaires was 96 which are 100%. Among the 6 respondents who were targeted for interview 6 respondents were interviewed which gave 100% and this gave the average response rate as 100%. This is

considered as adequate response rate as observed by Mugenda and Mugenda (1999) who argued that a response rate of 50% is adequate for the study.

### 4.3 Demographic characteristics of respondents:

This background information captures data on the response rate by age of respondents, gender, marital status and higher qualification of the respondents.

#### 4.3.1 Age bracket of the respondents

The study investigated age categories of the respondents. This was because the researcher wanted to get balanced views from all the respondents. The findings are presented in table 4.2.

**Table 4.2 Age bracket of respondents**

<b>Answer</b>	<b>Frequency</b>	<b>Percentage (%)</b>
18 below	4	4.2
19-29 yrs	26	27.1
30-39 yrs	29	30.2
40yrs and above	37	38.5
<b>Total</b>	<b>96</b>	<b>100</b>

*Source: Primary data from the field*

Table 4.2 shows that 4 (4.2%) of the respondents were in the age range 18 and below years and 26 (27.1%) were in the age range 19-29 years, 29 (30.2%) of the respondents were in the age range 30-39 years and only 37 (38.5%) of the respondents were 40 years and above. These results reflect that most of the respondents fall between the age range of 40 years and above which is 38.5%, thus energetic and have mature reasoning to give genuine response to the researcher about the study variables hence generate valid findings.

### 4.3.2 Gender of the respondents

The study investigated the gender of the respondents. This was because the researcher wanted to get balanced views on the study from both males and females about the study variables. The findings are presented in table 4.3

**Table 4.3 Gender of respondents**

<b>Answer</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Male	24	25.0
Female	72	75.0
<b>Total</b>	<b>96</b>	<b>100</b>

*Source: Primary data from the field*

Table 4.2 Indicates that 25.0% of the respondents were male and 75.0% were female. This may be because the females are more active in the projects that affect the community; they are the ones with the responsibility of fetching water in the homes. Also the study involved both males and female respondents because the researcher wanted to get balanced views from the respondents.

### 4.3.3 Marital status of the respondents

**Table 4.4 Marital status of respondents**

<b>Answer</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Single	12	12.5
Married	79	82.3
Divorced	5	5.2
Others	0	0
<b>Total</b>	<b>96</b>	<b>100</b>

*Source: Primary data from the field*

Table 4.4 shows that 12.5% of the respondents were single, 82.3% of the respondents were married and 5.2% were divorced. These results reflect that the study was more dominated by



more married respondents. This shows that married people are more responsible when it comes to community involved projects.

#### 4.3.4 Qualification of respondents

**Table 4.5 Qualification of respondent**

<b>Answer</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Primary	46	47.9
O level	43	44.8
Advanced	6	6.3
Degree	1	1.0
Others	0	00
<b>Total</b>	<b>102</b>	<b>100</b>

*Source: Primary data from the field*

Table 4.5 shows that majority of the respondents 47.9% completed primary education 44.8% of the respondents completed O- level, 6.3% respondents completed Advanced while the remaining 1.0% of the respondents has a degree. These results reflect that all the respondents are literate and can understand the variables being discussed since they are able to read and write.

#### 4.4 Sustainability of Ishaka water project

Sustainability is a dependent variable that is analyzed with an intention of showing whether it has a relationship with community participation to beneficiaries of Ishaka division water project, and it covered three indicators namely; institutional, financial and reliability of water facility. By administering questionnaires to the beneficiaries, the researcher generated data whose analysis yielded the following results:

**Table 4.6 Institutional sustainability**

Items	SA (%)	A (%)	NS (%)	D (%)	SD (%)	Mean
We signed an agreement (MOU)	70(72.9)	26(27.1)	0(0)	0(0)	0(0)	1.73
All the actors are observing terms of the agreement.	25(26)	47(49)	5(5.2)	16(16.7)	3(3.1)	3.78
We have an active water user committee	45(46.9)	44(45.8)	0(0)	4(4.2)	3(3.1)	3.36
We have a 3 year operation and Maintainace plan	45(46.9)	48(50)	3(3.1)	0(0)	0(0)	2.44
The WUC follows this plan in its management	50(52.1)	39(40.6)	4(4.2)	3(3.1)	0(0)	3.42
We have a set of by-laws for use and maintenance of water facility	41(42.7)	53(55.2)	1(1)	1(1)	0(0)	3.40
The WUC has capacity to solve water related conflicts	28(29.2)	48(50)	0(0)	8(8.3)	12(12.5)	2.96

*Source: Primary data*

Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D) and Strongly Disagree (SD)

Table 4.6.1 shows that 72.1% of the respondents strongly agreed and 27.1% of the respondents agreed that they signed an agreement. Also 26% of the respondents strongly agreed and 49% of the respondents agreed that the actors are observing terms of the agreement while 5.2% of the respondents weren't committed 16.7% of the respondents disagreed and 3.1% of the respondents strongly disagreed that the actors are observing terms of the agreement. The findings further revealed that 46.9% of the respondents strongly agreed and 45.8% of the respondents agreed that they have an active water user committee while 4.2% of the respondents disagreed and 3.1% of the respondents strongly disagreed that they don't have an active water user committee.

The findings also showed that 46.9% of the respondents strongly agreed and 50.0% of the respondents agreed that they have a 3 year operation and maintainace plan while 3.1% of the respondents weren't sure whether they have a 3 year operation and maintainace plan.

It further revealed that 52.1% of the respondents strongly agreed and 40.6% of the respondents agreed that the water user committee follows the operation and maintenance plan in its management and 3.1% of the respondents disagreed that water user committee doesn't follow operation and maintenance plan while 4.2% of the respondents were not sure whether water user committee follows the operation and maintenance plan in its management. 42.7% of the respondents and 55.2% of the respondents also revealed that they have a set of by laws for use and maintenance of water facility while 1.0% of the respondents disagreed that they don't have a set of by-laws for use and maintenance of water facilities while 1.0% of the respondents weren't sure whether they do or don't have a set of by-laws for use and maintenance of water facilities. Lastly, 29% of the respondents strongly agreed and 50% of the respondents agreed that water user committee has capacity to solve water related conflicts while 8.3% of the respondents disagreed and 12.5% of the respondents strongly disagreed that the water user committee doesn't have the capacity to solve water related conflicts. This implies that majority of the respondents signed an agreement (MOU), More so most of the actors are observing terms of the agreement.

Also most respondents agree to be having an active 3 year operation and maintenance plan and WUC follows the plan in this management. The project also has a set of by-laws for use and maintenance of water facility and has capacity to solve water related conflicts. This indicates that signing of MOU, all actors observing terms of the agreement, having a 3 year operation and maintenance plan, WUC following that plan, having a set of by-laws for use and maintenance of water facility and WUC having capacity to solve water related conflicts shows community participation hence leading to sustainability

The qualitative data on early institutional sustainability confirm that there is a relationship between community participation and sustainability. When the respondents were asked whether all the actors are observing the terms contained in the MOU one of the respondents said:

*Almost all the actors are observing the terms which were agreed upon except for a few people who are big headed and who don't want to be corrected whenever they go a straw.*

**Table 4.7 Financial sustainability**

	SA (%)	A (%)	NS (%)	D (%)	SD (%)	Mean
I pay my monthly /yearly contribution on time	11(11.5)	11(11.5)	0(0)	51(53.1)	23(24)	2.10
Some of our funding comes from fines against defaulters of water rules	31(32.3)	63(64.6)	2(2.1)	1(1)	0(0)	3.28
The WUC has set a repayment date for the contributions	24(25)	72(75)	0(0)	0(0)	0(0)	1.25
The WUC calls for accountability meetings regularly	11(11.5)	29(30.2)	16(16.7)	12(12.5)	28(29.2)	2.82
The treasurer keeps an updated list of all the members	8(8.3)	53(55.2)	26(27.1)	2(2.1)	7(7.3)	3.55

**Source: Primary data**

Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D) and Strongly Disagree (SD)

From the table 4.7 above, 11.5% of the respondents strongly agreed and 11.5% of the respondents agreed that they pay their monthly/ yearly contribution on time however a bigger percentage that is 53.1% of the respondents disagreed and 24% of the respondents strongly disagreed that they don't pay their monthly/ yearly contribution on time. Also other findings indicate that 32.3% of the respondents strongly agreed and 64.6% agreed that some of their funding comes from fines and against defaulter of water rules, 1.0% of the respondents disagreed that they some of their funding comes form the fines against defaulter of water rule while 2.1% of the respondents were not sure.

