

PARTICIPATORY COMMUNICATION AND SUSTAINABILITY OF WATER
PROJECTS: A CASE OF ELANGATA-WUAS, KAJIADO COUNTY

by

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APPROVAL

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PROJECTS: A CASE OF ELANGATA-WUAS, KAJIADO COUNTY

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DECLARATION

PARTICIPATORY COMMUNICATION AND SUSTAINABILITY OF WATER
PROJECTS: A CASE OF ELANGATA-WUAS, KAJIADO COUNTY

I declare that this is my original work and has not been submitted to any other college or university for academic credit.

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LIST OF ABBREVIATIONS AND ACRONYMS

CIDA	Canadian International Development Agency
CCF	Christian Child Fund
FGDs	Focus Group Discussions
IFAD	International Fund for Agricultural Development
MDGs	Millennium Development Goals
NGO	Non-Governmental Organization
NACOSTI	National Commission for Science, Technology, and Innovation
UN	United Nation
UNDP	United Nations Development Program
UNEP	United National Environmental Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization

ABSTRACT

The purpose of this study was to investigate the relationship between participatory communication and the sustainability of water projects in Elangata-Wuas, Kajiado County. The objectives of the study were to find out the relationship between resources, time and labor provided by the community and the sustainability of water project, determine the influence of participation in decision making in the sustainability of water projects, and establish the relationship between the selection of technology and selection of management structures on the sustainability of water projects. A descriptive exploratory research design and purposive sampling technique were used. Data were collected using focus group discussions and analyzed using thematic analysis approach. Research findings indicated that residents of the Elangata-Wuas were, from inception to evaluation, actively involved in decision-making process of the water projects. Beneficiaries' opinions were discussed and incorporated in the development of the projects. Based on these findings, the study concluded that community participation and involvement could only be effective through the provision of resources, time labor, participation in decision-making, selection of technology and management structures. In addition, participatory communication influenced the sustainability of the water projects in Elangata-Wuas in Kajiado County. The study, therefore, recommended that donors, agencies, and county governments intending to support communities need to involve the community at all stages of a project development and allow beneficiaries to actively participate and own the project. That way, the communities will have control over the projects, and this would translate to project sustainability.

DEDICATION

I dedicate this research to my late grandfather Mr. Joseph Nkiyiaa Tinene for believing in me and encouraging me to aim and soar higher. To my God given, loving and adorable daughter and greatest cheerleader Tehillah, may this research be an inspiration for you to aim higher than I have. Be rest assured that God has set time for everything in our lives, including blessings, our calling, and our purpose. We just need to trust His timing. You are always in my prayers.

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

Introduction

People's welfare is linked to water. Lack of access to clean water consumes time, raises the burden of waterborne diseases, and increases costs of accessing healthcare. In turn, this affects the economy of a geographical location. Regarding Kenya, Baumann and Carter (2006) wrote that most water projects implemented in the rural areas to address the problem of water accessibility appeared to be non-operational. In Freire's (1970) postulation, such projects fail because the processes of designing, planning and implementation of the projects excluded beneficiaries. Similarly, Okigbo and Eribo (2004) stated that most development projects in Africa collapse, not because of lack of resources. They fail because of improper coordination, especially by the people and the donor agency. Baumann and Carter (2006) noted that if the trend continues, rural water facilities will be completely unsustainable and nonfunctional, and this may render all the positive efforts by the government and the non-governmental organizations towards achieving accessibility to clean water useless, wasteful and of no impact.

As Tufte and Mefalopulos (2009) explained, within vulnerable and marginalized groups, empowerment is facilitated by a blend of participatory communication, community's active involvement at the level of project design, implementation, monitoring and evaluation of a given project. Bessette (2004) maintained that establishment of community relationship through their involvement in project cycle (that is, project design to monitoring and evaluation) is key. Relatedly, Mulwa (2013) asserted that community support in projects is

a key contributor to sustainability. In view of this, the study explored the relationship between participatory communication and sustainability of water projects in Elangata-Wuas, Kajiado County.

The rest of the chapter engaged with the study's background, statement of the problem, purpose, objectives, research questions, justification, significance, assumptions, scope, limitations and delimitations, definition of terms, and the summary.

Background to the Study

In social and economic development, water is a key natural resource that is essential for life sustenance. Many governments and non-governmental organizations, both local and international, have employed water projects for the promotion of safe rural water supply and sanitation over the years. However, most projects fail because most communities do not own the projects and, in other instances, as elaborated by Harvey and Reed (2007), the lack of sustainability frameworks for these water infrastructures and their supply systems.

In developing countries, the major issue in water supply is gauging the willingness of community members to manage their water sources and infrastructures through contribution of time and resources (Gleitsmann, 2005). Gleitsmann added that the contribution of more time and resources to the protection, operation and maintenance of rural water supply is a necessary towards achieving sustainability of water supply and its infrastructures. On the other hand, Harvey and Reed (2007) asserted that community involvement strongly influences the sustainability of projects. It is further elaborated that community involvement might take the form of labor, participation in decision making, money, material, equipment, and expression of demand for water, selection of the technology and project site, and selection of management structures within the community.

According to a report by the United Nations Children's Emergency Fund (UNICEF, 2010), it is estimated that 41% of the Kenyan population lives without access to safe drinking water; relies on unprotected wells, springs, or informal water providers, while 69% do not have access to basic sanitation, and yet most of the water projects launched by the government or donors are left in ruins (Baumann & Carter, 2006). This problem is further exacerbated as Kenya's population is likely to increase in the next few decades. Given these realities, Kenya will also need to tackle issues related to water crisis (World Health Organization [WHO] & UNICEF, 2010) and with the millions sunk into boreholes and provision of water by donors and county governments, there is need to find out how sustainability of such projects relates to the community's participation given that in certain areas water is still an issue regardless of the efforts of donors.

The main economic activity in Kajiado County is livestock rearing. Located in the Southern part of Kenya, 16% of the county's land is arable while most of the land is arid and semi-arid with few seasonal rivers that are dry and in located in a distance from community members. This results into locals walking tens of kilometers in search of water for their use and their animals. Their semi-nomadic kind of lifestyle might be a reason why they abandon water projects initiated by development partners especially the ones that do not involve the communities.

As a nomadic community, the Maasai focus more on their livestock and where they find lush fodder to pasture them. In the quest to take care of their livestock, the Maasais might settle down in a place and in the process scoop out sand from rivers that have dried to get water for themselves and their livestock (see photo below). The fact that existing boreholes are left in ruins by the local community members raises concern. For instance, this

calls for interrogation of how participatory communication among the different stakeholders, including the community, precedes these projects and the extent to which locals' participation or lack of it affect the sustainability of these projects.



women scooping sand to get water. source: researcher

The major problem facing the Elangata-Wuas community is lack of water occasioned by scarce rainfall. Even so, they have received some respite in the form of boreholes sunk by Elangata-wuas Ecosystem Management program and Christian Child Fund (CCF) known as Kudu and CCF borehole respectively. However, Kudu and CCF borehole became non-operational in the same year they were installed. This has therefore further exacerbated the situation and necessitated the search for water in distance places to sustain family members and livestock in the community.

It was against this backdrop that the present study explored the use of participatory communication to investigate sustainability of water projects in Elangata-Wuas, community in Kajiado County. The theory of participatory communication was developed by the

Brazilian educator Paulo Freire (1970) as an approach to facilitate people's involvement in decision-making about issues impacting their lives. According to Fox (2019), the theory is framed within the framework of addressing specific needs and priorities relevant to people from their perspective and as a step towards empowering the people. Development becomes more sustainable, effective, and long lasting when the target audiences are involved.

The performance and sustainability of community water supply projects has been heralded as a promising direction for a variety of communities in Kenya (Harvey & Reed, 2007). The broad idea is to integrate the physical, social, and economic factors into a multi-faceted approach that recognizes their interrelatedness so that communities can benefit from the water supply projects while existing ones are sustained over time. This integration is fundamental to definition of sustainable water supply projects, such as those designed and managed to fully contribute to the objectives of society, now and in the future, while maintaining their ecological, environmental, and hydrological integrity.

Rural water supply projects are considered sustainable when the water sources are not over exploited but naturally replenished. The community water supply projects are maintained in a condition which ensures a reliable and adequate water supply system is available to the users over a prolonged period (Harvey & Reed, 2007). More specific factors of performance and sustainability include modern technology, social cultural factors, community and social aspects, financing, maintenance, and capacity building. Local participation and management are also presumed to be instrumental for sustainable water resources (Kamruzzaman, 2017).

For community managed water projects to be sustainable, they require meaningful participation at all stages of the project cycle and ongoing support through resources, time

and labor long after project commissioning (Harvey & Reed, 2015). It was against this background that this study sought to investigate the relationship between participatory communication and the sustainability of water projects in Elangata-Wuas, Kajiado County.

Statement of the Problem

Many funded projects address needs that vulnerable communities and the government cannot afford, and the irony is that these communities leave these projects to go to waste immediately donors exit (Baumann & Carter, 2006). Majority of the projects have been found to fail because of the lack of sustainability and the fact that communities do not own these projects (Harvey & Reeds, 2007). Operations and maintenance through community contribution have been cited by different authors as key factors of sustainability of funded projects after the withdrawal of the donors. To this end there is an urgent need to explore the relationship between participatory communication and sustainability of water projects in Elangata-Wuas, Kajiado County.

Many studies have been conducted on project sustainability and community involvement in water project. Ochelle (2012) looked at factors influencing sustainability of community water projects in Kenya, focusing on Mulala division, Makueni County. The study concluded that communal water projects sustainability is influenced by community involvement during the inception of a project, its design, implementation, operation and its maintenance. Boru (2012) did a study on determinants of community ownership of water projects in Kenya with reference to Central division, Isiolo County. He found that community involvement, type of technology, distance, governance structures and training influence the level of community ownership of water projects.

None of the studies conducted has focused on Elangata-Wuas ward, Kajiado county and especially studying sustainability of water projects. Therefore, this study filled research gap on the relationship between participatory communication and sustainability of water projects in Elangata-Wuas, Kajiado County.

Purpose of the Study

The purpose of this study was to investigate the relationship between participatory communication and the sustainability of water projects in Elangata-Wuas, Kajiado County.

Objectives of the Study

The study was guided by the following objectives:

1. To find out the relationship between resources, time and labor provided by the community and the sustainability of water project in Elangata-Wuas, Kajiado County.
2. To find out the influence of participation in decision making in the sustainability of water projects in Elangata-Wuas, Kajiado County.
3. To establish the relationship between the selection of technology and selection of management structures on the sustainability of water projects in Elangata-Wuas, Kajiado County.

Research Questions

This research sought to answer the following questions:

1. What was the relationship between resources, time and labor provided by the community and the sustainability of water projects in Elangata-Wuas, Kajiado County?

2. How did participation influence decision-making, in the sustainability of water projects in Elangata-Wuas, Kajiado County?
3. What was the relationship between the selection of technology and selection of management structures on the sustainability of water projects in Elangata-Wuas, Kajiado County?

Justification for the Study

One of the problems facing developing countries especially semi-arid regions (such as Elangata-Wuas Ward, Kajiado County) is the lack of community ownership of a project, community participation and the community's involvement in the project that would lead to sustainability of the project. If this trend continues unchecked, Baumann and Carter (2006) emphasized that the rural water facilities will be completely unsustainable and nonfunctional, rendering all the positive efforts by the government and the non-governmental organizations towards achieving accessibility to clean water useless, wasteful and of no impact. In view of this, there is a crucial need to explore the relationship between participatory communication and sustainability of water projects in Elangata-Wuas, Kajiado County.

Significance of the Study

The researcher was optimistic that the findings of this study would be useful to different stakeholders in the water sectors. First, the findings would benefit the community of Elangata-Wuas because they are the direct beneficiaries of the water projects. Through the findings, community members would get to understand that their contributions and their involvement in the water project contributes towards the sustainability of the water projects which in return would result into longer service to the community. Second, the County

government, NGOs, donors, and other interested stakeholders would get to learn the importance of involving the community throughout the stages of the water project and help them in coming up with sustainable interventions to improve domestic water access in Elangata-Wuas.

Third, the information gathered in this study was also expected to be useful to planners in formulating policies aimed at developing infrastructures particularly under rural development initiative that would enhance the quality of life for the Elangata-Wuas community. Finally, the study would add to existing body of knowledge on participatory communication and sustainability of water projects by proposing possible areas of future research and further facilitating and promoting comprehension and adoption of similar approaches.

Assumptions of the Study

As a starting point, the researcher assumed that the research participants were very knowledgeable about the understudied water projects. In addition, they would be willing to honestly responds to the questions emanating from the researcher. The study also assumed that leadership of the communities researched would support the researcher's initiative to conduct in their communities with their community members.

Scope of the Study

The study was restricted to Elangata-Wuas in Kajiado county. Elangata-Wuas has a population of approximately 3000 people. The respondents targeted in this study were mainly households. The criterion of selecting the participants was based on convenience and availability of participants. The study employed focus group discussions (FGDs) for data

collection. Based on the advice of the area chief, the FGDs applied single gender composition (men and female only). This was informed also by the fact that the availability of the Maasai of Elangata-Wuas at the time of research was low due to dry spell that forced many to walk many kilometers away from home to fend for their livestock. More fundamentally, the use of single gender composition in the FGDs was informed by cultural reality which limits what women could say in the presence of men. It was therefore prudent to get the views of the different genders separately so that the women do not shy away with their opinions. The Elangata-Wuas village was served by Oltinka Oibor Olompeuti borehole, while members of Iloshon village are served by Iloshon water borehole.

Limitations and Delimitations of the Study

The study was restricted to water projects in Elangata-Wuas in Kajiado County. The implication, therefore, is that the study cannot be generalized to the entire population in Kenya. Sampling two or more counties would have made the generalization of findings a lot stronger. However, this study represented areas with similar topographical diversity. Another limitation was reliance on the memory of the participants on activities they were involved in many years ago. To address this limitation, the researcher engaged with participants who lived next to the borehole because they are likely to have institutional memory compared to other members of the community.