Also the findings indicate that 75% of the respondents agreed and 25% of the respondents strongly agreed that the WUC has set repayment date for the contributions the finding further indicate that 11.5% of the respondents strongly agreed and 30.2% of the respondents agreed that WUC calls for accountability meetings regularly, 12.5% of the respondents disagreed and 29.2% of the respondents strongly disagreed that the WUC doesn't call for accountability meetings regularly while 16.7% of the respondents were not sure whether WUC calls for accountability meetings or not.

The findings further found out that 55.2% of the respondents agreed and 8.3% of the respondents strongly agreed that the treasurer keeps updated list of all members, 2.1% of the respondents disagreed and 7.3% of the respondents strongly disagreed that the treasurer doesn't keep updated list of all the members while 27.1% of the respondents weren't sure. This implies that most of the respondents don't pay their monthly/yearly contributions on time hence explaining one the reasons as to why some taps have not been repaired because of the delay in payment however on a good note WUC calls for accountability meetings, the treasurer keeps updated list of all the members, WUC has set a repayment date for the monthly/yearly contributions and some of their funds comes from fines and against defaulters of water rules. If the entire above are followed it means that sustainability is ensured.

Respondent in interview were asked whether they pay their monthly/yearly contribution on time and one said *"Why should I pay that money yet am poor and we have other members who can pay that money and the project continues to function"*. Another one said *"I would be paying that money but I don't the treasurer because he has never called me for any accountability meeting"*.

Results from the interview show that members don't want to pay their yearly contribution on time and some don't trust the treasurer and that can be solved through calling for accountability meeting regularly

**Table 4.8 Reliability of water facility**

	<b>SA (%)</b>	<b>A (%)</b>	<b>NS (%)</b>	<b>D (%)</b>	<b>SD (%)</b>	<b>Mean</b>
The location of the facility is easily accessible to all users	77(80.2)	18(18.8)	0(0)	1(1)	0(0)	2.79
All users find it easy to use the water facility with out difficulty	39(40.6)	48(50)	9(9.4)	0(0)	0(0)	2.31
The users find easy to do the routine cleaning and maintenance	37(38.5)	45(46.9)	5(5.2)	1(1)	8(8.3)	4.06
The area mechanics/masons are easily available for major repairs	6(6.3)	15(15.6)	6(6.3)	40(41.7)	29(30.2)	2.26
The spares required are easily available on the market	12(12.5)	8(8.3)	3(3.1)	27(28.1)	46(47.9)	2.09

*Source: Primary data*

Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D) and Strongly Disagree (SD)

The findings the tables 4.8 above indicate that 80.2% of the respondents strongly agreed and 18.8% of the respondents agreed that the location of the water facility is easily accessible to users while 1.0% of the respondents disagreed that that the location of the water facility isn't easily accessible to all users. Also findings show that 40.6% of the respondents strongly agreed and 50% of the respondents agreed that all users find it easy to use the water facility with out difficulty while 9.4% of the respondents weren't sure whether all users find it easy to use the water facility with out difficulty. Further more, 38.5% of the respondents strongly agreed and 46.9% of the respondents agreed that the users find easy to do the routine cleaning and maintenance and 1.0% of the respondents disagreed and 8.3% of the respondents strongly

disagreed that the users find easy to do the routine cleaning and maintenance while 5.2% of the respondents weren't sure whether the users find easy to do the routine cleaning and maintenance. Other findings also indicate that 6.3% of the respondents strongly agreed and 15.6% of the respondents agreed that the area mechanics/masons are easily available for major repairs and 41.7% of the respondents disagreed and 30.2% of the respondents strongly disagreed that the area mechanics/masons are easily available for major repairs while 3.1% of the respondents not sure. This implies that respondents in an interview were asked whether the location of the facility is easily accessible to all the users and one said; *“Yes, am actually happy that our tap was put in centrally located position where each and one who wants to use the facility can have access to”*.

When asked about routine cleaning and whether mansions are easily available for major repairs, one of the respondents said; *“I do actually come for general cleaning and also clean the water source when my turn comes because we have time table showing when each household is supposed to clean around the water source”*. He further went to say that *“the mechanics/ mansions are always available only that we don't have money to pay them because most of the members don't pay the monthly contributions hence rendering some water source to be left not functioning”*.

Considering the results from this section sustainability can be achieved by explaining to the members the importance of paying monthly contributions on time and going ahead to account to them how their contribution was used.

#### 4.5 Objective one: Establish the relationship between community participation in planning and sustainability of Ishaka division water project

This objective was designed to establish the relationship between community participation in planning and sustainability of Ishaka division water project and it covers three indicators namely; Information sharing needs assessment and selection of technology. By administering questionnaires to the beneficiaries, the researcher generated data whose analysis yielded the following results.

**Table 4.9 Information sharing and sustainability of Ishaka division water project**

Items	SA(%)	A(%)	UD(%)	D(%)	SD(%)	Mean
I was mobilized for the sensitization meeting.	57(59.4)	39(40.6)	0(0)	0(0)	0(0)	1.59
I attended sensitization meeting.	32(33.3)	64(66.9)	0(0)	0(0)	0(0)	1.33
I was taught the need for using safe water.	51(53.3)	45(46.7)	0(0)	0(0)	0(0)	1.53
I was taught the different types of water facilities.	33(34.4)	63(65.6)	0(0)	0(0)	0(0)	1.34
I learnt the advantages and disadvantages of each of them.	34(35.4)	62(64.6)	0(0)	0(0)	0(0)	1.35

**Source: Primary data**

Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D) and Strongly Disagree (SD)

From the above table 4.9 indicate that 59% of the respondents strongly agreed and 40.6% of the respondents agreed that they were mobilized for the sensitization meeting. Also findings indicate that 33.3% of the respondents strongly agreed and 66.9% of the respondents agreed that they attended the sensitization meeting. The findings also show that 53.3% of the respondents strongly agreed and 46.7% of the respondents agreed that they were taught the need for safe water in health. 34.4% of the respondents strongly agreed and 65.6% of the respondents agreed that they were taught different types of water facilities. Further more the findings also show that



35.4% of the respondents strongly agreed and 64.6% agreed that they learnt the advantages and disadvantages of each of them. This implies that when are respondents are mobilized for sensitization meeting and they attend and are taught need for safe water in health and different types of water facilities and the respondents learn advantages and disadvantages of each of them then sustainability will be ensured hence making the project to be more sustainable.

Results from the interview conducted show that information sharing form a basic element of sustainability because 6 of the respondents that were interviewed in an agreement that “ *we were called for the on information sharing meeting where we were taught need for safe water and learnt different types of water facilities where we learnt the advantages and disadvantages of each water source discussed*”. Considering responses from this section it implies that sustainability can be achieved by calling for sensitization meeting, teaching them need for safe water in health, learning different types of water sources and making them learn the advantages and disadvantages of each of the water sources discussed.