Definition of Terms

Participatory communication: Paulo Freire (1970) defines participation as a higher level of public involvement in communication systems. It includes the involvement of the public in the production process, and in the management and planning of communication

systems. In this study participatory communication means a type of communication that actively involves community members in developmental projects that would benefit them.

Community ownership: Adhikari (2019) defined community ownership as people working together voluntarily to achieve their own initiatives using available resources to shape their own destiny. In this study community ownership was where members of the community owned project where they themselves could willingly allocate time or other resources to ensure long term functionality of water projects.

Community participation: For Melkote and Steeves (2015), community participation means the involvement of people in a community project to solve their own problems. In this study participation entailed active involvement of community members all aspects of water project development. It could take the form of providing labor, decision making and monitoring and evaluation of the project.

Community training: In this study, community training is knowledge creation for the purpose of creating awareness, changing attitude and behavior positively (Coalition for Work with Psycho-Trauma & Peace [CWWPP], 2019).

Participation: Carpentier (2020) defined participation as the involvement of ordinary people for social change process, which ensures knowledge sharing, and exchange of ideas by stakeholders, where they can identify and define their own problems, identify ways of solving problems and implementation strategies. This definition was used in this study.

Communication: Servaes (2020) defined communications as the message transmission from source to a receiver. In this study communication was defined as the process of creating and stimulating understanding as the basis for development.

Sustainability: Robertson (2019) maintained that it is about systems and processes and their resilience to remain persistently operational and useful over a long period of time. In this study sustainability meant the ability to maintain the service and operations of a project long after the donors are gone.

Adult: according to the Constitution of Kenya, 2010, an adult is an individual who has attained the age of 18 and is within the age bracket of 18-40 years. In this study adult was an individual within the age bracket of 27-60 years (Kenya Law, 2020).

Summary

Chapter one provided a clear context to situate study. It engaged with the purpose of the study, research problem and gap that informed conducting the study. The core argument of the chapter was to provide justification as to why it was necessary to research participatory communication and sustainability of water projects with reference to the Elangata-Wuas, Kajiado County.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter discussed the theoretical framework that guided the study. It also engaged with reviewing literature on participatory communication and sustainability of water projects. A summary was provided at the end of the chapter to provide an overview of arguments presented by the researcher.

Theoretical Framework

Participatory Communication Theory

Contributions towards participatory communication theories have been made by several scholars. Paulo Freire's (1970) version was utilized in this study. Participatory communication theory is an approach capable of facilitating people's involvement in decision-making about issues impacting their lives. It is a process capable of addressing specific needs and priorities relevant to people and at the same time assisting in their empowerment (Fox, 2019). In fact, participatory communication is a necessary component, consistent with a democratic vision of international development, needed to increase projects sustainability and ensure genuine ownership by the so-called 'beneficiaries. Promoting the sustainable and systematic use of communication in the development process helps to ensure people's participation at all levels, as part of an effort to identify and implement appropriate technologies and policies for the prevention of poverty (Mefalopulos, 2003).

It is argued that the purpose of communication should be to share meanings, perceptions, worldviews, or knowledge (Mefalopulos, 2003). In this context, sharing implies an equitable division of what is being shared, which is why communication should be naturally associated with a balanced, two-way flow of information. Participatory communication theories involve systematic utilization of communication channels and techniques to increase people's participation in development and to inform, motivate, and train rural populations mainly at the grassroots (Tacchi & Tufte, 2020).

Freire offered the concept of liberating education that conceived communication as dialogue and participation (Mefalopulos, 2003). The goal of communication should be conscientization, which Freire defined as free dialogue that prioritized cultural identity, trust, and commitment. His approach has been called “dialogic pedagogy” which defined equity in distribution and active grassroots participation as central principles (Fox, 2019). Communication should provide a sense of ownership to participants through sharing and reconstructing experiences. Education is not transmission of information from those who have it to those who lack it or from the powerful to the powerless, but the creative discovery of the world.

Freire's model and participatory theories in general proposed a human-centered approach that valued the importance of interpersonal channels of communication in decision-making processes at the community level (Mefalopulos, 2003). As such, rural settings like Elangata-Wuas would communicate better in a face-to-face manner rather than through mass media or other linear sources of communication.

Participatory communication has had its share of criticism. Even though attempts have been made to vindicate some tenets of participatory theories, other scholars argued that

participatory paradigms are elaborated at a theoretical level but lacking in providing specific guidelines for interventions (Mefalopulos, 2003). One problem in participatory models was that it was not clearly specified that communities should be involved for certain results to be achieved. In some cases, such as epidemics and other public health crises, quick and top-down solutions could achieve positive results (Mefalopulos, 2003). Participatory communication ignores that expediency may also positively contribute to development. Dwelling through grassroots decision-making process is slower than centralized decisions, and thus not advisable in cases that require prompt resolutions. Participation might be a good long-term strategy but has shortcomings when applied to short-term and urgent issues.

Another criticism is that participation in all stages does not have similar relevance. It was not clear what participation entailed (Mefalopulos, 2003). If decisions were made outside of the community and the latter was assigned the role of implementing and evaluating results, some researchers argued, participation was limited to instances that depended on decisions previously made. Indeed, this is not true participation and, therefore, capable of fostering power inequalities. Another problem was that the focus on interpersonal relations underplayed the potential of the mass media in promoting development as participation and process. Little attention was paid to the uses of mass media in participatory settings, an issue that is particularly relevant considering that populations, even in remote areas, are constantly exposed to commercial media messages that stand in opposition to the goals set by programs. This lack was particularly evident in Freire's theory of dialogical communication that is based on group interactions and underplays the role of the mass media (Mefalopulos, 2003).

Participatory approaches usually avoided the issue that people who lived in non-democratic societies might be wary to participate out of fear of retaliation (Mefalopulos, 2003). Moreover, people can be manipulated into participating. This would violate local autonomy and the possibility that members might not be interested in taking an active role. Critics argued that participatory communication, like social marketing, could also be seen as foreign, pushing for certain goals and actions that have not resulted from inside communities. Participatory communication did not offer the chance not to participate, and implicitly coerced people to adopt a certain attitude (Tacchi & Tufte, 2020).

Social marketers charged that participatory approaches were too idealistic, falling short of offering specific practical guidelines, and offering recommendations with limited impact (Mefalopulos, 2003). These shortcomings are particularly pronounced when funds for development communication are limited, and funding agencies are interested in obtaining cost-effective results not just at the local but also the national level. Furthermore, participation can also promote division, confusion, and disruption that do little to solve problems. It may privilege powerful and active members of the community at the expense of the community (Mefalopulos, 2003).

In relation to sustainability of development projects adoption at Elangata-Wuas Ward, participatory communication should ensure that all relevant stakeholders are not only taken on board but involved in the conception and design of all objectives and activities. Empowerment of grassroots communities is very important, but so is raising awareness and familiarity about the scope and functions of participatory communication with the managers.

However, participatory communication theory has been deemed to be very crucial to both researchers and organizations as they carry out their studies and projects. The World

Bank drawing from its experiences asserts that development projects are more successful when participation is included in the project design and implementation. A World Bank project in the 1970s showed that 18% average return in projects that involved people to some degree while 9% average return in projects that did not completely involve people (World Bank, 2013). This results physically show participation is not just a basic human right for every person but also a component capable of firming up project achievements.

Norman Uphoff in 1991 analyzed three projects in Nepal, Ghana and Mexico that were implemented without the use of participatory communication. He noted that the purpose of the projects was to introduce an innovation but many staff handling the projects believed that the innovation was assessed favorably by donor agencies. His focus in his analysis is to show that unless the project beneficiaries are involved in decision-making and other phases of the project the chances of success are reduced (Uphoff, 1991). This position is supported by Cornwall (2007) and Leal (2007) studies on participatory communication theory which stated that negotiations and participation by the beneficiaries must be incorporated rather than relying only on transmission of information from the technical experts. These scholars added that through participatory communication society becomes enlightened and developed because of bottom-up transformation from individuals to the community.

Relevance of the Theory to this Study

As discussed in the previous section, it was evident that for a development project to be sustainable, participatory communication should be applied in all stages of the project and the beneficiaries actively involved. Development communication scholars Elizabeth Kloppers and Lynnete Fourie proposed four principles of participatory communication in

their seminal paper. These principles, they argued, facilitate the process of enhancing the realization of sustainable development. Some of these principles include dialogue, which proposes that the community concerned, and the project funders should both act as equal partners aiming to reach shared meaning and understanding. This simply means when trying to solve an issue affecting an individual/ village or country, involve the affected people and create an atmosphere of conversation where the issues are discussed, and solutions proposed towards addressing the issue. In cases where dialogue is not prioritized the chances of a project succeeding are slim. Listening and respect are key facets of dialogue. Listening refers to carefully internalizing what the other party says without any form of hasty interruption (Kloppers & Fourie, 2018) or prejudice.

Participation as another principle of participatory communication is crucial in sustainability. Involving beneficiaries in all stages of projects is and should not be limited to project evaluation, decision making also counts towards the success of projects. This does not rule out the donors or the authorities concerned. They could assume consultative role to allow the beneficiaries to learn how to self-manage the project after the donors are gone. It is important to note that in the principle of participation, communication plays an important role where messages are deliberately created and sent to multitudes by leaders/ authorities to shift attitudes, thoughts, and behavior of individuals from tradition to modern thoughts, views and beliefs.

Kloppers and Fourie (2018) regarded empowerment as a process and not a goal. The main agenda that participatory communication carries is that the element of empowerment is experienced and felt by the beneficiaries in a manner that indicates that they have power over their lives and issues affecting them. Finally, cultural identity forms part of the

principles of participatory communication. Ideally, to push for positive change in a community, the cultures, values, views, and customs of the people should be understood and respected. One success story told is of Bruce Olson, an American who brought positive change to the Motilones by getting enculturated, working, and training the people to take control of their development (Olson, 1978).

The four principles of participatory communication theory, comprising dialogue, participation, empowerment, and cultural identity have the potential to gravitate towards sustainable development when practiced/ applied effectively. Participatory communication theory was used in this study to showcase the importance of community involvement, project ownership and participation in the design, execution, and assessment of the projects to foster sustainability of projects. this study sought to find out if there was active involvement and participation of the community at all the project level.

General Literature Review

The Concept of participation

This study was anchored on investigating how the notion of participation had been used to bring positive development for people at the grassroot and community and levels. People at the grassroot level can take part in decision-making process, project implementation to better their lives through participation. It is thus important to define what participation is and what it is not.

Hancock (2006) suggested that participation is a social change process that involves ordinary people, ensuring that they share knowledge, ideas, identify problems, discuss course of action, plan and implement lasting solution to the identified problems. Previous studies (for example, White, Nair, & Ascroft, 1994) categorized participation into two:

pseudo participation and genuine participation. Pseudo-participation arises in instances where people's participation in development matters regarding decision making, and control of project rests on the hands of the planners, administrators, or the community elites. In this kind of participation, people only participate in listening to what has been planned for them. Participation in this context results into decision making being left in the hands of for a few people in the society.

On the other hand, genuine participation occurs in instance where local elites, development agencies, and the people cooperatively join forces to work together throughout the decision-making process in a manner that empower community members to control or manage the action to be taken (White et al., 1994). Crawford and Langston (2013) supported the genuine participation thesis. The researchers noted, however, that when a community is involved in the process of decision-making, participation leads to sustainable engagement. In developing countries, especially Africa, genuine participation remains an illusion as decision making and implementation are left in the hands of elite members of the society and those in political power.

Crawford and Langston (2013) stated that participation is an effective way to achieve predetermined goals defined by the community. The process ensures that the community is empowered and can identify the challenges it faces, come up with solutions to the problem, ways to implement and own the solutions, sharing their inputs in project promotion, and monitoring and evaluating the performance of the project. If these activities are put into practice, then the likelihood of the project and its ownership becoming a success is high. In community participation, beneficiaries influence the process in a project from the direction

to the execution of a development project with the aim of poverty alleviation, personal growth or any other thing deemed important to them (Crawford & Langston, 2013).

This idea is supported by Paulo Freire (1970) whose central thinking regarding participatory theory hinged on letting stakeholders to be involved in the development process and determine the outcomes rather than working with imposed rules from external forces. Hancock (2006) concurred with Freire's concept of participation. The scholar viewed participation as the involvement of ordinary people for social change process. This type of involvement, Hancock wrote, ensured knowledge and ideas sharing by stakeholders to facilitate problem identification, definition, and solution implementation.

Even though there is no uniform definition of participation, some scholars see it as the science of mobilizing the people to eliminate hierarchies of knowledge, power, and economic distribution. Other scholars view participation as the inclusion of inputs from relevant groups in the design and implementation of project. However, when initiating a development project/ program one should clarify the approach that will guide the strategy (Freire, 1970). Participation can therefore be summarized as a social change process that involves problem identification, decision making, project designing and implementation, monitoring and evaluation of a given project.

To be effective, there are different levels of stakeholder engagement in participatory communication (Mefalopolous, 2008). Each category shows the different levels of participation of communication (see Table 2.1).

Table 2.1: The Different Level of Participatory Communication

Levels	Characteristics
Passive Participation	Stakeholders are informed of the happenings, or what has happened. Their feedback is minimal/ non-existent, and their contribution is through headcount.
Participation by consultation	Stakeholders are informed to provide responses/ answers to questions posed by the experts who have all the decision-making power in their hands and can choose to incorporate stakeholders input or not.
Participation by collaboration	This level has a higher potential of leading to independent participation because there is incorporation of horizontal kind of communication and capacity building among all stakeholders. There is active involvement and decision-making process of how to achieve it.
Empowerment participation	Primary stakeholders have the significant say and are willing to initiate the process and take part in the analysis. Project ownership and control is all dependent on the primary stakeholders.

With reference to Table 2.1, the first and the second levels represent participation as a means to an end that does not yield sustainable development as the agencies involved claim to have the inclusion of participation. Echoing similar view, Melkote and Steeves (2001) argued that taking this approach to participation makes the idea of participation shallow and reduced to the point of manipulating the people in the interest of donors.