**Table 4.10 Needs assessment and sustainability of Ishaka division water project**

<b>Items</b>	<b>SA(%)</b>	<b>A(%)</b>	<b>UD(%)</b>	<b>D(%)</b>	<b>SD(%)</b>	<b>Mean</b>
I was invited for the assessment activity	61(63.5)	35(36.5)	0(0)	0(0)	0(0)	1.64
The extension staff gave guidance in the exercise	44(45.8)	51(53.1)	0(0)	1(1)	0(0)	2.45
I was asked to state my needs for the project	36(37.5)	41(45.8)	0(0)	7(7.3)	9(9.4)	3.11
I saw the need to provide a safe water facility	45(46.9)	51(53.1)	0(0)	0(0)	0(0)	1.47
The community reached a conclusive agreement in identifying their needs.	28(29.2)	68(70.8)	0(0)	0(0)	0(0)	1.29

**Source: Primary data**

Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D) and Strongly Disagree (SD)

Finding from table 4.10 indicate that 63.5% of the respondents strongly agreed and 36.5% of the respondents agreed that they were invited for the assessment activity. 45.8% of the respondents strongly agreed and 53.1% of the respondents agreed that the extension staff gave guidance in the exercise while 1.0% of the respondents disagreed that the extension staff didn't give guidance in the exercise. 37.5% of the respondents strongly agreed and 45.8% of the respondents agreed that they were asked to state their needs for the project while 7.3% of the respondents disagreed and 9.4% of the respondents strongly disagreed that they weren't asked to state their needs for the project. 65.6% of the respondents agreed and 34.4% of the respondents strongly agreed that saw they saw the need to provide a safe water facility. 64.6% of the respondents agreed and 35.4% of the respondents strongly agreed that the community reached a conclusive agreement in identifying their needs. This implies that Needs assessment in community participation guarantees sustainability of the project this is supported by most of the respondents strongly agreed and agreed that they were invited for the Needs assessment activity, the extension staff gave guidance in the exercise where people were tasked to state their needs for the project hence community reached are a conclusive agreement in indentifying their needs.

Qualitative data revealed that Needs assessment is an important tool for sustainability of any project especially if it's a community based. When the respondents was asked whether he was given a chance to state his needs for the project, one of the respondents replied that *'I made my suggestion and it was followed and I was happy this made me feel that I am part of the project'*.

**Table 4.11 Selection of appropriate technology and sustainability of Ishaka division water project**

Items	SA(%)	A(%)	UD(%)	D(%)	SD(%)	Mean
I was called to participate in the exercise	67(69.8)	29(30.2)	0(0)	0(0)	0(0)	1.70
The technical team was present to assist in technology selection exercise	18(18.8)	76(79.2)	2(2.1)	0(0)	0(0)	2.17
I was given an opportunity to suggest my choice	62(64.6)	19(19.8)	0(0)	10(10.4)	5(5.2)	3.44
Compromise was reached over the appropriate technology finally selected	41(42.7)	55(57.3)	0(0)	0(0)	0(0)	1.43

*Source: Primary data*

Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D) and Strongly Disagree (SD)

Finding from table 4.11 indicates that 69.8% of the respondents strongly agreed and 30.2% of the respondents agreed that they were called to participate in selection of technology exercise. 18.8% of the respondents strongly agreed and 79.2% of the respondents agreed that technical team was present to assist in technology selection exercise, while 2.1% of the respondents were undecided on whether the technical team was present to assist in the technology selection exercise. 64.6% of the respondents strongly agreed and 19.8% of the respondents agreed that they were given an opportunity to suggest their technology choice and 10.4% of the respondents disagreed and 5.2% of the respondents strongly disagreed that they weren't given an opportunity to suggest their technology type. Lastly 42.7% of the respondents strongly agreed and 57.3% agreed that a Compromise was reached over the appropriate technology finally selected. This implies that selection of appropriate technology guarantees sustainability this is supported by the fact that most of the respondents strongly agreed and agreed that they were called to participate in the exercise where the technical team was present to assist in the exercise where an opportunity was

given to respondents to suggest their choice and a compromise was finally reached where an appropriate technology was finally selected.

Results from the interview conducted show that selection of appropriate technology also forms a basis for sustainability. *“We all reached a consensus agreement over the appropriate technology that was finally selected”*. Considering the finding from this section planning if done appropriately, projects have high chances of being sustainable in the long run.

**Community participation in planning and project sustainability**

The study further investigated into community participation in planning and project sustainability and Pearson’s correlation tests were carried out as presented in table 4.12

**Table 4.12: Correlation tests on community participation in planning and project sustainability.**

		Community participation in planning	Project sustainability
Community participation in planning	Pearson Correlation	1	.485**
	Sig. (2-tailed)		.000
	N	96	96
Project sustainability	Pearson Correlation	.485**	1
	Sig. (2-tailed)	.000	
	N	96	96

\*\* . Correlation is significant at the 0.01 level (2-tailed).  
 The results from the correlation (table 4.12) indicate that community participation in planning has moderate positive effect on sustainability (shown by  $r=.485^{**}$  which was moderate. The

corresponding coefficient of determination  $r^2$  was 0.235. This essentially means that community participation. The above findings were also subjected to test of significance  $p$  under a two-sided normal distribution where the standard  $p$  value is known to be 0.001. If the  $p$  value obtained is less than 0.01, then the relationship is significant and otherwise. The value of  $p$  obtained in this case was 0.000 which is less than 0.01. This confirms that the relationship between these two variables was very significant. As a result of that the null hypotheses that there is a positive significant relationship between community participation in planning and sustainability is accepted. This means that community participation in planning practices are good and they have a great effect on the sustainability of Ishaka division water project

#### **Findings or regression analysis on training process and performance**

To establish the relationship between the two variables in the study a regression analysis was run to measure the strength of relationship as presented in the table.

**Table 4.13: Coefficient results for community participation in planning and project sustainability regression analysis findings**

Model		Coefficients <sup>a</sup>					
		Unstandardized Coefficients		Standardized Coefficients	T	R Square	Sig.
		B	Std. Error	Beta			
1	(Constant)	24.236	4.376		5.538		.000
	Community participation in planning	.905	.168	.485	5.377	.235	.000

**Dependent Variable:** Sustainability

Basing on the findings from table 4.13 the above table explains the relationship between sustainability of water project represented by a figure  $24.236 + 0.116$  influence on the community participation in planning. This meant that sustainability of water project was directly proportional to community participation in planning however and the standardized coefficient of 0.485 ( $p=0.000$ ) was statistically significant at 0.005 level of significance. Hence the hypotheses that. *“There is a positive significant relationship between community participation in planning and sustainability of Ishaka division water project”* is accepted meaning community participation in planning influences sustainability of Ishaka division water project.

#### **4.6 Objective two: Find out the relationship between community participation in implementation and sustainability of Ishaka division water project**

This objective was intended to find out the relationship between community participation in implementation and sustainability of Ishaka division water project. This section covered formation of water user committees, site selection and construction of the water facility how they affect sustainability of Ishaka division water project. Through the researcher administering questionnaires and conducting interviews, data were collected and their analysis generated the following results.

**Table 4.14 Formation of water user committees and sustainability of Ishaka division water project**

Items	SA(%)	A(%)	UD(%)	D(%)	SD(%)	Mean
I was called for the exercise	77(80.2)	19(19.8)	0(0)	0(0)	0(0)	1.80
I elected 10 WUC members	35(36.5)	61(63.5)	0(0)	0(0)	0(0)	1.36
I selected female executive members as per the O&M plan	40(41.7)	56(58.3)	0(0)	0(0)	0(0)	1.42
I cooperate with the WUC because I elected them	33(34.4)	60(62.5)	0(0)	3(3.1)	0(0)	2.31
Non- performing WUC members are removed	24(25)	25(26)	0(0)	18(18.2)	29(30.2)	2.46

*Source: Primary data*

Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D) and Strongly Disagree (SD)

Findings table 4.6.7 indicate 80.2% of the respondents strongly agreed and 19.8% of the respondents agreed that they were called for formation of water user committee exercise. Also 36.5% of the respondents strongly agreed and 63.5% of the respondents agreed that they elected 10 WUC members. The findings also indicate that 41.7% of the respondents strongly agreed and 58.3% of the respondents agreed that they selected female executive members as per the O&M plan. Further more the findings show that 34.4% of the respondents strongly agree and 62.5% of the respondents agreed that they cooperate with the WUC because I elected them while 3.1 % of the respondents disagreed that they don't cooperate with the WUC though they elected them. Lastly 25% of the respondents strongly agreed and 26% of the respondents agreed that Non- performing WUC members are removed while 18.2% of the respondents disagreed and 30.2% of the respondents strongly disagreed that Non- performing WUC members are removed.

During the interviews concerning formation of water user committees, a respondent remarked; “I was called to participate in the exercise where I elected 10 female representatives and I cooperate with them because it’s me who elected them”.

**Table 4.15 Site selection and sustainability of Ishaka division water project**

<b>Items</b>	<b>SA(%)</b>	<b>A(%)</b>	<b>UD(%)</b>	<b>D(%)</b>	<b>SD(%)</b>	<b>Mean</b>
I was called to participate in the exercise	55(57.3)	40(41.7)	0(0)	1(1.0)	0(0)	2.56
The technical team guided us in site selection	34(35.4)	62(64.6)	0(0)	0(0)	0(0)	1.35
I participated in the negotiating for land for the water source	53(34.4)	42(59.4)	0(0)	3(6.3)	0(0)	2.28
An agreement was reached that was fair to all parties at the end of the exercise	33(55.2)	57(43.8)	0(0)	6(1.0)	0(0)	2.54

*Source: Primary data*

Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D) and Strongly Disagree (SD)

Table 4.15 above indicate that 57.3% of the respondents strongly agreed and 41.7% of the respondents agreed that they were called to participate in the site selection exercise while 1.0% of the respondents disagreed that they weren’t called to participate in the site selection exercise. 35.4% of the respondents strongly agreed and 64.6% of the respondents agreed that the technical team guided them in the site selection exercise. Also 34.4% of the respondents strongly agreed and 59.4% of the respondents agreed that they participated in the negotiating for land for the water source while 6.3% of the respondents disagreed that they didn’t participate in the negotiating for land for the water source. Lastly 55.2% of the respondents strongly agreed and 43.8% of the respondents agreed that an agreement was reached that were fair to all parties at the end of the exercise while 1.0% of the respondents disagreed that An agreement wasn’t reached that was fair to all parties at the end of the exercise. Concerning site selection one of the



respondents said “I participated in the negotiating for land for the water source which you see over there”. Another respondent said it’s good and “I feel humbled to have been called to participate in the site selection exercise”.

**Table 4.16 Construction of water facility and sustainability of Ishaka division water project**

Items	SA(%)	A(%)	UD(%)	D(%)	SD(%)	Mean
I/my household contributed towards the construction cost	58(60.4)	38(39.6)	0(0)	0(0)	0(0)	1.60
The community was aware of the cost price of the contract	47(49)	47(49)	2(2.1)	0(0)	0(0)	2.47
The community supervised construction work	53(55.2)	41(42.7)	2(2.1)	0(0)	0(0)	2.53
The labour was provided by the community	36(37.5)	60(62.5)	0(0)	0(0)	0(0)	1.38
The community participated in clearing the site and the access route	58(60.4)	38(39.6)	0(0)	0(0)	0(0)	1.60
The community was happy with the constructors work standards	33(34.4)	58(60.4)	5(5.2)	0(0)	0(0)	2.29

**Source: Primary data**

Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D) and Strongly Disagree (SD)

Finding from table 4.16 show that 60.4% of the respondents strongly agreed and 39.6% of the respondents agreed that I/my household contributed towards the construction cost. Also 49% of the respondents strongly agreed and 49% of the respondents agreed that the community was aware of the cost price of the contract while 2.1% of the respondents were undecided on whether the community was aware of the cost price of the contract. The findings also revealed that 55.2% of the respondents strongly agreed and 42.7% of the respondents agreed that the community supervised construction work while 2.1% of the respondents’ were undecided on whether the community supervised construction work.

Also 37.5% of the respondents strongly agreed and 62.5% of the respondents agreed that labour was provided by the community. Findings also revealed that 60.4% of the respondents strongly agreed and 39.6% of the respondents agreed that the community participated in clearing the site and the access route. Lastly 34.4% of the respondents strongly agreed and 60.4% of the respondents agreed that the community was happy with the constructors work standards while 5.2% of the respondents were undecided on whether the community was happy with the constructors work standards. Concerning the construction of water facility, all the respondents confirmed to me they contributed towards the construction cost. Another respondents said “*we as the community, we were aware of the cost price of the contract*”.

### **Community participation in implementation and project sustainability**

The study further investigated into community participation in implementation and project sustainability and Pearson’s correlation tests were carried out as presented in table 4.17

**Table 4.17: Correlation tests on Community participation in implementation and project sustainability**

		<b>Correlations</b>	
		Community participation in implementation	Project sustainability
Community participation in implementation	Pearson Correlation	1	.398**
	Sig. (2-tailed)		.000
	N	96	96
Project sustainability	Pearson Correlation	.398**	1
	Sig. (2-tailed)	.000	
	N	96	96

**\*\* . Correlation is significant at the 0.01 level (2-tailed).**

The results from the correlation above indicate correlation between community participation in implementation and sustainability of water project stood at  $r=.398^{**}$  which was slightly strong. The corresponding coefficient of determination  $r^2$  was 0.158. This essentially accounts means that community participation in implementation accounts for a change in sustainability. The above findings were also subjected to a test of significance  $p$  under a two sided normal distribution where the standard is  $p$  value is known to be 0.01. If the  $p$  value obtained is less than 0.01, then the relationship between two variables of interest is very significant. As a result of that the hypotheses “*There is a positive significant relationship between community participation and project sustainability of Ishaka division water project*” is accepted. This means that community participation in implementation practices are good and they have a great effect on sustainability of Ishaka division water project.

**Findings of regression analysis on Community participation in implementation and project sustainability**

To find out the relationship between the two variables in the study, a regression analysis was run to measure the strength of relationship as presented in the table.

**Table 4.18: Community participation in implementation and project sustainability regression analysis findings**

Model		Coefficients <sup>a</sup>					
		Unstandardized Coefficients		Standardized Coefficients	T	R Square	Sig.
		B	Std. Error	Beta			
1	(Constant)	24.016	5.639		4.259		.000
	Community participation in implementation	.787	.187	.398	4.203	.158	.000

**Dependent Variable:** sustainability

Basing on the findings from table 4.18 explains the relationship between community participation in implementation represented by a figure  $24.016 + 0.787$  influence on the sustainability of Ishaka division water project. This meant that sustainability of Ishaka division water project was directly proportional to community participation in implementation.

The standardized coefficient of community participation in implementation in  $\beta=0.398$ ,  $p=0.000$ ) was statistically significant at 0.005 level. Hence the hypotheses that. *“There is a positive significant relationship between community participation in implementation and project sustainability”* is accepted meaning that community participation in implementation influences sustainability of Ishaka division water project.