The third and fourth show participation as an end, and how it is applied to ensure inclusion of all players in the project. In Parfai's (2004) view, this approach to participation suggests a transformation in power relation between donor and recipient who are empowered and liberated to act/ stand on their own. Within the framework of this study, the researcher would be interested to ascertain the level of participation applied in water projects in Elangata-Wuas and the degree to which it was successful or not.

As a means of communication, the dominant paradigm prevailed throughout early 1960s and 1970s. it assumed that the transmission of information would automatically lead

to development. However, it backfired because it failed to put the needs of the local people at the front burner. This led to dissatisfaction of the developing nation because of increased disparity and tension. The failure of the dominant paradigm later paved way for the multiplicity paradigm which recognizes there is no general path to development. Scrampickal (2006) alluded to the importance of participatory communication. The researcher stated that participatory communication is often used to draw attention to emphasis on two-way communication process which encourages dialogue, problem solving, as well as bottom-up approaches aimed at raising awareness of decision makers.

Dominant approach in development as agreed by many scholars was a major failure in many nations. Most development projects failed because their project design, planning and implementation excluded the beneficiaries (Freire, 1970). As argued by Okigbo and Eribo (2004), the failures recorded in development projects in Africa are not because there is lack of resources but rather because the projects lack proper coordination, especially by the people and the donor agencies. This, therefore, reduces the confidence in people to manage and supervise projects on their own. Nyerere (1973) supported this statement by noting that people's development can only be affected by the concerned. He added that through joining free discussions and participating in decision making is when people can develop themselves.

The assertions regarding the importance and place of participation in development align with the Kenyan public participatory guidelines for development projects (Mbithi, Ndambuki, & Juma, 2019). The guidelines stated that implementers of programs in the counties must organize their development plan in collaboration with the community members to ensure that different cultural identities are not accidentally forced on the

community. The ideas and values involved should be those of the community so that the development agent does not force different ideas on the community, motivating them to take on these ideas as their own and not the ideas that they came up with.

Development agencies have pushed for participation and involvement of people in development agendas thus making the local government to look for tactics of bringing the community on board. Ogolla (2000) maintained that scholars have critiqued the dominant paradigm by stating that it takes development to the people who are passive recipients, excluding them from being capable of solving issues themselves in a way that will facilitate development. He added that the audiences are not to voice out their opinion or even choose the relevant information that suits them. Basically, it is directed in a linear format.

However, after the failure of the dominant paradigm to push for change and engineer development, alternative paradigm known as participatory communication came into being. For Melkote and Steeves (2015), this came as a realization of the need to do more than mere transmission of information needed to facilitate participation of the community in developmental process. For people to be freed from the elite, education and communication are required to be participative and receiver-centered to assist people in understanding the world around them resulting to a self- managed development (Freire, 1970). Participatory communication emphasizes participation as a right for people's involvement in all stages of development because they can analyze and solve their problems if and when resources are made available to them (Melkote & Steeves, 2015).

In Belgrade, in a 1977 UNESCO conference, it was concluded that development agencies and the government needed to involve people at the grassroots level in development projects by giving them access to information and allowing them to manage their

developments (Melkote & Steeves, 2015). This is also supported by the constitution of Kenya, 2010 which stipulates in Article 232 (1) (d) that in the process of decision-making, principles and standards of public service which includes participation of the citizens must be adhered to (f) that any government delivery to the public must be appropriate and accurate; and all information must be transparent (Kenya Law, 2010).

Further, Freire (1970) stated that participation should be based on mutuality and respect for one another. He believed that anybody who will be impacted by the project has the right to be part of the development and decision-making process in that project. Melkote and Steeves (2015) remarked that the characteristics of an alternative paradigm should include the development agencies encouraging participation of the community in the development process as well as making communication dialogic and receiver centered.

Communication

Servaes (2020) defined communications as message transmission from source to a receiver. Servaes's view of communication was identified in Harold Lasswell's writing in 1948 which stated that the best way to define communication is by answering the questions: Who? Says what? Through which channel? To whom? And with what effect? (Rosenberry & Vicker, 2017). However, in development communication, it is the process of creating and stimulating understanding that stands as the basis for development rather information transmission. Communication should not only make the unfamiliar familiar or facilitate the process of knowledge/idea sharing. It should have an equitable that accommodates a balanced two-way flow of information.

Communication cannot be separated from other disciplines especially where change is to be seen. In the earlier days of the practice of development communication, it is

erroneously believed that the principle of dialogue communication was not a necessity. This has nonetheless led to the failure of some development projects. For this reason, communication should be incorporated in all aspects of development projects for maximum impact. In its materiality, communication is simply the delivery of social relation among people.

Sackey (2014) averred that people should never be forced to adopt any practice no matter how beneficial it is to them. Instead, participation should be encouraged accommodate the input of the people or beneficiaries. Communication therefore is indispensable in initiatives that involve voluntary behavior change. This means that communication is essential in reminding people of the rules or training them on how to engage them in behavior change. However, the efforts put into development communication involves helping people develop themselves and their communities and this calls for voluntary action.

Empirical Literature Review

Community participation and decision making

Community participation in any given project design and implementation, monitoring, and evaluation had the potential of influencing its success or failure. Mwesigye (2011) asserted that “community participation was the sociological process by which residents organized themselves and became involved at the level of a living area or a neighborhood, to improve the conditions of daily life (water, sanitation, health, education)” (para. 1). In other words, it was a deliberate effort by the community to address pertinent issues that had implications on their day-to-day life. Their participation would enhance their ability to own the process that had the possibility of changing their lives for the better.

Adesida and Okunlola (2015) stated that the foundation of development initiative within the parameters of the community depend on the active provocation of involvement of categorized people living in a specific locality in which the beneficiaries were influenced to actively participate in every aspect of project design and its implementation.

In a similar vein, Adesida, and Okunlola (2015) asserted that it is very critical to seek community by actively allowing their decision-making effort, contribution and critical input that would have a positive effect on the project design and implementation. Without this concerted effort, the realization of the implementation of the project that was aimed at profiting the entire community might fail because of absence of active participation in the process of project design and its implementation.

As reported by the World Bank (2018), a community of 1900 people in Malawi began work on a water supply system. Community members began the planning, construction and operation of their own water supply and distribution. Field staff for the project was recruited locally, traditional community groups formed the basis for water communities, and government support was limited. Virtually, all of the more than 6000 standpipes installed nationwide are still in working order. More than one million Malawians have high quality, reliable and convenient water through systems that they themselves built, own and maintain. An analysis of rural and urban development over thirty years found high correlation between project sustainability and level of participation.

The outcome of community participation enhanced effective management and execution of project planning and implementation, target profits, cost-effective and time-bound delivery of project input as well as more equitable distribution of project benefits. What is implied is that community participation was a critical ingredient towards the success

of project design and its implementation. Adesida and Okunlola (2015, p. 2) emphasized that "Community-based projects are designed to open-up, develop or enhance the growth of the beneficiary communities."

In the absence of opening projects to enhance beneficial development to communities, they become obsolete in the sense that they failed to meet the benchmarks developed for participatory development projects. Adesida and Okunlola (2015) further acknowledged that initially a lot of projects were executed by the government in Nigeria and among others in developing nations, yet they did not realize the desired outcome that would transform the communities. The challenge was that during the onset of such projects, community participation was not actively incorporated, and this affected effective implementations. It was therefore important and essential to involve all stakeholders that include the participation of the community for the benefits of the project to be realized.

Benefits Via Community Participation in Project Design and Implementation

Community participation brings a sense of belonging, ownership, and responsibility among the members. Development communication scholars have argued that participatory community projects are only effective when stakeholders and beneficiaries are involved in the different facets of the projects (Melkote & Steeves, 2015; Tacchi & Tufte, 2020). Undertaking participatory development communication in this manner results into communities making their own decisions, taking full responsibilities, and owning the process and sustenance of the project. Without such motivation of community participation, these benefits might not accrue.

Ochelle (2012) affirmed that key indicators of community participation include community involvement in decision-making, implementation, maintenance, and

rehabilitation of the projects. Harvey and Reed (2007) explained that mobilizing a community and having them involved in planning and implementation of a water supply project constitutes community participation. They further elaborated that community participation is a process that involves counselling or advice-giving with the sole aim of establishing that communities are effective decision-making entities. With reference to water development projects, it means that for a community to benefit there is need for information sharing, consultations, decision-making before the commencement of the project.

Through the process of dialogic community members are able to determine what their issues are and how best to address them; this approach triggers community participation (Freire, 1970). Participation in this sense can either be fostered by external actors or the community itself. Therefore, for community participation, information sharing is essential for them to also make informed decisions about matters affecting them.

With reference to the Maasai community, the men are known to graze cattle in search of greener pastures, hardly are they available in the homes. This observation regarding community water project was made by Van (2008) that water projects have a greater impact when women are involved. This position was bolstered by the findings of studies conducted in over 15 countries which indicated that those with full participation of women were more sustainable and effective. Van's statement supports a prior study by World Bank (2018), which found that women's participation in projects results in effectiveness in water and sanitation. Their involvement is basically in decision-making, educating children and mobilization.

On defining community participation, one very important aspect was laid down by Mushtaq (2004). The researcher stated that when project beneficiaries are involved in the

design, decision making and maintenance of the project it not only amounts to community participation but potentially translate to sustainability. Melkote and Steeves (2001) put across a very important aspect about participatory communication. They emphasized that participation should not be viewed as a fringe benefit that those in authorities may grant as a concession. Rather, it is a right to every human being that those in the position of authority should not deny or prevent. Community engagement is thus vital in all projects implemented in the community and in all stages of a project especially initial stages.

To showcase the importance of community participation in community projects, various studies have been conducted. Among them is water program implemented in Zambezi valley. McIvor (2000) noted that the program was futile because the local communities did not own the water facilities but rather considered it as an alien innovation from other people. The lack of consultations with the local people prior to the construction of such facility created the impression to community members that they had no role to play in the construction and its management.

The lack of local ownership transformed the project into a typical example of an open access resource in which case the community's right of the water system is recognized. The process of involving beneficiaries in community projects should encompass decisions about the location of water point installation, choice of technology, and rules regarding management of the project. This is one crucial factor that if not considered will create a lack of ownership that will adversely affect sustainability of the project in the long run (Harvey & Reed, 2007).

The United Nations Development Program (UNDP, 2009) affirmed that poor stakeholder participation is the major reasons why programs and projects fail. In the context

of participatory communication, there is a greater need to encourage active participation of stakeholders in the planning, monitoring and evaluation processes. Community participation creates a sense of ownership, facilitates self-reliance, and develops confidence, competence, and managerial skills in the people. Such participation also encourages joint social action. Through active participation of the people their hidden capabilities could be identified and unlocked and channeled towards a productive end in the project. In activities involving community participation there a sense of bringing people from the periphery to center which in turn makes them confident advocates. Stakeholder participation throughout the programming cycle ensures ownership, learning and sustainability of result.

Participatory Communication in Community Project Ownership

Minar and Greer (2007) mentioned that human beings depend on one another and out of this interdependence communication occurs that could lead to the people airing and sharing their opinions. This therefore suggests that the ability and strength of a group to come together and collectively take up an action will solely be dependent on how they depend on each other and share their opinion amongst themselves. Harvey and Reed (2007) defined a community with reference to its coverage area in terms of being served by a particular water supply. The researchers added that the fabric of a community is further enhanced by its flexibility informed by dynamic relationships.

A study conducted to evaluate a dam project in Kiserian in Kajiado County, Kenya, revealed that community participation was low in the planning, implementation, and project monitoring (Mukunga, 2012). Distancing beneficiaries of the dam project from participation and dialogic engagement adversely affected the performance of the project. Harvey and Reeds (2007) proposed a very important aspect of community participation. For them, to

make a project sustainable, community participation must be incorporated. They added that community management is not a precondition but rather requires support from an overseeing institution for the provision of technical support, project monitoring, and training.

Community ownership does not mean that the community will lack support from external forces, rather it is considered an important aspect for community development work (Fielmua, 2011). Community ownership can only be successful when the community is able to have control over the water system and own it and be able to make decision on when to seek support. Community ownership and management empowers communities through genuine partnership and participation to advocate for water services. Community participation and ownership play significant role in the realization of project sustainability. On the other hand, it has its fair share of challenges especially where community members have little or no knowledge on the innovations and their consequences (Nkongo, 2009). Nkongo questions this asking whether it is appropriate to try and bridge such a vast and costly knowledge gap for the sake of ownership.

Many studies with regards to community ownership have been conducted to investigate different factors that lead to its success. A study by Boru (2012) on the determinants of community water projects in Isiolo county, Kenya revealed a relationship between the water point distance and the water project ownership. The researcher acknowledged that when water points are far away from the community the lesser the chances of them being used or adequately taken care off. Factors influencing sustainability of community water projects in Kenya was conducted by Ochelle (2012), focusing on Mulala division, Makueni County. The study concluded that communal water projects sustainability is influenced by community involvement during the design, implementation,

operation, and maintenance of the project. In view of this, the study recommended training of the people concerned with taking care of water project. In essence, the water project should have overseers adequately trained on its management.

Research has shown that for water projects to be successful, a number of financial components need to be factored including the sources of funding, the number of finances allocated, and financial management (Binder, 2008). Moreover, Mbinya and Fatoki (2021) stated that the financing process is critical for the sustainability of development projects. Inadequate funding is one of the factors that causes poor maintenance of the project outputs and inevitably leads to project failure. Financial issues need to be addressed because they are critical in achieving sustainable water supply and sanitation in over 75% of the countries researched (Mbinya & Fatoki, 2021; United Nations [UN], 2021). Usually, there is a very significant underfunding including basic costs of operating and repairing facilities for the cases of operating projects. Additionally, the cost estimates always do not reflect actual costs for ongoing projects, project maintenance expenses, and direct support costs.

Kahariri (2016) conducted research in Huruma estate, Nairobi County. Results from the study revealed that sustainability would increase with investment in specific areas including investment in capacity building and institution to operate and maintain the development projects. This also extends to the building of mechanism which support cost recovery, and provision of incentives. This demonstrates that it is necessary to consider the level of investment that will be required during the operation and maintenance of the project. In addition, this ties itself to sources of funding.