#### **4.7 Objective three: Establish the relationship between community participation in operation and Maintainace and sustainability of Ishaka division water project**

The third objective was intended establish the relationship between community participation in operation and maintainace and sustainability of Ishaka division water project. This section covered formation of 3 year O&M plan, use and Maintainace of water facility and conflict resolution and how they affect sustainability of Ishaka division water project. Through the researcher administering questionnaires and conducting interviews, data were collected and their analysis generated the following results.

**Table 4.19 Formation of 3 year O&M plan and sustainability of Ishaka division water project**

Items	SA(%)	A(%)	UD(%)	D(%)	SD(%)	Mean
I was called for the planning meeting	73(76)	21(21.9)	0(0)	2(2.0)	0(0)	3.73
The community identified operation and maintenance activities	29(30.2)	63(65.6)	4(3.1)	0(0)	0(0)	3.25
The meeting identified the cost associated to the activities	63(65.6)	31(32.3)	2(2)	0(0)	0(0)	3.63
The meeting identified source of raising funds for the operation and Maintainace of the facility	48(50)	46(47.9)	2(2)	0(0)	0(0)	3.37
The meeting consulted members on what the monthly/yearly contribution	45(46.9)	49(51)	2(2)	0(0)	0(0)	3.44
The meeting reached an agreement on the monthly / yearly contribution	38(39.6)	56(58.3)	2(2)	0(0)	0(0)	3.36
The meeting identified the mechanics/masons to be used for major repairs	38(39.6)	50(52.1)	1.0	6.3	0(0)	4.23

**Source: Primary data**

Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D) and Strongly Disagree (SD)

The findings from the table 4.19 indicate that 76% of the respondents strongly agreed and 21.9% of the respondents agreed they were called for formation of a 3 year O&M planning meeting while 1.0% of the respondents disagreed that they weren't called for formation of a 3 year O&M planning meeting. 30.2% of the respondents strongly agreed and 65.6% of the respondents agreed that the community identified operation and maintenance activities while 3.1% of the respondents were undecided on whether community identified operation and maintenance activities. Also the findings revealed that 65.6% of the respondents strongly agreed and 32.3% of the agreed that the meeting identified the cost associated to the activities while 1.0% of the respondents were undecided on whether the meeting identified the cost associated to the activities. Further more 50% of the respondents strongly agreed and 47.9% of the respondents agreed that meeting

identified source of raising funds for the operation and Maintainace of the facility while 1.0% of the respondents were undecided on whether meeting identified source of raising funds for the operation and Maintainace of the facility.

The findings also show that 46.9% of the respondents strongly agreed and 51% of the respondents agreed that the meeting consulted members on what the monthly/yearly contribution while 1% of the respondents were undecided on whether the meeting consulted members on what the monthly/yearly contribution. More to that 39.6% of the respondents strongly agreed and 58.3% of the respondents agreed that the meeting reached an agreement on the monthly / yearly contribution while 1% of the respondents were undecided on whether the meeting reached an agreement on the monthly / yearly contribution. Lastly 39.6% of the respondents strongly agreed and 52.1% of the respondents agreed that the meeting identified the mechanics/masons to be used for major repairs and 6.3% of the respondents disagreed that the meeting identified the mechanics/masons to be used for major repairs while 1% of the respondents were undecided.

Concerning formation of a 3 year O&M plan, one of the respondents confirmed to me that they identified source of raising funds for the operation and mantainence of the water facility. Another respondent confirmed to me that they identified the mechanics/masons to be used for major repairs.

**Table 4.20 Use and Maintainace of water facility and sustainability of Ishaka division water project**

Items	SA(%)	A(%)	UD(%)	D(%)	SD(%)	Mean
The WUC called for a training on use and Maintainace of the facilities	58(60.4)	38(38.5)	0(0)	0(0)	0(0)	2.59
I know how to operate the water facility	54(56.3)	42(42.7)	0(0)	0(0)	0(0)	2.55
We have established rules on Maintainace of water facilities	55(57.3)	41(41.7)	0(0)	0(0)	0(0)	2.56
The caretakers ensure that the regulations are lived up-to i.e. fines are charged	12(12.5)	21(21.9)	0(0)	34(35.4)	29(29.2)	3.16
The care takers carry out regular servicing of the facilities.	1(1)	6(6.3)	0(0)	31(32.2)	58(59.4)	2.47

*Source: Primary data*

Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D) and Strongly Disagree (SD)

Findings from table 4.20 indicate that 60.4% of the respondents strongly agreed and 38.5% of the respondents agreed that WUC called for training on use and Maintainace of the facilities. also 56.3% of the respondents strongly agreed and 42.7% of the respondents agreed that they know how to operate the water facility. Findings also show that 57.3% of the respondents strongly agreed and 41.7% of the respondents agreed that they have established rules on Maintainace of water facilities. Also 12.5% of the respondents strongly agreed and 21.9% of the respondents agreed that caretakers ensure that the regulations are lived up-to i.e. fines are charged. Lastly 1% strongly agreed and 6.3% agreed that care takers carry out regular servicing of the facilities and 32.2% of the respondents disagreed and 59.4% of the respondents strongly disagreed that care takers carry out regular servicing of the facilities. Some information got from the interviews indicate that WUC called for a training on use and maintenance of the facilities. One of the respondents said that the caretakers don't carry out regular servicing of the facilities. Another respondent added that the caretakers don't ensure that the regulations are lived up to i.e. fines aren't charged.

**Table 4.21 Conflict resolution and sustainability of Ishaka division water project**

Items	SA(%)	A(%)	UD(%)	D(%)	SD(%)	Mean
We experience water related conflicts that affect the operation and Maintainace of the water facility	48(50)	41(42.7)	0(0)	7(6.3)	0(0)	3.42
Water users have complaints of misuse of funds by the WUC members	52(54.2)	34(35.4)	7(7.3)	3(2.1)	0(0)	4.40
WUC members have disputes with the water users who don't want to pay timely contributions	19(19.8)	61(63.5)	7(7.3)	1(1.0)	7(7.3)	4.84
The WUC have conflicts with the water users who don't want to clean the water source	25(26.0)	57(59.4)	8(8.3)	2(2.1)	3(3.1)	5.00
The WUC always calls for meetings to resolve this conflicts	35(36.5)	56(58.3)	3(3.1)	2(2.1)	0(0)	3.29
I always attend these conflict resolution meetings	30(31.3)	50(52.1)	0(0)	7(7.3)	9(9.4)	3.05
These meetings always help in reconciling the conflicting parties	18(18.8)	69(71.9)	3(3.1)	2(2.1)	4(4.2)	3.99

**Source: Primary data**

Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D) and Strongly Disagree (SD)

The findings from table 4.21 show that 50% of the respondents strongly agreed and 42.7 of the respondents agreed that they experience water related conflicts that affect the operation and Maintainace of the water facility and 6.3% of the respondents disagreed that they experience water related conflicts that affect the operation and Maintainace of the water facility. Also findings show that 54.2% of the respondents strongly agreed and 35.4% of the respondents agreed that Water users have complaints of misuse of funds by the WUC members and 2.1% of the respondents disagreed that Water users have complaints of misuse of funds by the WUC members while 2.1% of the respondents were undecided. Also 19.8% of the respondents strongly agreed and 63.5% of the respondents agreed that WUC members have disputes with the water users who don't want to pay timely contributions and 1% of the respondents disagreed and 7.3%



of the respondents strongly disagreed that WUC members have disputes with the water users who don't want to pay timely contributions while 7.3% of the respondents were undecided.