A 2021 United Nation report indicated that there is a positive relationship between financial and human resources and sustainability of development projects implementation

(UN, 2021). Many development projects fail to be sustainable for a long period due to either insufficient funds available to run the projects or poor financial management skills (UN, 2021). Lack of sufficient financial and human resources has led to collapse of most donor projects, while adequate financial resources helped in repair and maintenance of the water facilities for sustainability purposes (Meera, 2015).

Having adequately trained and competent human resources, Macharia and Kirui (2018) recounted, are important for the sustenance and safe operation of development projects. Without adequately trained personnel, even a well-financed and organized system with the most advanced technology and regular compliance visits will fail to reliably deliver safe drinking water to its beneficiaries. To improve sustainability, the water supply project staff needs to ensure that the rules are well communicated and understood by those who are expected to implement them, especially regarding community mobilization activities. In addition, staffers need to be appropriately trained and have adequate resources available to them (Mbinya & Fatoki, 2021; UN, 2021).

Water Project Sustainability

For Binder (2008), sustainable water project is a system that can meet its performance requirement in the long run; it requires minimal future assistance by project donors, regular financing of operation and maintenance by the users, and having continuous flow of its expected benefits. Sustainability is further explained as a measure of how the growth, maintenance and set of resources affect a population's ability to sustain itself (Mbinya & Fatoki, 2021). These effects are measured by indicators therefore the extent of local participation and project process, ownership, decision making, operation and maintenance are seen to be crucial aspect of sustainability. The essential dimensions of

sustainability well elaborated in International Fund for Agricultural Development (IFAD, 2009). They include institutional sustainability, collaboration, community resilience to anticipate and adopt change from deliberative dialogue.

Summary

This chapter critically has reviewed literature relevant to this area of study. The theory underpinning the study and the general overview of participatory communication and sustainability of water projects were also discussed.

CHAPTER THREE

RESEARCH METHODOLOGY

Introduction

The purpose of this study was to investigate the relationship between participatory communication and the sustainability of water projects in Elangata-Wuas, Kajiado County. This chapter explained the methodology used for data collection to address the research questions posed in chapter one. It also presented the research design that was adopted in investigating the relationship between participatory communication and sustainability of water projects and further described the population, sampling design, type of data, data collection tools and procedures.

Research Design

Hayhoe and Brewer (2021) defined research design as the plan a researcher uses to collect and analyze data to achieve the objective of the research. The authors added that a research design creates a blueprint for the collection, measurement and analysis of data and hence paves the way to achieve research objectives through factual evidence. Exploratory research design was privileged for the current study given that the study sought to explore the relationship between participatory communication and sustainability of water projects without manipulation of variables (Babbie, 2021). Exploratory research was also appropriate for the study as it has the advantage of providing a lot of information obtained from the population to address questions regarding the current state of participatory communication and sustainability of water projects in Elangata-Wuas (Mugenda & Mugenda, 2012).

This study used qualitative research approach. Mirhosseini (2020) argued that qualitative research method is based on the acknowledgement of abstraction and generalization. Tracy (2020) pointed out that qualitative methods are often regarded as providing rich data about real life people and situations, make sense of behavior and help in the understanding of behavior within its wider context. Though it lacks generalizability and is reliant on the subjective interpretations of researchers, qualitative research provides rich data about the real situation among the people of Elangata-Wuas. This makes qualitative approach an appropriate methodology in the current study.

Population

Population refers to an entire group of persons that have one thing in common and from which the sample is taken (Babbie, 2021). Elangata-Wuas is in Kajiado West, Illoodokilani Ward which has an adult/voting population of population 7885 (Independent Electoral and Boundaries Commission [IEBC], n.d.). The expansive area of Elangata-Wuas is almost half the size of the entire ward and has a population of approximately 3,000 residents according to the local chief.

Target Population

Target population is the entire group of individuals or objects to which researchers are interested in generalizing the conclusions (Mugenda & Mugenda, 2012). This study targeted all the residents of Elangata-Wuas. Residents of Elangata-Wuas have had water issues that are generic and the decisions and initiatives that led to the water projects in the area essentially involved them in one way or another. If this was not the case, then it must

have had an impact on their interactions with the projects and that was what the current study investigated.

Sample Size

For a population of approximately 3000 residents, the Elangata-Wuas area had seven water projects out of which two are private and individual water projects serving the community at a fee. Two were donor funded projects that were free and communal in nature. After the donors left, the boreholes have become non-operational and two that are privately-owned boreholes. Three are currently in operation and community owned and are supported by community initiatives. The researcher had six major focus group discussions with the residents served by the three different water projects in the area. The inclusion criterion used was based on the people living around the water projects because the researcher envisaged that they were likely to have the required information to address the research questions and would also be willing to share their experiences with the water projects.

Adults in the households close to a water project in their area were sampled. In this study, adults were individuals ranging from the ages between 24-80. Each water project had 6 to 12 adults selected by the researcher for a focus group discussion (FGDs). For the present study Elangata-Wuas was divided into two major areas: Elangata-Wuas and Iloshon villages. Elangata-Wuas village had four focus group discussions, comprising 6 men and 6 women for each FGD. Iloshon village had two FGDs which comprised 6 women and 6 men per session of the group interviews. This choice was informed by cultural reality and situational factor. Situationally, when data were collected for the study Elangata-Wuas was experiencing dry spell, therefore the researcher worked with availability of research participants. Culturally, women are limited in what they could say in the presence of men. It

was therefore prudent to get the views of the women separately. Furthermore, women are predominantly the ones who bear the brunt of looking for water for both domestic use and for animals and therefore their voices were very important in the study. In total the study had six major FGDs.

Sampling Technique

The basic idea of sampling is that by selecting some of the elements in a population, the researcher may be able to draw conclusion about the entire population. It offers a great accuracy of results because there is a possibility of better interviewing and thorough investigation of information. Using sampling provides clarity and guidance in data collection (Leedy & Ormrod, 2021). The researcher used non-random sampling and specifically purposive sampling, which allowed the researcher to select Elangata-Wuas residents who were likely to have the required information and were willing to share information that will help establish the relationship between water projects in the area and sustainability (Howitt & Cramer, 2020). The criterion for selection of individuals was based on the individuals living around the water project.

Data Collection Instruments

The study utilized group interviews. The FGD method is also called group interview. Kimani (2009) maintained that focus group method is based on structured, semi-structured and unstructured interviews. Focus groups are small groups that are structured and with participants selected and led by a moderator. Through interactions these groups are set up to explore specific topics and individuals' perceptions and views. Focus group is a useful strategy for gathering information because it serves as one of the primary means of data

collection in qualitative research (Tracy, 2020). However, the use of focus groups requires a careful matching of the research goals with the data produced (Mirhosseini, 2020). Morgan added that focus groups are used with other methods or as a standalone method of data collection in qualitative studies. The choice of focus group in this study was because of its potential as a useful instrument to probe the perspectives of local people who were in contact with external funders of the water projects in the study's site.

The researcher conducted six FGDs with participants. These FGDs contained topics on participatory communication and sustainability of water projects seeking to answer inquiries related to the objectives of the study. The topics were anchored on the objectives and meant to elicit responses would clarify the relationship among resources, time and labor provided by the community and the attendant sustainability of water project in Elangata-Wuas, Kajiado County. The focus group interviews also interrogated the extent of participation in decision making and the sustainability of water projects in the communities studied. Lastly, the focus group questions dwelt on issues bordering on selection of technology and management structures of water projects in Elangata-Wuas, Kajiado County.

Types of Data

Primary and secondary data are the two major sources of research information (Kombo & Tromp, 2006). Primary data are information obtained by a researcher from the field. Primary data have the unique characteristic of being original because they are usually collected by the researchers. In this study, primary data were collected through FGDs, and the emergent themes were analyzed in accordance with the framework of secondary data in research methodology literature.

Data Collection Procedures

The researcher conducted six focus group interviews. With reference to the Maasai community the researcher had different groups for both male and female participants as their culture does not support them in one setting. This separation helped in both groups fully participating without fear of expression in the group discussions. The participants in the focus group were selected with the help of research assistants and village elders in the area.

The FGDs were held around the boreholes for convenience as many households are based around there. The Elangata-Wuas' market day was relied upon to recruit and conduct the group interviews. This option was applied because markets are the most convenient venues for most of the Maasai men and women and ideal for the researcher to engage them without inconveniencing them or taking them further from their daily schedules. The researcher was the moderator in all the FGDs to ensure that the questions were well understood, and rules of engagement followed as planned. In cases where the group spoke in Maasai, the research assistants provided a translation and provided clarity for the participants if the questions were not be well understood by the participants. The research assistant in the men's group was a village elder who is knowledgeable about the people of Elangata-Wuas area. His presence created an atmosphere favorable for the discussion.

The FGDs were timed to last at least one hour to ensure that research participants work plans were not disrupted. However, some of the group interviews exceeded an hour time frame because participants were seeking clarifications to questions asked. Having obtained permission from the participants, the discussions were recorded to facilitate analysis and recall. The discussions commenced with appreciating the participants for creating time to be part of the group interviews. After the introduction refreshments were

served. The participants were then guided into discussing their knowledge of the seven respective boreholes, how the projects were initiated, their involvement or contribution and their participation in decision making and implementation process in the water projects. These questions were framed with the research objectives in mind. The research participants were given opportunity to ask questions and raise any concern they might have. All the research participants voluntarily participated in the study.

Pretesting

Pretesting of data collection tool is essential because it helps assess the effectiveness of the instrument and helps to ascertain if it can yield data that are suitable to address the research questions posed in a study (Babbie, 2021). To enhance the validity of the data collection instrument, piloting was done with one member of the six residents of Elangata-Wuas that never participated in the main study. Insights from the pretesting were used to make necessary revisions in the research instruments to improve their effectiveness. This was done in consultations with the supervisors.

Reliability and Validity

Kimani (2009) defined validity as the degree to which results obtained from the analysis of the data represent the phenomenon under study. Pretesting of the FGD guide helped the researcher ensure that the data collected is the information needed to respond to the objectives and address the research problem. The researcher used triangulation in this study which entailed the use of multiple sources of data for responding to the same set of objectives (Patton, 2002). To this end, the results from the six FGDs were triangulated for reliability. It is argued that triangulation is an appropriate strategy of finding the credibility of qualitative analysis (Mingers, 2001). The use of triangulation helped increase the validity

and reliability of the study which minimized the inadequacies of just using one source of data and produces findings that are valid and reliable (Musyimi, 2007).

Data Analysis Plan

Findings from the FGDs were recorded, transcribed, and analyzed for emergent themes. Thematic analysis was employed for data analysis. Thematic analysis as an analytic method entailed identifying, analyzing, and reporting patterns from data generated in the field. The researcher transcribed to all the recordings after listening to them to identify the emergent themes and the data were presented in narrative format with selected quotes from the discussions and relevant literature from the literature review. This strategy involved the examination of forms of communication to objectively document patterns (Braun, Clarke, Hayfield, & Terry, 2019). It is generally applied in narrative texts such as transcribed interviews, published literature, and through close examination it clarified the content and language of the texts, and what will be learnt from the respondents understanding of certain issues.

Ethical Considerations

The researcher sought clearance from Daystar University to conduct this study and complied with all the requirements for completion of a proposal. The researcher also obtained a research permit from the National Commission for Science, Technology, and Innovation (NACOSTI). Thereafter, the area chief was also notified of the research and the possibility of sharing the findings. It is suggested that corporation, participation, and participants' responses are essential for the success of the research which should be voluntary and not through coercion (Kimani, 2009). The researcher ensured that the

involvement of the participants in this study was through their own free will. The research participants were informed in detail about the nature and purpose of the study.

Summary

This study employed qualitative research design to gather, summarize, present, and interpret data. The study utilized FGDs to collect data from the participants. Recruitment criterion was based on people resident around the water points in Elangata-Wuas Ward. Pretesting was executed to enhance the validity of the research instrument, and privacy and confidentiality were maintained in the study.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

Introduction

This chapter presented the analysis of data and interpretation of findings. The findings are presented in line with the research objectives: 1) to find out the relationship between resources, time and labor provided by the community and sustainability of water projects in Elangata-Wuas, Kajiado county, 2) to find out the influence of participation in decision making in the sustainability of water projects in Elangata-Wuas, Kajiado county, and 3) to establish the relationship between the selection of technology and selection of management structure on the sustainability of water projects in Elangata-Wuas, Kajiado County.

Analysis and Interpretation

Response and the number of FGDs

The researcher's target was to have 12 FGDs for the study. However, due to drought experienced in Kajiado County, many members of Elangata-Wuas community moved with their livestock in search of greener pastures. The researcher managed to have six FGDs: 3 for male participants and 3 for women participants, resulting into a 50% response rate from originally planned 12 group interviews. According to Murithi, Mwanja, and Mwinzi (2016), 50% response rate is adequate for analysis and reporting, while 60% to 70% response rates and above are deemed excellent. Based on this calculation, the 50% response rate realized in the study was adequately acceptable for analysis and interpretation of data. The discussions from the 6 focus group interviews provided ample lens to understand why the

public boreholes survived and the implication of non-participatory communication that led to the death of the non-functional water schemes in the community.

Resources, Time and Labor Towards the Development of the Public Operational Water Projects

The residents of Elangata-Wuas in Kajiado county rely on water from three boreholes that are public and operational to date. These are Oltinka Oibor, Olompeuti and Iloshon water boreholes. In the first FGD, discussions were held between the researcher and male participants near the Iloshon water borehole. As far as contribution of resources towards the development of water project is concerned the Iloshon water borehole was a joint project between the government and the community. The community came together and provided a parcel of land. On its part, the government constructed the borehole which was overseen by an engineer representing the government and a committee set up by the community. The group was unanimous that its contributions to the project were central to the management of the water scheme to date. Some of these contributions include provision of land, and supply of labor such as digging, piping, and provision of security.

First, it is important to note that this borehole is a government-initiated project to serve both the community and the Iloshon primary school. We as a community gave a parcel of land for the construction of the borehole, the government never bought it (a gentleman who drew a lot of support from the participants).

I agree to what my fellow men have said with the little knowledge we have, the committee gathered some of us and other members of the community to volunteer and dig trenches to fit the pipes. But we had a water engineer from the county government come train us on how to go about the pipe fitting (another gentleman who is a committee member).

The question of a government water engineer attracted heated conversations. Nonetheless, it was evident that the government was involved through an engineer who was

engaged by members of the committee members even though the migratory nature of the Maasai people limited the number of people who interacted with the government representative. Some participants were uncomfortable with the availability of the engineer which necessitated being called upon on short notices. Despite this challenge, the committee managed to steer the project to success. Part of the committee's mandate was to collect membership fees in form of livestock, as cash was not accepted, to keep the water scheme sustained. Livestock was a preferred financial contribution from members. The reason is not farfetched: the livestock would be fattened and sold at a reasonable fee to manage the water project. The contribution of women was limited to mental resources (For example, providing suggestions or ideas) while the other forms of labor were supplied by their husbands.

The committee and community have put so much of time and energy to see this project serving us, this also forms part of our contribution to its development (An elder).

Through the discussions led by our water committee we agreed to paying membership fees and daily fee in form of livestock which aid in repairing the water project (A participant).

Unlike the men, our contribution is limited as we do not provide the hard labor of digging for pipes to be fixed and duties such as guards, those are left for men to do (A woman participant).

As pointed out by Harvey and Reed (2007), community involvement might take the form of labor, money, participation in decision making, materials, equipment, selection of technology and project site. With reference to the Iloshon water borehole, it emerged that the community practiced empowerment kind of participation where the primary stakeholders have a significant stake/say, willing to initiate the process, own and sustain the water scheme.

The residents served by the Iloshon water borehole fully participated by offering land, decided on the project site, decided on technology, offered labor, and gave their

livestock as payment to cater for rehabilitation and repair of the water project. This participation and the involvement of the locals in the Iloshon water borehole appeared to have played a big role in its sustainability as the locals formed a committee to oversee the running of the project because they considered it theirs by virtue of having invested heavily in it, especially through provision of capital resources like land.

At the Oltinka Oibor men's FGD, the researcher sought to find out the community's contribution towards the development of the water projects as far as resources, time and labor is concerned. The discussions in Oltinka Oibor elicited almost the same response as Iloshon as it emerged that the residents served by the Oltinka Oibor borehole fully participated in the development and sustainability of the water project. They contributed resources such as land, time, and labor. But unlike the Iloshon project this was not a joint venture at inception. The members sat and discussed their problems and came up with a solution which entailed writing a project proposal to the county government which did not participate in the project but gave the committee money to continue with its construction and management. This project therefore seems to have been a community project, fully initiated by the community, but fully funded by the county government.

For the longest time our community has faced issues to do with water, for the first time in a long while, a representation of our community sat and discussed what could be the best way out of this menace. The individuals who later formed the committee discussed and involved the community on the idea which we all as a community approved. The committee with the help of our learned group member wrote a proposal whose content was shared with us (A participant who was part of the initial committee).

It is important to let the researcher know that the proposal was to be sent to the county government of Kajiado to help us in funding the construction/ installation of the water project. our request was granted, we later named the water project Oltinka Oibor borehole- Oibor is Maasai word for white, to mean there was hope finally (another participant).

This news gave us the energy and morale to do what it takes to support it as its outcomes were beneficial. Other than our time, we contributed a parcel of land on which the borehole was constructed. This was of course after a lengthy involvement with the rest of the community on the project location, technology that is best for us, how we will be maintaining our project and continuously monitor and evaluate its functionality. With regards to maintenance, we contributed our livestock: a cow or a goat depending on what ones has. With the guidance of the committee, the livestock is fattened. On the day repairs are to be made or payments to the experts involved, they are sold, and money is transacted for the services offered. As men we also put our efforts and energies to digging trenches to fix pipes (another participant added).

The researcher found out that everyone in the community gets a chance to participate, the water committee is changed after a duration of time to ensure that others get a chance to serve and contribute towards the development and sustainability of the water project. As Mushtaq (2004) posited, when beneficiaries from all walks of life participate in the design, decision-making and maintenance of a project it constitutes community participation. However, the women FGDs were quick to show the difference in their level of participation as far as the development of the water project is concerned. Like the Iloshon water project, the women served by the Oltinka oibor admitted that the hard labors are exclusive to men.

We can only build houses, water committee is changed after three years and a new team takes over this ensures, but not the water project, that one is a man's job. So, we cannot really say we contributed fully to the building of the boreholes, occasionally our women representative at the committee level would seek opinions from us, but we are not sure if they are incorporated (a female participant).

The residents of Elangata-Wuas served by the Oltinka Oibor fully participated in the development of the borehole through their contribution of parcel of land, time, selection of technology, provision of labor and annual and monthly payment in form of livestock to furnish for the rehabilitation and repair of the water project. Their involvement and periodic change of committee leadership played important role in the sustainability of the water

project. In Gleitsmann's (2005) view, contribution of time, resources, and the protection, operation and maintenance of rural water supply are pivotal in nurturing the sustainability of water supply and its infrastructure.

Residents of Elangata-Wuas village accessed water from Oltinka Oibor before the construction of Olompeuti boreholes, women and men walk kilometers to fetch water from it. Upon resolving to construct a water borehole, the Olompeuti community reached out to the county government for help. Olompeuti borehole is a joint venture between the county government and the residents of Elangata-Wuas village who resided in a distance from Oltinka Oibor.

Assessing government officials was an uphill task for the community, nevertheless they managed to get assistance. Like the Iloshon borehole, some of the residents of Elangata-Wuas village formed a water committee which led discussions on where the borehole would be constructed, type of technology to be used, and method of maintenance of the borehole. The residents were fully involved and participated in the development process through the contribution of parcels of land, labor, and time. On the other hand, the county government of Kajiado was fully involved in the inception of the borehole because it provided funding and water project engineers. When invited by the community, the engineers were paid for their services from the community purse.

Before Olompeuti came to be, we used to walk long kilometers to fetch water from the Oltinka Oibor borehole. Our women, on the other hand, saw the commodity as vital but the distance covered, and time taken at the borehole did not make sense at all. We had to think of a way to salvage the situation. We went the direction of asking for help from the county government of Kajiado to have a borehole built to help us (one participant remarked).

It was not easy as reaching the officials who would have assisted us, but as soon as we got hold of him, we were assisted. Before the process began a functioning committee was formed and guided in the process. As a

community, we all participated and contributed in various ways; we gave a parcel of land and selected a favorable location on which the water project was constructed. As men, we took turns in digging trenches to fix pipes, and discussed how best to maintain our water project. Through our committee we exchanged our livestock instead of money. The livestock was fattened and sold when repairs are made, and experts paid. Our committee got us involved on matters related to the water project (a participant who was seconded by others).

The participation of women served by the Olompeuti borehole gave similar sentiments as those served by ILOshon and Oltinka Oibor boreholes. Their contributions as far as resources are concerned were done through their husbands. Labor was designated a man's job by the female participants.

When you ask about resources and how we have contributed, I don't think we will have any response to that. If our contributions can be equated to what our husbands give, then we will say we have contributed, but as women we are not even granted room to give our opinions at home. Matters pertaining to labor are the work of men, so we did not contribute our time; I don't even know what to say (A participant who drew support from the members).

Resources, Time and Labor Towards the Development of the Public Non-Operational Water Projects

For a very long time, Elangata-Wuas community in Kajiado county used to scoop water from sand until donors came to the rescue. The donated boreholes were constructed without involving beneficiaries of the project. Giving this experience, the CCF water project and Kudu borehole were left in a state of dilapidation after the exit of donors. In the course of the group interviews, participants served by Oltinka Oibor and Olompeuti boreholes alluded to the donor funded water projects.

The borehole concept was a new technology to the Maasai community as over the years they scooped sand to get water. However, CCF borehole fully funded by the Christian Child Fund and the Kudu borehole fully funded by the Elangata-Wuas Ecosystem never

involved the community at any stage of the projects' development. Rather the community members were involved at the project launch. The failure of the CCF and Kudu water schemes was attributed to lack of involvement and participation of the community by the initiators and funders of the projects. Thus, when the water schemes became dilapidated, the community returned to their old ways of scooping water from sand. The project failure is in line with Freire's (1970) sentiments that projects fail because the project design, planning and implementation excluded the direct beneficiaries from the process. The bitter experience drawn from the non-operational boreholes shaped the participatory trajectory employed by Elangata-Wuas community in the construction of the current and functional water boreholes.

Recounting their experiences, some of the community members stated that:

We cannot talk about our borehole without the mention of the CCF and Kudu boreholes. Without our knowledge and consent donors did their own research and found out how we scooped water out of sand. They first constructed the Christian Child Fund (CCF) water project and never involved us as the community. We were only involved ... at the launch of the water project. This was a very new technology to us; we totally knew nothing about it. But after the donors left, it started experiencing technical problems. Since we did not know how to use it, we went back to our old ways, tanks, pipes and other usable things were stolen and left to rust (A male participant from Oltinka OIbor FGD).

If you ask us about our contribution towards its development, we did not even know the coming of the donors. We only knew of them when we were called for the launch. We never contributed anything towards its development, only our appearance at the launch. When it failed after some years, another borehole, Kudu borehole was constructed, and just like CCF water project, we were not involved, and the same fate befell Kudu borehole. It failed and we went back to our old ways of scooping sand for water. When the need for water increased, we decided to deal with the problem. We had to revisit the reasons for the failure of two earlier donor funded boreholes and the lessons really helped us in a big way (Another participant from Oltinka OIbor FGD).

Honestly speaking, the news of the Kudu and CCF water boreholes just passed like a rumor in the community. We only heard about its launch, and

we did not even attend as were not informed prior to the construction of the projects. We never contributed anything whatsoever (A male participant from Olompeuti FGD).

What emerged from the FGDs with participants served by the Oltinka Oibor and Olompeuti boreholes is that the community never participated in the development and sustainability of the water project. The kind of participation that was practiced by the donors is the pseudo kind of participation, meaning all matters pertaining to the development and decision of the project were solely in the hands of the donors.

Resources, Time, and Labor Towards the Development of the Privately-Owned Operational Water Projects

Privately owned boreholes in Elangata-wuas, Kajiado county was also investigated by the researcher to understand the extent of community involvement, if any. There are two privately owned boreholes in Iloshon village: Mr Kemboi and Ole Katongi boreholes. Whereas privately-owned boreholes were meant for personal use by the owners, occasionally the residents of Iloshon village were allowed to fetch water from the boreholes for a fee. As was the case with the non-functional water schemes, the construction of the two private boreholes did not involve the members of the community at any stage of developing the projects.

On the construction of the Mr. Kemboi's borehole, we were not involved in any matter that concerned its development. That is his personal borehole for which he does not have to involve us. Though at some point our women might have fetched water at one time and paid money in exchange for water, we cannot say we have developed it in any way. Same applies to Ole Katongi's borehole, we never contributed towards its development (A male participant).

Our business with Mr. Kemboi's borehole was to fetch water and pay for the service rendered. We cannot say we helped the owner in any way. Similarly, we never participated in the construction of Ole Katongi's borehole (A male participant).

The residents of Elangata-Wuas village (both male and female) served by the Oltinka Oibor and Olompeuti boreholes could not comment on the privately owned boreholes as they are located a far distance from them.

We only know of their existence, but we never used or contributed to their development (A male participant from Oltinka Oibor FGD).

I can point and tell you of their locations and I cannot say I have even gotten close to any of them; we never participated in any way in their development. But we know they exist (A woman participant from Oltinka Oibor FGD).

The people being served by Iloshon water borehole can clearly tell you about it as it is closer to them than us. But as far as resources towards its development is concerned, we never contributed anything, even our time and labor (A male participant from Olompeuti FGD).

We have never been involved or participated in their development since they are privately owned boreholes (A woman participant from Olompeuti FGD).

What emerged from the women and men served by Oltinka Oibor, Olompeuti and Iloshon water boreholes is that they had little to say on the private boreholes as far as resources, time and their contribution is concerned. The residents of Iloshon village agreed that they at some point used water from the two privately owned boreholes for a fee but they were not privy to whether the money contributes to further development of the water project. In relation to participatory communication and the sustainability of the privately owned boreholes, the owners did not involve the community at any level of the development of the boreholes. The owners instead took it upon themselves to develop and manage their water projects.

Level of Involvement and Contribution Towards the Development of the Operational Public Water Projects

Harvey and Reeds (2007) stated that the process of people's involvement should encompass decisions about the location of water points, choice of technology, and rules regarding its management. This was the case with the residents of Elangata-Wuas (both Iloshon village and Elangata-Wuas Village) with regards to the boreholes serving them. The failure of the two donor funded water projects was a learning point for the people of Elangata-Wuas community. Regarding the development of the water projects, the residents of Elangata-Wuas village were involved from the inception to the completion of the boreholes.

The residents served by Oltinka Oibor borehole through the water committee wrote a project proposal to the county government to fund its construction. The men had meetings, agreed on the location of the water point, provided a parcel of land for the construction of the borehole, agreed on the technology to be used and ways of maintaining the borehole. The difference between the involvement/contribution of men and women was that women never convened meetings to discuss these issues. Instead, they passed word through their representatives at the water committee who delivered their message to the committee. The residents' level of involvement directly reflects on the productivity and sustainability of the Oltinka Oibor borehole.

When the donor found their way to our community and built the CCF and Kudu boreholes, we were only involved at the launch of the boreholes, after they left, we enjoyed the water and after a while it started experiencing issues, we all went back to our old ways of scooping sand to get water. However, when the need for water for our livestock and domestic use increased, we had to take matters into our hands. Through our water committee and learned members in the community, we were able to write a proposal to the county government of Kajiado to request for their help in

constructing the borehole. After several follow ups our request was granted and the Oltinka Oibor borehole was constructed for us (A male participant).

As a community we discussed and decided where the borehole would be located so that it serves many people in consideration especially of the distance to be covered. We also discussed the technology that was cheap and would work best for us. We also got an expert who accepted to train us on how to properly manage the borehole. We also discussed issues to do with maintenance and rehabilitation of the boreholes and its monitoring and evaluation to ensure that the borehole serves us for a long time. With regards to Oltinka Oibor borehole, we were fully involved in all the stages of the borehole development (Another male participant).