Also findings indicate that 26% of the respondents strongly agreed and 59.4% of the respondents agreed that WUC have conflicts with the water users who don't want to clean the water source and 2.1% of the respondents disagreed and 3.1% of the respondents strongly disagreed that WUC have conflicts with the water users who don't want to clean the water source while 8.3% of the respondents were undecided. Further more 36.5% of the respondents strongly agreed and 58.3% of the respondents agreed that WUC always calls for meetings to resolve this conflicts and 2.1% of the respondents disagreed that WUC always calls for meetings to resolve this conflicts while 3.1% of the respondents were undecided. Also the findings indicated that 31.3% of the respondents strongly agreed and 52.1% of the respondents agreed that they always attend these conflict resolution meetings and 7.3% of the respondents disagreed and 9.4% of the respondents strongly disagreed that they always attend these conflict resolution meetings. Lastly 18.8% of the respondents strongly agreed and 71.9% of the respondents agreed that these meetings always help in reconciling the conflicting parties and 2.1% of the respondents disagreed and 4.2% of the respondents strongly disagreed that these meetings always help in reconciling the conflicting parties while 3.1% of the respondents were undecided.

Also when asked on conflict resolution, one said; that we experience water related conflicts that affect the O&M of the water facility. Another one said; *“that they have complaints of misuse of funds by the WUC members”*. Another respondent confirmed it to me that; *“they have disputes with water users who don't want to pay their contributions on time”*. However one of the

respondents said though the conflicts are their, that the WUC always calls for meetings to resolve the conflicts.

**Community participation in operation and Maintainace has significant effect on sustainability of Ishaka division water project.**

The study further investigated into community participation in operation and Maintainace has significant effect on sustainability the Pearson’s correlation tests were carried out as presented in table 4.22

**Table 4.22: Correlation tests on Community participation in operation and Maintainace has significant effect on sustainability of Ishaka division water project.**

		Community participation in O&M	Project sustainability
Community participation in operation and Maintainace	Pearson Correlation	1	.096
	Sig. (2-tailed)		.350
	N	96	96
Project sustainability	Pearson Correlation	.096	1
	Sig. (2-tailed)	.350	
	N	96	96

\*\*. Correlation is significant at the 0.01 level (2-tailed).

The finding from the table 4.22 of correlation above reveal that the correlation between community participation operation and maintainace stood at  $r=0.096$  which was negligible. This essentially means that major community participation in operation and maintainace practices account for a minor change in project sustainability of Ishaka division water project.

The above findings were also subjected to a test of significance  $p$  under a two-sided normal distribution where the standard  $p$  value is known to be 0.01. If the  $p$  value obtained is less than 0.01, then the relationship is significant and otherwise. The  $p$  value obtained in this case was 0.350 which is more than 0.01. This confirms that the relationship between the two variables of interest was statistically insignificant. As a result the hypotheses “*There is a positive significant relationship between community participation in operation and maintenance and sustainability of Ishaka division water project*” is rejected. This implies that community participation in operation and maintenance did not influence sustainability of Ishaka division water project.

**Findings of regression analysis on community participation in operation and Maintenance has significant effect on sustainability of Ishaka division water project**

To establish the relationship between the two variables in the study a regression analysis was run to measure the strength of relationship as presented in the table 4.23

**Table 4.23 Regression analysis findings on community participation in operation and maintenance has Positive significance on sustainability of Ishaka Division Water Project**

Model		Coefficients <sup>a</sup>					
		Unstandardized Coefficients		Standardized Coefficients	T	R Square	Sig.
		B	Std. Error	Beta			
1	(Constant)	41.476	6.556		6.326		.000
	Community participation in O&M	.092	.098	.096	.940	.009	.350

**Dependent Variable:** project sustainability

The results from the correlation table 4.23 above explains the relationship between community participation in O&M represented by a figure  $41.476 + 0.092$  influence on the sustainability of Ishaka division water project. This meant that sustainability of Ishaka division water project was directly proportional to community participation in O&M. The standardized coefficient of community participation in operation and maintainace (Beta=0.096, p=0.350) was statistically insignificant at 0.005 level of significance. Hence the hypothesis "*There is a significant positive relationship between community participation in operation and maintainace*" is rejected.

This means that community participation in operation and maintainace did not influence sustainability of Ishaka division water project.

## **CHAPTER FIVE**

### **SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

In this chapter, the summary, discussion, conclusions and recommendations of the study were presented according to the findings and where appropriate, existing literatures were included in the discussion. The contributions of the study, areas for future research and study limitations are also highlighted.

#### **5.2 Summary of findings**

The researcher in this section presented summary of the findings objective by objective for this study following a descriptive and correlation analysis of the collected data. Below is a summary of the findings according to the three main objectives.

##### **5.2.1 Community participation in planning and sustainability**

Community members were participating in planning for water projects at negotiation stage, communities were involved in identifying their needs, involved in selecting of technology type and selection of types of water sources. There was a moderate positive correlation between community participation in planning and sustainability of Ishaka division water project; hence community participation in planning was more related to Ishaka division water project sustainability this was revealed by correlation significance at the 0.01 level (2-tailed) and regression analysis of  $\beta = .485$ ,  $t = 5.377$  and significance of 0.000.

### **5.2.2 Community participation in implementation and sustainability**

Water projects were very active in solving the needs for the community since it was reported that community members benefited a lot from the water project implemented and were satisfied with them. More so community members participated in ensuring that the project is effective through advising implementers on how best to improve services in the water sector. Community members contributed towards construction of water sources and users were aware of their responsibilities in contributing towards construction of water sources. There was a slight positive correlation between community participation in implementation and sustainability of Ishaka division water project, implying that community participation in implementation of Ishaka division water project to some extent was related to sustainability. This was revealed from correlation significance of 0.000 at 0.01 level and the regression analysis of  $\beta=0.398$ ,  $t=4.203$ ,

### **5.2.3 Community participation in operation and Maintainace sustainability**

Most of the water sources had active water committees which were selected among water users, most of the water user committees put in place were not trained, WUC set by-laws to govern their water sources which were not effectively implemented. Community members were not paying user fees on time for improved water sources regularly though respondents were of opinion that all water users should pay user fees for improved water sources and use to maintain their water sources. There was a negligible positive correlation between community participation in operation and maintainace and sustainability of water project, meaning that community participation in operation and maintainace was less related to Ishaka division water project, meaning that community participation operation and maintainace was less related to sustainability of Ishaka division water project. This was revealed form quantitative data which

revealed by regression of  $\beta = 0.096$ ,  $t = 0.940$  and correlation significance of 0.350 at 0.001 level (2-tailed)

### **5.3 Discussion of the findings**

The following subsections present the discussions of the findings of this study following an objective by objective approach.

#### **5.3.1 Community participation in planning and sustainability.**

Community members' highly participated in planning for water projects at negotiation stage, through identifying their water needs, involvement in electing water locations and type of water sources as well as resources. This was in line with Bossert (1990), Barmejo and Bekui (1993) and Shea et al. (1992) who observed that sustainability needs to be mapped out at the negotiation stage that is at planning /design stage. They argued that projects with participatory approach in setting goals, targets and time frames were more likely to be sustained. However communities were neither participating in determining the duration of the water projects to be implemented, nor being consulted on the same by implementers, duration of the projects were being determined by district officials and usually influenced by procurement process as well as time release of grants from the centre, usually all projects were implemented within one financial year.

Bamberg and Cheema, (1990) observed that short term period of governments and other funding agencies due to crisis mode of operation and short budget cycles affected the process of sustainability and Steckler and Goodman (1989b) suggested a period of 5 years to enhance institutional process of the program. According to Mathew et al, (2006), Scheirer, (2005), and

Wong,(2004) in their studies on sustainability of public health programs emphasized full participation of communities at planning/design stages which was the case with Ishaka division water project hence enhancing sustainability. Community participation in planning for water project was statistically significant in ensuring sustainability of Ishaka division water project in Bushenyi Ishaka municipality.