Unlike the men, we do not convene for meetings, word is just passed through our female representative at the committee who then shares our feedback before the committee. The men meet as a large congregation headed by the male committee members and by the end of every meeting there is always a substantial deliberation/decision. As an individual, I feel like our involvement as women is not felt and does not even make sense (A female participant supported by the other participants).

Through dialogue, Freire (1970) explained, community members (and in this case the residents of Elangata-Wuas village), have been able to determine who and what their issues are and how best they can solve them via participatory engagements to sustain their water projects. It emerged that the level of involvement and participation of residents served by Oltinka Oibor towards the development of the water project, was from the inception of the water project to the monitoring and evaluation which is ongoing. Their participation was collaborative.

Olompeuti

The discussions around Olompeuti FGD elicited almost the same responses as Oltinka Oibor as it emerged that the residents served by the Olompeuti borehole were involved at all levels towards the development and sustainability of the water project. They took part and held discussions on idea formation, sought project funding from the county government, made decisions on the choice of technology, implementation, maintenance, and

rehabilitation of the water project. The community was fully immersed in the project but partially involved the county government who funded the construction of the borehole.

A community's suffering is only known to and felt by residents of a given community. Our suffering with regards to water and the failed projects by the donors awakened our participation. We would say we gave the Olompeuti borehole our all. From coming up with the idea, seeking project funding, holding discussions on what technology to use, how to maintain it and taking part in its construction, I would say we were fully involved in the development of the Olompeuti water project (A male participant).

We have been thrown ideas to ponder on and requested to give feedback, but we are not sure if our feedback makes a difference. Thinking through this question on our level of involvement, we do not feel like we contributed or better yet be involved much though. Through our husbands we can somewhat say we were fully involved (A female participant).

In his research, Nkongo (2009) argued that community participation, involvement and projects ownership play a valuable part in realizing sustainability. This reality was evident in Elangat-wuas village as it emerged that they were fully involved and participated in the development and sustainability of the water projects.

Iloshon

The Iloshon water borehole unlike the Oltinka Oibor and Olompeuti borehole, was a government initiative that was constructed to solve the water problem of resident of Iloshon and Iloshon secondary school. However, this was the extent of government's involvement in the project. The residents provided a parcel of land for the construction of the borehole, helped in the digging of trenches and fixing of pipes with the assistance of a government water engineer, provided security to guard the borehole day and night and held discussions on matters regarding its development and sustainability.

Just like the women residents of Elangata-Wuas village, the involvement of the women from Iloshon village, as far as the development of the Iloshon boreholes is

concerned, was pegged on their husbands' involvement and the opinions communicated to the committee through the woman representative at the committee.

The Iloshon water borehole was a government initiative, but we took it up like it was our very own project. We made all the decisions that touched on its construction. These included Issues of where to construct it, what technology to use, who will spearhead the project, who will give security, and how best it can be maintained to serve us for a long time. Our level of involvement was total. Knowing that this is a project to benefit us made the difference. I am saying the truth (A male participant).

Well, since we have a lady representative in the water committee, does that count as being involved? Well as women generally, we are not fully involved in the water project. It's like we were not in the picture; the water borehole would still have been operational because of the men. Our presence does not really make a great impact to its development (A female participant).

The study sought to determine the level of involvement and their contribution to the water projects. The residents of Iloshon village indicated that their participation and involvement towards the development and sustainability of the water project was in conjunction with the county government and it seems to have played a role in the sustainability of the water project. This kind of participation, White, Nair and Ascroft (1994) stated, is a genuine participation where the development agencies (in this case the county government of Kajiado) and the residents cooperatively joined forces to work together and empower the people to control and manage the development of the project.

Level of Involvement and Contribution Towards the Development of the Public Non-Operational Water Projects

The resident served by Oltinka oibor and Olompeuti boreholes spoke about the failed projects (that is the CCF and Kudu boreholes). Little was said concerning their level of involvement and contribution towards the development of the failed donor funded projects since the community was not involved at any stage of development of the projects. The

community was involved at the launch of the two-water project on different occasions. After the donors left, the projects broke down and were left in ruins. According to the community, the sustainability of the two projects with reference to the other operational water projects was influenced by the community's involvement at all the stages of the development of a water project which was not the case for the CCF and Kudu boreholes.

For CCF and Kudu boreholes, we were only involved at the launch, after the donors left, we enjoyed the water for a while until it started experiencing issues and broke down, we all went back to our old ways of scooping sand to get water (A male participant from Oltinka Oibor FGD).

We can only tell you where it was constructed. Some of us were distracted from our daily activities to attend its launch. That was like a surprise gone wrong (A woman participant from Oltinka Oibor FGD)

We cannot talk of our success without talking of our failures because those are the steps that made us correct our mistakes. We were not in any way involved at the development of the two failed projects except for the launch alone. The coming of the donors and their going was like the wind. They never involved us in anything, neither did we try to get involved (A male participant from Olompeuti FGD).

Unlike today where the government pushed for our representation in the water committee to ensure that we are involved, during the CCF and Kudu we were not involved in any way and if you were a stay home woman, you only heard it as a rumor (A woman participant from Olompeuti FGD).

The findings show that the residents of Elangata-Wuas in Kajiado county never participated and neither were they involved in the development nor the sustenance of the CCF and Kudu boreholes which failed after the donors left. Illustrating that when a project fails to include and involve the beneficiaries from the inception of the project, there is a likelihood of the project to be left to decay when donors exit. This point echoes Fox's (2019) sentiments that development becomes more sustainable, effective, and long lasting when beneficiaries are involved.

Level of Involvement and Contribution Towards the Development of the Private Water Projects

In this study, discussions that touched on privately- owned boreholes never elicited many discussions because these are projects meant for personal use. Regarding extent of involvement, residents of Iloshon village living close to Mr. Kemboi's and Ole Katongi's boreholes confirmed not being engaged in their development. Even though they occasionally buy water for their livestock and home consumption from the boreholes, they cannot establish whether the money was used to the repairs, rehabilitation, and maintenance of the boreholes.

We would be lying if we say we have never used water from Ole Katongi's borehole which is closer to us. On occasions our wives bought water from the borehole, but we are not sure if the money was used in the development of the boreholes or for the personal use of the owner. We have never been involved as a community in any of the stages of the development of Ole Katongi's boreholes (A male participant from Oltinka Oibor FGD).

Occasionally, we fetched water from Ole Katongi's borehole, but it has always felt different. For instance, we were usually scolded, asking us why we were not patronizing the public boreholes. This unpleasant experience pushed us away and we returned to patronizing our public borehole without any monetary cost (A female participant from Oltinka Oibor FGD).

We have never been involved or involved ourselves in the development of the Mr. Kemboi's or Ole Katongi's borehole, however, we have intermittently fetched water from it (A male participant from Olompeuti FGD).

To be honest, I cannot tell you how the borehole came into being because we have never been involved in its development in any way. The borehole was named after the owner as the name indicates. He is not from here, so when he bought the land and settled, to make him feel welcome he sometimes shared water with some members of the community (Another male participant from Olompeuti FGD).

In matters development, we have never been involved. Though occasionally we have fetched water from it (A female participant from Olompeuti FGD).

In all the FGDs, it emerged that the community's level of involvement in the development of privately-owned boreholes was not allowed as the boreholes are for private use. The researcher also found out that even with the charges put towards the water fetched, the community cannot tell what the money was used on.

Rehabilitation of the Public Operational Water Projects

Borehole rehabilitation is a matter that Elangata-Wuas community holds dearly because their livestock as source of income depends on water. For this reason, the community devised means of collecting fees among themselves to repair and rehabilitate the water boreholes. Instead of cash, the periodic fees are collected as livestock which is fattened and sold to make more money. The community also got a day and night watchman who secured the water boreholes from vandalism or theft of pipes and other valuable equipment.

From the inception of the Olompeuti borehole we agreed that there would be a membership fee paid annually and daily charges for livestock that drink water from the borehole. The charges would be per livestock head. Both the membership fee and daily charges are accepted in form of livestock, not money. We fatten the received cow or goat and sold in the market to get cash directly used for the purchase of spare parts and for paying engineers for their services. Whatever is left of the money is saved with the treasurer. An important thing to note is that our water committee is the custodian of the resources contributed (A male participant from the Olompeuti FGD).

We have some charges levied for maintaining and rehabilitating the boreholes. Our men are the ones responsible for the payment. We are only told that a certain cow has been given to the committee payment or sometimes we are never told as they do not owe us any explanation. All we know is that we contribute for the membership and daily use (A female participant from the Olompeuti FGD).

Our men have played a major role in the rehabilitation of this borehole; they are the ones solely involved in the payments of the membership fee and daily charges for water use. Sometimes when this water point breaks down, they are sometimes involved directly in the repair or sometimes they involve an expert to repair and is then paid through the contributions we make (A female participant from the Iloshon FGD).

What emerged from the FGDs was that the residents of Elangatawuas in Kajiado county participated in the rehabilitation of the water projects through annual membership fee and daily contribution in the form of livestock, kept, fattened, and sold by the water committee. From the participants it was evident that they do engage in repairs that do not require the expertise of engineers.

Rehabilitation of the Public Non-Operational Water Projects

Prior to their failure, the CCF and Kudu boreholes served the residents of Elangata-Wuas village (served by Oltinka Oibor and Olompeuti boreholes) and were never used by residents of Iloshon village because of their locations. During the construction of the two non-operational boreholes the Elangata-Wuas residents were not involved at any stage of the project. In addition, given that the borehole concept was new to the Maasai community, they lacked knowledge on how to rehabilitate, repair or maintain them. Hence, upon the exit of the donors, the boreholes began to show signs of technical faults which the community members do not understand nor knew how to address. The outcome became a dilapidated water scheme.

The construction of this boreholes was not involving; the donors did what they did and left after the project launch. We knew little about the technology beyond opening and closing the taps. The rehabilitation was left in our care, and it turned out unsuccessful. We used the water and when it started to experience issues and broke down, we all continued with our old ways like nothing ever happened (A male participant from the Oltinka Oibor FDG).

As we explained earlier, matters pertaining to rehabilitations were left to the men. But in this case, we knew little about the CCF and Kudu water projects. So, we cannot really talk about the rehabilitation of these failed projects, even though we used water from them (A female participant from the Oltinka Oibor FGD).

We would be lying if we say we contributed or were involved in anything to do with the failed projects. We did not get the chance to participate in the rehabilitation of both CCF and Kudu boreholes as we did not know what to do at that point. If we were involved from the inception, we would have known or rather asked what is needed of us when it experienced issues (A male participant from the Olompeuti FGD).

From the discussions it was evident that the Elangata-wuas community never committed to the rehabilitation of the non-operational boreholes because they were not guided or trained on how to maintain, repair, or even rehabilitate the water projects when faced with mechanical issues.

Rehabilitation of the Privately-Owned Water Projects

Little was said on the privately-owned water projects in all the focus groups. Clearly, these privately-owned boreholes were meant for personal use. With regards to the rehabilitation of the privately-owned boreholes, the residents of Iloshon Village never took part on the rehabilitation of the water projects, and they cannot account for the money they paid for water they fetched from the Ole Katongi and Mr. Kemboi's boreholes.

We once bought water from the privately-owned boreholes, but we soon returned to using the public boreholes. Under this circumstance, I do not think we can even contribute in any way. We never went back there again, and matters pertaining to private boreholes remained very private and never involve the public (A female participant from the Iloshon FGD).

The private boreholes are named by the owner's name for a reason to show that it is his and the family or his use, we have never had any responsibility or a chance to participate in anything regarding Mr. Kemboi's borehole. Therefore, we wouldn't say we contributed in any way to its rehabilitation - be it in form of labor or monetary (A male participant from the Iloshon FGD).

From all the Iloshon FGDs, it emerged that anything to do with Mr. Kemboi and Ole Katongi private boreholes, the community never participated. They only bought water and that was it.

Decision Making Process and Stages of Community Involvement in The Public Boreholes

The two failed projects greatly impacted the involvement and participation of the Elangata-Wuas on the operational boreholes. Through the water committees set for each borehole, the community was kept abreast of the progress and any matter related to the boreholes. The men occasionally met when need arises and discussed matters that needed attention and came up with ideas that were presented to the committee for discussion and ratification.

The men in the Maasai traditional have always known the place of the women to be the kitchen and procreation. At the commencement of the water projects, the women were never involved in the water committee. It took government intervention to have women inclusivity in the water committee. Even so, the women rarely met because of chores in the homesteads. But through their woman representation at the committee, the women would communicate their opinions or suggestions passed on to the committee for considerations.

Through the leadership of our water committee, we have been involved in matters pertaining to the borehole. We have been put on notice on every decision from the inception of the borehole, its site of installation, implementation, maintenance, and rehabilitation, monitoring and evaluation. In all this, decisions must be made. With regards to Oltinka Oibor we have been involved in the decision making at all stages of the borehole development (A male participant from the Oltinka Oibor FGD).

When you ask us about decision making, I feel like our involvement was more of awareness creation than our decision really being looked out for. Through our well abled woman representative in the water committee, we were told of what would happen. Mind you there is no meeting, but word passed round, the feedback she receives is what she tables at the committee. We are not sure if our contributions make sense before the men in the committee (A female participant from the Oltinka Oibor FGD).

For the longest time the men have always known us to be best only in procreation, in the kitchen and taking care of the homestead. We have never been in any committee that men are involved, that always has been the work of the men. However, the county government influenced our involvement in

water projects as we are users too and that our opinion may bring about change. That forced them to include one woman in the water committee and we can only be members and not play any significant role. We feel like our inclusion did not add much value. Yes, we have a woman representative in the water committee, but can she defend our decision before the other committee members? (A female participant from the Olompeuti FGD).

Sometimes we feel even in our absence Iloshon water borehole would still run, how they have viewed us in the past has not changed. In their presence, we are children. Our concern is whether our contributions or suggestions via our woman representative made any difference in the committee. Do we contribute to the decision-making process? Yes, we do (A female participant from the Iloshon FGD).

Data from men's FGDs revealed that men fully participated in all stages of the borehole development and that they played key role in decision-making. The researcher also found that their attachment to their livestock (and having to donate the livestock to regularly access water from the boreholes) contributed significantly to making them have a sense of ownership of the boreholes, which in turn continued to ensure that the water points are sustained.

On the other hand, from all the women's FGDs, it was evident that the women indirectly participated in all the stages of the boreholes' management after their construction. The semblance of participation manifests through opinions contributed via a woman representative in the committee – opinions they fear are never considered on their merits because they emanated from women who are supposed to be seen but not be heard. Similar sentiment of non-participation was shared across men and women regarding the privately-owned boreholes and the failed water schemes.

Incorporation of Views and Opinions in the Implementation and Maintenance of the Public Operational Water Projects

The researcher found out that when a matter concerning the water points arises, through the water committee, men hold meetings, discuss issues presented or any other issues that they face as far as the water points are concerned. As the meeting concludes, views and opinions are presented which are then shared with the water committee, discussed, and implemented. The participation and involvement of the community through regular meetings ensure that the community own the project as their own. The women on the other hand do not have group meeting as their responsibilities do not allow; however, their views are heard through their representative in the committee. The participation of the community shows that their views and opinions were incorporated into the development of the water boreholes.

Community participation and ownership play significant role in project sustainability (Nkongo, 2009). This was the case with the beneficiaries of Iloshon borehole that made the water project operational to date.

Whenever the committee seeks our input, we always act fast, convene for a meeting where issues are discussed, and the position adopted communicated to the committee for consideration (A male participant).

The good thing about these meetings was that we are assured that our participation would not end up a wasted effort. Whatever was discussed, after further deliberation within the water committee, was adopted to help with the maintenance of the borehole (Another male participant).

We would wish one day to know how and whose decisions were incorporated in the development of the boreholes. We have had issues with the boreholes, given our opinions when asked to but we have never seen any of them incorporated. Our fear has always been that even if the perception men had about us as women changed, we still feel like we are still treated as kids and our opinions insignificant (A female participant).

This kind of community participation agrees with Guijt and Shah's (1998) study that posited that community participation is a consultative empowerment process that is designed to establish communities as effective decision-making entities. This implies that for a community to benefit from a water supply system there must be inclusion of information sharing, consultations, decision making and action implementation.

Just like the residents of Iloshon village, the men served by the Oltinka Oibor borehole held meetings regularly or even when called upon by the water committee to discuss issues regarding the water borehole. Unlike the men, the women passed their views to the woman representative who in turn present them to the committee for consideration.

Over the years we learnt that teamwork is essential in the growth and development of everything in life. As far as the development of the Oltinka Oibor borehole is concerned, as men we hold meeting of course under the guidance of the committee members and discuss. When meeting ends, we always have a substantial way forward which is later incorporated into the development of the borehole (A male participant).

As women, we are not sure if our views and opinion concerning our boreholes are adopted, but we do share nonetheless (A female participant).

The residents of Elangata-Wuas village attributed their efforts towards sustaining their boreholes to the two failed projects (CCF and Kudu boreholes). Like the residents served by both Iloshon borehole and Oltinka Oibor, the residents served by Olompeuti borehole also held meetings and shared information with the woman representative in the water committee (men and women respectively) about the water project. The suggestions are discussed and debated before adoption.

Our past engagement in the two failed projects awakened in us the need to have own water boreholes, especially in the face of rising need for water for our livestock and home consumption. We met and still do meet under trees as men to give our opinions and views concerning Olompeuti borehole

which have always been incorporated for the success of the boreholes (A participant from the men's FGD).

Discussions form part of community participation which creates a sense of possession and ownership making the people or the community self-reliant, confident, and competent to learn managerial skills which according to the United Nations Development Program (UNDP, 2009), build communities and encourage social action. Community participation ensures ownership, learning, and sustainability of results (in this case the water boreholes).

Incorporation of Views and Opinions in the Implementation and Maintenance of the Public Non-Operational Water Projects

The CCF and Kudu camp boreholes are non-operational. Accounts of residents of Elangata-Wuas and Iloshon villages in Kajiado County were that the boreholes were solely initiated, implemented, and managed by donors but launched in the presence of some community members. Fraser and Restrepo-Estrada (1998) provided two extreme conditions that account for the success and failure of projects. One is communication. Second, people's involvement is a crucial determinant in the development of projects. For Sackey (2014), no matter how beneficial a project is to a community, people should not be coerced to adopt a practice but instead encourage to voluntarily participate. This was not the case for the CCF and Kudu boreholes.

As we mentioned earlier in previous discussions about CCF and Kudu camp boreholes, we did nothing much about the boreholes aside from participating in the launch and when the donors left, we enjoyed its fruits before it collapsed. we never gave our inputs or got involved in any way (A participant from the Oltinka Oibor Men's FDG).

I think we should just say that everything concerning the failed project we don't know. Whether we were asked for our opinions in the development of CCF and Kudu camp boreholes the answer is no. We have never been

involved in anything to do with it (A participant from the Oltinka Oibor women's FDG).

With reference to the discussion with all group interviews, the researcher found that the non -operational projects never involved the residents of Elangata-Wuas in Kajiado County but rather involved them when launching the projects. This study also sought to find out whether the community was involved in the development of the failed donor funded projects. However, as far as participation and sustainability of the failed donor projects are concerned, the residents were never incorporated or involved at any level; and the projects being a new technology to the community, they did not have the technical know how to manage, repair and or sustain the water projects.

Incorporation of Views in the Implementation and Maintenance of the Private-Owned Water Projects

In this study, just like the donor funded projects, the private boreholes owners never involved the larger community because they are projects meant for personal use. As far as the incorporation of opinions in the implementation and maintenance of the water projects, the residents of Iloshon village living close to Mr. Kemboi's and Ole Katongi's boreholes confirmed not being involved in the development of the boreholes.

Ole Katongi and Mr. Kemboi built their own boreholes and they never asked for our opinion or views because it was not meant for the public use (A participant from the Iloshon men's FDG).

The only talk we have with Ole Katongis and Mr. Kemboi's is on payments for water collected, nothing more. We have never been asked for our opinions on how to run, manage or sustain the boreholes and probably it is because it built for family rather than community use (A participant from the Iloshon men's FDG).

We were only asked our views for the public boreholes and not the private ones. When something is named after a person you know it's meant for him, not the public. To answer your question, we were not asked to give our opinions. Our relationship

with the private boreholes, which is no longer exist, was fetching water and paying for the services and nothing more. We have never been asked to give our opinion on the development of the two-private borehole (A participant from the Iloshon women's FDG).

What emerged from the Iloshon FGDs was that private-owned boreholes never sought the views of the community for their sustenance. Besides, the community has drawn a boundary as far as overstepping into the space of privately-owned boreholes and thus patronize only the public boreholes.

Decision Making on the Utilization, Maintenance and Rehabilitation of Donor Funded Projects

What emerged from all the FGDs, except Iloshon, is that the residents of Elangata-Wuas village in Kajiado county never participated in the decision-making process with regards to the utilization and rehabilitation of the donor funded projects or anything that concerns them. The CCF and kudu borehole which were the donor funded water projects in Elangata-Wuas never used the inclusivity approach when installing the relatively new project. The community not knowing what to do with or about the water project when faced with mechanical issues, left the water projects to wallow in dilapidation after it broke down. Having used to dig sand for water, they went back to their old habits.

Though resources went to waste, the Elangata-Wuas community attributed the sustainability and success of the Oltinka Oibor, and Olompeuti boreholes to the lessons learnt from the failing of the donor funded project.

The first water project to be constructed for us was the CCF borehole which was funded by the Christian Child Fund. We know nothing much about the inception, we thought it was a private borehole being dug. We were only called upon during its launch and the donors left (A participant from the Oltinka Oibor men's FGD).

In the days of the CCF and Kudu boreholes, women were not involved in any matter where men were involved. The little we know about the two failed projects was that no community member was involved in any stage of their development, therefore we were not given a chance to contribute in way, let alone their rehabilitation (A participant from the women's Oltinka Oibor FGD).

The resident served by the Iloshon water borehole did not respond to matters dwelling on donor funded projects as they lived far away from them. Harvey and Reed (2007) alluded that people's involvement should encompass decision about the location of installation of the water point, choice of technology, and its rule regarding its management. This is contrary to what occurred during the installation of the CCF and Kudu boreholes. The story perhaps would have been different were members of the community engaged throughout the stages of the construction of the failed boreholes.

Selection and Choice of Technology for the Public Operational Water Project

After the failure of the donor funded water projects, the residents of Elangata-Wuas and Iloshon villages became fully involved in matters pertaining to their boreholes. Discussions on the choice of technology was carried out at the inception of the water project between the water committee and the community. In the case of Oltinka Oibor borehole, the residents served by it chose to have a pre-paid electric powered borehole. Their choice was because the expenses can be controlled.

However, according to the researcher, their choice comes with challenges. When there is a power outage, the residents are forced to fetch water from Olompeuti borehole which is miles away from them. For this reason, the residents are rethinking their choice of the pre-paid electricity powered borehole. Other than the water pumping technology, the piping was metallic which was the preference of the male participants. Their position on this was that they are durable and can serve for long before being replaced. On the other hand,

the women's preference was plastic which they justified on the grounds that water passing through the metallic pipes discolored clothes and had a metal taste when consumed.

Discussion on the choice of technology, maintenance and rehabilitation of the boreholes was done between the committee and the community at the inception. With regards to technology, we opted to use an electric powered borehole on a prepaid token service because it is cheaper, and the pressure is better than using the diesel-powered borehole (A participant from the Oltinka Oibor men's FGD).

On the choice of technology, we had to say. In fact, we had no problem with anything that was chosen so long as it is functional. With regards to the piping system, we prefer the plastic pipes and plastic tanks to metallic pipes and tanks because of rust. The rusty water stains our clothes, and the taste of the water is not appealing (A participant from the Oltinka Oibor women's FGD).

Unlike the residents served by Oltinka Oibor, the residents served by Olompeuti borehole opted for a diesel-powered borehole. Their choice was drawn from the power outage experiences by those served by Oltinka Oibor borehole. The researcher found that this decision was informed by the fact that diesel was available and inexpensive. The men also preferred metallic piping and tank to plastic ones saying they are durable, do not expand easily because of heat. On the contrary, the women gave the same sentiments as those of the Oltinka Oibor saying their preference of plastic pipes and tank is because the metallic pipes rust, stains clothes and leave bad taste on the water during consumption.

Unlike our neighbors, we chose the diesel-powered technique. Our borehole having been constructed after theirs and hearing of the challenges they face like power outage which leaves them going for hours or days without water or coming to fetch from our borehole, we made sure we chose a technology that will ensure we have flow of water anytime we are in need (A participant from the Olompeuti men's FGD).

We chose a diesel- powered system which were discussions we held with our men at the homes and after seen what our neighbors served by Oltinka Oibor went through, and trekking long distance to fetch water, made us select the diesel-powered system. We however disliked the metal piping and

tank, and we hope one day the committee will push for the change to plastic
(A participant from the Olompeuti women's FGD).

Like the residents of Elangata-Wuas village, the residents of Iloshon village held discussion about choice of technology for the borehole at the inception stage. The choice was based on availability and ease of repair in the event of damage. In addition, the community opted for solar-powered electricity. This was because sun is readily available and cheap compared to all other electricity options. During the installation of the project the government engineer explained to the community the most cost-effective materials to use especially in hot environments. With regards to piping system, both the men and women were comfortable with the metallic pipes and tanks as it is weather resistant according to the water engineer.

Our borehole is solar powered. Our choice was influenced by the fact that sun is freely available and is also cheaper. Though it is very cheap, we experience a lot of challenges, and we are on the verge of discussing what other technique we can adopt to help better the borehole's functionality. What informs our choice and selection of technology is the cost of maintenance, availability of the materials for repair, and the availability of an expert who is conversant with the technology (A participant from the Iloshon men's FGD).

We owe the county government a lot. The engineer gave us advice that has seen our borehole operational to date. Though we have challenges, we can manage and especially with the guidance of the water committee and our efforts as community (A participant from the Iloshon women's FGD).

The residents of both the Elangata-Wuas and Iloshon villages claimed that if the engineers had informed them from the beginning about the advantages and disadvantages of the different techniques they would have opted for the best possible alternative. But their knowledge of their borehole technology, constant meetings and general community

involvement on matters related to operations facilitated development and sustainability of the water projects.

Selection and Choice of Technology for The Public Non-Operational Water Project

In the light of previous discussions, it was evident that the failed water schemes never involved the benefitting communities in any way. As far as Kudu and CCF boreholes are concerned, the choice and selection of water technologies was decided by the donors. This made it difficult for the community to be involved in the maintenance, repair and sustainability of the projects which were relatively new to the Maasai community.

If we were given the chance to choose the technology then probably the boreholes would have been in operation till date, we were never involved in any step of the CCF and Kudu boreholes development (A participant from Oltinka Oibor men's FGD).

We never knew that the CCF and Kudu were public boreholes during their construction. We thought they were private. Since we were not involved, we cannot respond to the question on the selection or choice technology that we know nothing about (A participant from Olompeuti women's FGD)

With reference to the findings on the selection and choice of technology, it emerged that the residents of Elangata-Wuas in Kajiado county never knew why the donors used that kind of technology used for the CCF and Kudu boreholes. This information was only known to the donors.

Selection and Choice of Technology for the Privately-Owned Water Project

Owners of private boreholes, as expressed throughout the research, never engaged the community in the construction of their boreholes. When the researcher sought to find out what informed the selection of the technology used for private boreholes, the residents of

Iloshon village living close to the Mr. Kemboi's and Ole Katongi's boreholes confirmed not being involved in any way in the construction of the boreholes.

When we asked our women to go get water from Ole Katongi's borehole their interaction was limited to the amount for water fetched. Discussion on what technology was used and why is not supposed to concern us. Plus, Ole Katongi's is a private borehole as a community we do not play any part in selecting the kind of technology to be used (A participant from Iloshon men's FGD).

We hardly think our inputs are taken seriously in our public boreholes and so with the private boreholes we cannot say anything and mind you our end goal is to fetch water, pay and leave. If only we had the right as a community to participate on issues concerning private boreholes, we would have responded to the question. But as it is, we never played any role when it came to the selection of a technology for the borehole (A participant from Iloshon women's FGD).