### **5.3.2 Community participation in implementation and sustainability**

Community members participated in implementation of water projects through project financing by contributing little funds and some cases locally available materials, labour and little funds. This was in line with the recommendations of Abel Smith and Dua (1988); Gerter and Vander Gaag (1990) and Haws et al, (1992) who proposed user fees and community contributions for financial sustainability and promotion of sense of ownership. Stakeholders were involved in implementation of water sources suggested by Sheirer (2005) as one of the key factors for project success and sustainability. Stakeholders' involvement was further emphasized by Wong (2004); Medeirol (1999); Altman (1995) and Oslen (1998) and suggested that it is was one way of promoting sense of ownership of development interventions put in place.

The findings are also in agreement with earlier findings by Samuel & Chin, Pate & Martinez (2000), Banakus & Angel (2003), and Choo & Boze (2007) who also found that community participation in implementation of community based projects is important for their success in terms of ensuring that they function as expected and continue existing in good working condition. Furthermore, the findings of this study are in line with earlier findings of Kasekende (2005) who found that willingness of community members of community members to contribute



resources such as land and construction materials was one of the major factors explaining successful implementation of community based water systems in Kasanda sub county in Mubende district and Okello (2006) noted that encouraging participation of community members in the implementation of community activities guarantees the sustainability of community activities.

### **5.3.3 Community participation in operation and Maintenance and sustainability**

Most of the water sources has an active water committee which were selected among water user, however not all water user committees put in place were trained, due to budgetary constraints and some donor donations conditions which did not allow software activities and left them to local authorities as their co-financing. This was against the Government of Uganda water and sanitation policy (2007) where it is emphasized that every water point put in place should have a well trained water user committees. Absence of well trained water user committees affected functionality of many water sources hence rendering them unsustainable this was very common with taps. Water taps mechanics were indentified among users, trained and equipped with tool boxes, they worked as volunteers who were supposed to be facilitated by the water user committee when they repaired the water sources, they were faced with a challenge of lack adequate spare parts to repair water sources mostly taps. This initiative did not fully solve the problem of water source breakdown. This was in agreement with Bossert (1990), who said that projects with training components are more likely to be sustained than those without; he further suggested that those trained could continue to provide benefits, train others and form a constituency in support of the program.

More so though WUC set by laws to govern their water sources, did not implement them due to weak and some instances non availability of LC 1 chairpersons, since Local council one elections were long overdue, a good number of chairpersons migrated to other places, others died while others lost interest in the leadership, this affected WUCs performance as far as enforcing by-laws are concerned. Water users were not paying user fees for improved water sources regularly, community members were of the opinion that all water users should pay user fees for improved water sources and recommended the fees to be used to maintain their water sources. One key informant revealed that users do not pay user fees on regular basis, but they used to do it when there is need “crisis management” despite the fact that they were always encouraged to contribute towards maintenance of water sources. This finding was in agreement with the WaterAid Uganda Annual Report (2009), which reported that both the well served and poorly served with improved water sources committees demonstrated ability and willingness to contribute funds for O&M for minor repairs. In terms of gender and the golden indicator for women’s participation in decision making in the rural water sanitation is the percentage of water and sanitation committees with at least one woman holding key position. The study revealed that women were allowed to freely to be selected on WUCs to improve efficiency and effectiveness of these water user committees.

Community members were not fully participating in the Maintainace of water sources, since they were not regularly contributing user fees for maintainace, did not have functional user committee and did not enforce by-laws. The above was in line with MWE (2010), which emphasizes that for each and every improved water source put in place there must be a well trained water user committee which is an executive arm of water user group with the following roles and

responsibilities; demanding and planning for improved water and sanitation services. Contribute cash towards construction of water facilities, responsible for O&, including the collection of revenue, they are also mandated to enact and enforce by-laws governing their water sources to ensure full functionality of their water sources. These findings suggested are in agreement with earlier findings by Nelson(2003), Johnson (2000), Sartin (2003), Bruce & Pedro (1999), Jordan & Evans (2005), Adams et al (1998), and Heathfield who also found a positive links between community participation in operation and maintainace and success of community based projects in terms of optimal functionality.

Sartin (2003) also argued that in management of community based initiatives, it is not enough to allow community to contribute ideas but much more, it is important to address any ideas that are raised by members. This makes members feel that their needs are respected and it can drive the spirit of participation, leading to various community gains. The results of qualitative analysis revealed that community members were less willing to report to mul-functionality status of the water systems because previously their reports had been ignored and nothing was done to rectify the mul- functioning water systems. Because of this the mul-functioning water systems remain unattended to for a long time, hence poor O&M of the systems. It is strongly believed that low level of community participation in implementation which was positively related to the current poor status of O&M of the water systems can partly be explained by failure of concerned officials to address the mul-functionality reports raised by community members. Therefore, ensuring that mul-functionality reports raised by communities are effectively addressed by concerned officials would enhance community participation in operation and maintainace and in turn, improve the sustainability of Ishaka division water project.

## **5.4. Conclusions**

The researcher made conclusions on the three objectives of the study on the parameters of community participation and how they affect project sustainability. Having looked through the findings and discussed it in relation to other similar researches done elsewhere, the following conclusions can be drawn from it.

### **5.4.1 Community participation in planning and sustainability**

Three parameters were used in this study to establish the relationship between community participation in planning and sustainability of Ishaka division water project. They were; information sharing needs assessment and selection of appropriate technology. The question of the study stated as follows. What is the relationship between community participation in planning and sustainability of Ishaka division water project? Overall there was a significant positive relationship between community participation in planning and sustainability of water project. Therefore, the lesson learned was that increasing community participation would improve the sustainability of water project in terms of reliability, financial and institutional sustainability.

### **5.4.2 Community participation in implementation and sustainability**

Here three parameters were considered to find out the relationship between community participation in implementation and sustainability of Ishaka division water project namely formation of water user committees, site selection and construction of water facility. The question of the study stated as follows: what is the relationship between community participation in implementation and sustainability of Ishaka division water project? Overall there was a

significant positive relationship between community participation in implementation and sustainability of Ishaka division water project. Therefore the conclusion was that increasing community participation in implementation would improve the sustainability of water project in terms of reliability, financial and institutional sustainability.

#### **5.4.3 Community participation in operation and Maintainace and sustainability**

Again three parameters were used to establish the relationship between community participation in operation and maintainace and sustainability of Ishaka division water project namely; formation of 3 year O&M plan, use of maintainace of water facility and conflict resolution.

The question of the study stated as follows what is the relationship between community participation in operation and maintainace and sustainability of Ishaka division water project?

Overall there was an insignificant relationship between community participation in operation and maintainace and sustainability of water project. The conclusion from this study was that increasing community participation in operation and maintainace would not necessarily improve the sustainability of water project in terms of reliability of water facility, functional and institutional sustainability.

#### **5.5 Recommendations**

The recommendations of this study are derived from the conclusions drawn from the research findings and they are specific to the study objective.

### **5.5.1 Community participation in planning and sustainability**

Community members' involvement in planning meeting related to water systems can be enhanced by listening and considering their views related to the water systems, respecting their preferences related to the water systems and equipping them with adequate information necessary for making appropriate and informed decisions related to the water systems. In this way members will feel their views are valued. As a result, their sense of attachment to, ownership of and care for the water facility will increase leading to sustainability.

### **5.5.2 Community participation in implementation and sustainability**

Local authorities, water management committee members of the water system can enhance community participation in implementation by establishing proper accountability mechanisms for collected resources, economically empowering community members this will in return increase resource available for construction of new water systems, care for existing water systems and repair for broken down water systems, hence improving the sustainability status.

### **5.5.3 Community participation in operation and Maintainace and sustainability**

Water committee members and local community leaders can enhance the level of community member participation in operation and maintainace by specifying agreeable times and days for inspecting water systems and effectively addressing functionality issues raised by community members and also holding general meeting to resolve the conflicts which could have a raised. As a result, their feelings of being valued will increase leading to increase in the sustainability of water project in Ishaka division water project.

## **5.6 Limitations of the study**

Obtaining data for this study was difficult as most of the respondents complained that similar water related studies had been conducted previously, but they had not witnessed changes to the current water supply situation. However, it took the effort of local community leaders and the researchers' ability to explain the purpose and potential benefits of the study for the respondents to finally accept participating in the study.

## **5.7 The contributions of the study**

The study brought a clear understanding of the significant relationship between community participation and sustainability of water projects. The study added knowledge to the existing wealth of knowledge, on which future researchers can draw. In addition, a suggestion of areas for further research has been made to guide Uganda Management Institute.

## **5.8 Areas recommended for further research**

Because of scope, time and other limitations and the need to be focused, this study could not exhaust all the aspects of sustainability. The following areas have therefore been recommended for further research:

- The relationship between different types of water sources and their sustainability
- Conduct a comparative study of community participation and sustainability of water sources with other divisions in Bushenyi –Ishaka municipality

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**APPENDIX 1:**

**DIVISION OFFICIALS INTERVIEW SCHEDULE**

1. What steps do you go through in order to give a community a water facility?

.....

2. What steps does the community go through in order to get a water facility?

.....

3. How is the community involved in the process of acquiring a water facility?

.....

4. What conditions must a community meet in order to be provided with a water facility?

.....

5. How do you ensure that the facilities you provide remain functional?

.....

6. Are you satisfied with the level of functionality of the water facilities so far provided?

Yes.....No.....Somehow.....

7. Please give reasons for your opinion

.....

8. As water facility providers what problems do you encounter that effect your

Service delivery

.....

**APPENDIX 2:**

**QUESTIONNAIRES TO RESPONDENTS**

Dear Respondent, Am RUSHAGIKA EISENHOWER a final year student of Uganda Management Institute, conducting a research leading to the award of Masters Degree in Management studies. The purpose of this study is to examine the relationship between community participation and sustainability of water project in Ishaka- Bushenyi Municipality A case of Ishaka Division Water project. Your participation is voluntary and I assure you that your answers will be private and confidential

Instructions:

- i. Put a tick in the space provided for an appropriate answer
- ii. Fill in the blank space where alternative answers are not provided
- iii. Name of the respondent not needed

**Section A; Social Demographic Data of the respondent**

**1. Age**

- a) 18 and below
- b) 19-29
- c) 30-39
- d) 40 and above

**2. Sex**

- a) Male
- b) Female

**3. Marital status**

- a) Single
- b) Married
- b) Divorced
- d) others.....

**4. Education Background**

- a) Primary
- b) O" level
- c) Advanced
- d) Degree
- Others.....

**Section B: Community participation and sustainability of Ishaka division water project.**

In this section, using the rating scale of 5-1 as illustrated below, select by ticking the scale that best describes your opinion with concerning the aspect.

5-Strongly Agree    4-Agree    3-Not Sure    2-Disagree    1-Strongly Disagree

**PLANNING**

**Community Sensitization (information sharing)**

	Aspect	5	4	3	2	1
1.	I was mobilized for the sensitization meeting					
2	I attended the meeting					
3	I was taught the need for safe water in health					
4	I was taught the different types of water facilities					
5	I learnt the advantages and disadvantages of each of them					

**Needs Assessment**

	Aspect	5	4	3	2	1
6	I was invited for the assessment activity					
7	The extension staff gave guidance in the exercise					
8	I was asked to state my needs for the project					
9	I saw the need to provide a safe water facility					
10	The community reached a conclusive agreement in identifying their needs.					

**Selection of appropriate technology**

	Aspect	5	4	3	2	1
11	I was called to participate in the exercise					
12	The technical team was present to assist in technology selection exercise					
13	I was given an opportunity to suggest my choice					
14	Compromise was reached over the appropriate technology finally selected.					

## IMPLEMENTATION

### Formation of water user committees

	Aspect	5	4	3	2	1
15	I was called for the exercise					
16	I elected 10 WUC members					
17	I selected female executive members as per the O&M plan					
18	I cooperate with the WUC because I elected them					
19	Non- performing WUC members are removed					

### Site selection

	Aspect	5	4	3	2	1
20	I was called to participate in the exercise					
21	The technical team guided us					
22	An agreement was reached that was fair to all parties at the end of the exercise					
23	I participated in the negotiating for land for the water source					

### Construction of the water facility

	Aspect	5	4	3	2	1
24	I/my household contributed towards the construction cost					
25	The community was aware of the cost price of the contract					
26	The community supervised construction work					
27	The labour was provided by the community					
28	The community participated in clearing the site and the access route					
29	The community was happy with the constructors work standards					

## OPERATION AND MAINTANACE RELATED FACTORS

### Formation of a 3- year O&M Plan

	Aspect	5	4	3	2	1
30	I was called for the planning meeting					
31	The community identified operation and maintenance activities					
32	The meeting identified the cost associated to the activities					
33	The meeting identified source of raising funds for the operation and Maintainace of the facility					
34	The meeting consulted members on what the monthly/yearly contribution					
35	The meeting reached an agreement on the monthly / yearly contribution					
36	The meeting identified the mechanics/masons to be used for major repairs					

### Use and Maintainace of water facility

	Aspect	5	4	3	2	1
37	The WUC called for a training on use and Maintainace of the facilities					
38	I know how to operate the water facility					
39	We have established rules on Maintainace of water facilities					
40	The caretakers ensure that the regulations are lived up-to i.e. fines are charged					
41	The care takers carry out regular servicing of the facilities.					

### Conflict resolution

	Aspect	5	4	3	2	1
42	We experience water related conflicts that affect the operation and Maintainace of the water facility					
43	Water users have complaints of misuse of funds by the WUC members					
44	WUC members have disputes with the water users who don't want to pay timely contributions					
45	The WUC have conflicts with the water users who don't want to clean the water source					
46	The WUC always calls for meetings to resolve this conflicts					
47	I always attend these conflict resolution meetings					
48	These meetings always help in reconciling the conflicting parties					

## SUSTAINABILITY

### Institutional

	Aspect	5	4	3	2	1
49	We signed an agreement (MoU)					
50	All the actors are observing the terms of the agreement					
51	We have an active water user committee(WUC)					
52	We have a 3 year operation and Maintainace plan					
53	The WUC follows this plan in its management					
54	We have asset of by-laws for use and Maintainace of water facility					
55	The WUC has capacity to solve water related conflicts					

### Financial

	Aspect	5	4	3	2	1
56	I pay my monthly/ yearly contribution on time					
57	Some of our funding comes from fines against defaulters of water rules					
58	The WUC has set a repayment date for the contributions					
59	The WUC calls for accountability meetings regularly					
60	The treasurer keeps an updated list of all the members					

### Reliability of water facility

	Aspect	5	4	3	2	1
61	The location of the facility is easily accessible to all users					
62	All users find it easy to use the water facility with out difficulty					
63	The users find easy to do the routine cleaning and maintenance					
64	The area mechanics/masons are easily available for major repairs					
65	The spares required are easily available on the market					

Thank you