The Ole Katongi and Mr. Kemboi's borehole are privately-owned boreholes. The Iloshon FGDs confirmed that the community didn't participate in any decision pertaining to technology selection for the water schemes.

Sustainability of Public Operational Water Projects

For Mbinya and Fatoki (2021) sustainability is the measure of how growth, maintenance and a set of resources affects a population's ability to endure itself. As far as the boreholes in Elangata-Wuas is concerned, the residents served by the three public operational boreholes continue to participate in different ways to ensure the development and sustainability of the water projects.

The residents served by boreholes in both Elangata-Wuas and Iloshon villages formed water committees that oversaw the progress of the water projects. the community contributed parcels of land to which the boreholes were to be placed. With the help of the water committee, they discussed the location and installation of the borehole and selected a

technology that was deemed suitable for them. The decision on what should constitute membership and daily fees was made by the community to enable it perform maintenance tasks towards sustainability of the water project. The fees are usually contribution in the form of livestock which is fattened and sold to generate money to embark on the services of repairing and maintaining the water projects.

The community held regular meetings to discuss issues pertaining to the water projects. Members were all involved in the decision-making process in the spirit of participatory communication and development. To ensure that every member took part in contributing towards the development of the water project, the water committee was reshuffled after 3 years while the role of watchmen who protected the water projects against theft and vandalism were changed after 2 years of service. With reference to the community of Elangata-Wuas community, participation and ownership were evident. Nkongo (2009) noted that community participation and ownership play valuable part in the realization of sustainability. Relatedly, Ochelle (2012) argued that water projects sustainability is influenced by community involvement from the beginning to the end of the project.

From the lessons we learnt from the two failed projects, we, as a community with the leadership of the water committee, decided on several ways to ensure the sustainability of our boreholes. During the inception of our borehole, we decided to charge membership fee and charge the daily fee for the animals drinking from the borehole. We decided to have the fee in form of livestock and not money because we can fatten the cows and goats and get double the money we would have gotten in a whole month (A participant from Oltinka Oibor men's FGD).

We love our livestock, and we are attached to them; we chose to put out our livestock as the mode of payment as this will make the community take full responsibility of the borehole and protect it (A participant from Oltinka Oibor women's FGD).

With the supervision of the committee, the cows or goats are fattened and sold. The money realized is used for paying engineers for repair works and

for purchasing required spare parts. The sale of the cows or goats is only done when the maintenance or rehabilitation is scheduled to be done (A participant from Olompeuti men's FGD).

We also have day and night guard to watch over the water project to ensure no destruction of the boreholes happens. As a token of loyalty, we allow the guards' livestock to drink for free from the borehole because the guards are on salary for their services. Finally, we have the water committee that is the custodian of the resources contributed towards the development of the water project (A participant from Olompeuti women's FGD).

Data from the group interviews revealed that communal involvement facilitated sustainability of the Oltinka Oibor, Olompeuti and Iloshon water projects. The involvement entailed full participation in the different stages of the projects.

Sustainability of Public Non-Operational Water Projects

Sustainability is an issue that the Elangata-Wuas hold with high regard as they know its importance. The CCF and Kudu boreholes never reached the threshold of being considered sustained or sustainable water boreholes due to non-involvement of beneficiaries which resulted into the collapse of the projects.

We are grateful for the existences and failure of the two projects because if it were not for them, we would have probably been counting or experiencing more of projects failing. After the donors had left, we started using the boreholes not knowing that they will experience problems. We were not taken through the process of maintaining the novel water technologies. To be honest, if we were involved from the inception of these two projects, we would be responding to your question on how we sustained the projects (A participant from Olompeuti men's FGD).

From the Olompeuti and Oltinka Oibor FGDs, it was clear that residents of Elangata-Wuas never participated in the sustainability of the CCF and Kudu boreholes, attributing their failure to the singular factor of not involving community members. The participants added that if they were educated about the process of maintaining the water boreholes at the

launch of the projects, they would have committed to sustaining them for the greater good of the beneficiaries.

Sustainability of Public Privately- Owned Water Projects

The findings of this study showed that the community was not invited to participate in any stage of the construction of the privately-owned boreholes. Similarly, given that Mr. Kemboi and Ole Katongi's boreholes were private projects, the community was not a party to their maintenance and sustenance.

Summary of Key Findings

1. The community contributed resources, time, and labor towards the water borehole development in form of land and livestock for the construction of the boreholes. This engineered a sense of ownership that translated to commitment to ensure sustainability of the projects.
2. The men of Elangata-Wuas were on a voluntary basis actively involved in the development of the water projects.
3. The women in Elangata-Wuas felt their engagement in the development of the water projects was better described as passive participation.
4. The community had a committee that ensures the water schemes are fully operational as well as security men who ensure the projects' equipment are not vandalized or stolen.
5. The water committee involved the community at every stage of the development of the water projects. On the contrary, the community women felt they were rather informed of decisions taken other than incorporate their views into the mainstream deliberations of the committee.

6. The committee met periodically to deliberate on the fate of the water projects. On the other hand, women do not meet but communicate their suggestions through their representative in the committee.
7. Previous donor funded water projects failed because community members were not carried along in the construction of the projects.
8. Decisions about what technologies to use for the water project were participatory, voluntary, and informed by factors such as cost-effectiveness in maintenance, availability of repair materials and ease of use.

Summary

This chapter presented the findings of the study. The researcher found that the introduction of borehole as a new technology to the Maasai community in Elangata-Wuas in Kajiado county, beneficiaries were not involved in the development stages but only invited to participate in the project launch. However, over the years, the community of Elangata-Wuas learnt from the failure of its first project and managed two boreholes with minimal support from the Kajiado county government whose role was limited to funding. Apart from contribution of opinions via a female representative in the committee, some of the women participants in the group interviews believed that their responsibilities at the homestead shortchanged them from active participation in the development of the water projects. Community participation, the study revealed, entails total commitment.

CHAPTER FIVE

DISCUSSIONS, CONCLUSION AND RECOMMENDATION

Introduction

The purpose of the study was to investigate the relationship between participatory communication and sustainability of water projects in Elangata-Wuas, Kajiado County. This chapter discussed the key findings of the research in achieving the purpose of the study. The objectives were 1) to find out the relationship between resources time and labor provided by the community and sustainability of water projects in Elangata-Wuas, Kajiado County, 2) to find out the influence of participation in decision making in the sustainability of water projects in Elangata-Wuas, Kajiado County, and 3) to establish the relationship between the selection of technology and selection of management structure on the sustainability of water projects in Elangata-Wuas, Kajiado County.

Discussions of Key Findings

Relationship Between Resources, Time and Labor Provided and the Sustainability of Water Projects

The first objective of the study was to analyze how resources, time and labor can contribute to the sustainability of water project in Elangata-Wuas. According to Gleitsmann (2005), the willingness of community members to manage their water sources is facilitated through contributions of time and resources for the protection, operation, and maintenance of rural water supply. This translates to sustainability of water supply and its infrastructure. The findings from the Iloshon and Elangata-Wuas villages FGDs showed that the residents served by the operational boreholes (Oltinka oibor, Olompeuti and Iloshon water boreholes)

committed time, labor, and resources towards the construction and development of the boreholes.

Participants from Iloshon and Elangata-Wuas villages indicated that they held periodic meetings to discuss the water project at length. Issues that constitute points of discussions include how to get funds to start the water project, its location, the technology to use, and how to rehabilitate the project. The participants also indicated that they commit time to crafting project proposals. The proposals were shared with the county government of Kajiado for funds and were approved. The residents also indicated that on several occasions they held progress meetings which acted as platforms for decision-making concerning the water project.

The findings indicated that the time committed towards the development of the three functional boreholes (Oltinka Oibor, Olompeuti and Iloshon water boreholes) has contributed to their sustainability because the members of the community participated and continued to participate to address issues pertaining to the boreholes. As observed by Fox (2019), these actions are supported by participatory communication theory used in this study stating that it is an approach capable of facilitating people's involvement in decision-making about issues impacting their lives. Fox added that development becomes more sustainable, effective, and long lasting when the people concerned are involved.

The findings are in line with a 2018 World Bank study in Malawi that revealed active involvement of community members in the designing, planning, construction, operation, and distribution of a water supply project. The study concluded that given about 6000 standpipes constructed were still in functional, it signified that the project was beneficial and

sustainable. Using a participatory approach, more than one million Malawians have quality, reliable and convenient water scheme (World Bank, 2018).

The findings of the study also support the findings in Spaling (2003), which indicated that involving the local people in project identification, planning and project evaluation is key for project sustainability. This is because capacity built enables the local people to effectively run the project long after the project donors and implementers have left. Okafor (2015) observed that communities need to participate in their own development projects if sustainability, efficiency, and transparency is to be realized.

Okafor argued that such participation empowers communities and helps them to own and sustain those projects. Participatory communication can be utilized to include all stakeholders' right from the beginning of any project or program to strengthen their motivation and commitment. Community members' participation in project implementation processes provides them with a sense of ownership which motivates continuous utilization of the project. Their participation confers a sense of ownership which will motivate persistent use of the project and hence its sustainability. When the community benefiting from the project contributes before, during and after, the project thus has a higher chance of being sustainable (Okafor, 2015).

According to the participatory communication theory, interrelationships between the main lines of action should incorporate communication right from the grassroots level. The theory stressed that people must be involved in the decisions and planning of the development processes, and in this sense, communication becomes meaningful through sharing of meanings, worldviews, perceptions, or information at the community level (Mefalopulos, 2008).

Researchers argued that participation by all relevant stakeholders should start at the early stages of a development project to produce effective and sustainable decision-making process. Project implementers should allow stakeholder participation through all the stages of project implementation including the evaluation stage (Reed, 2017). Therefore, this implies that the project users need to be involved from the planning stage of a development project for the project to be sustainable. Bobekova (2015) and Benoliel and Somech (2016) noted that the level of stakeholder engagement is a key determinant project sustainability. Therefore, the early the stakeholders are engaged, the better the outcome, in terms of realizing the project goals and objectives.

In this study, resources took the form of money, livestock, land, and materials. The findings indicate that the respondents in Elangata-Wuas village and Iloshon village contributed parcels of land for the construction of the water points. The land contributed were centrally positioned for easy access of the community. The men volunteered and participated in digging trenches and fitting pipes to help in the construction of the boreholes. After the projects were implemented, findings indicated that the community made annual and monthly contribution in form of livestock which was used to pay for the rehabilitation and maintenance of the boreholes. The animals were fattened to increase the value when sold. However, women from both Elangata-Wuas and Iloshon villages said their contributions in form of resources and labor were done through their husbands.

As far as rehabilitation and the protection of the water projects is concerned, findings indicated that Oltinka Oibor, Olompeuti and Iloshon boreholes had water committee to represent and guide the community in matters concerning the boreholes and had watchmen who protected the boreholes from vandalism and theft. The water committee and the

watchmen role changed from person to person to ensure the community took turn to participate in the development of the boreholes. Research findings also revealed that the residents of Elangata-Wuas village did not contribute their time, resources, or labor towards the development of CCF and Kudu water boreholes (public non-operational boreholes). They were only involved to witness the launch of the water projects. Similarly, the community never participated in the development or sustainability of the privately-owned (Mr. Kemboi and Ole Katongi) boreholes.

These findings showed that the participation, involvement and contribution of labor and resources and time by the community as beneficiary leads to sustainability of a given project, which was the case with the Oltinka Oibor, Olompeuti and Iloshon water projects in Elangata-Wuas, Kajiado County. These findings are supported by previous studies (see Gleittmann, 2005; Harvey & Reed, 2007). This therefore implies that the practice of community participation adopted by the community over time has enhanced the sustainability of the water project serving the community of Elangata-Wuas, kajiado County. Therefore, active participation creates a sense of project ownership which in turn influences sustainability of development projects.

The findings are consistent with Binder (2018) who stated that for water projects to be successful, several financial components need to be factored including sources of funding, finances allocated, and financial management. Mbinya and Fatoki (2021) and UN (2021) indicated that the financing process is critical for the sustainability of development projects. Inadequate funding is one of the factors which cause poor maintenance of the project outputs and at last project failure. Financial issues need to be addressed because they are critical in achieving sustainable water supply and sanitation.

In his study, Kahariri (2016) established that sustainability of water projects would increase with investment in specific areas including investment in capacity building and institution to operate and maintain the development projects. This also extends to the building of mechanism which support cost recovery and provision of incentives. This demonstrates that it is necessary to consider the level of investment that will be required during the operation and maintenance of the project. The United Nation 2021 report explained there is a relationship between financing and sustenance of development projects (UN, 2021). Many development projects fail to be sustainable for a long period due to either insufficient funds available to run the projects or poor financial management skills (UN, 2021). Lack of sufficient financial and human resources has led to collapse of most donor projects, while adequate financial resources help in repair and maintenance of the water facilities for sustainability purposes (Meera, 2015).

Studies have shown that trained and competent human resources are important for the sustenance and safe operation of development projects. Without adequately trained personnel, even a well-financed and organized system with the most advanced technology and regular compliance visits will fail to reliably deliver safe drinking water to its users. To improve sustainability, project staff needs to be appropriately trained and have adequate resources available to them (Mbinya & Fatoki, 2021; UN, 2021).

Influence of Participation in Decision Making in the Sustainability of Water Projects

The second objective of the study was to find out the influence of participation in the decision making in the sustainability of the water projects in Elangata-Wuas, Kajiado County. The findings showed that the residents of the Iloshon and Elangata-Wuas villages were involved in the decision-making process of the water projects from the inception,

monitoring to evaluation. Their views and opinion were discussed and incorporated into the development of the water project.

First the residents of Elangata-Wuas village were involved in making decision on how they would source finances for the construction of the boreholes. The result revealed that they presented proposals for the water projects to the county government of Kajiado and they were financed. On the other hand, the county government of Kajiado collaborated with the residents of Iloshon village to construct the Iloshon borehole and Iloshon school to serve the beneficiaries. Second, the residents of Elangata-Wuas and Iloshon villages participated in decisions on the location site for the water project, the preferred technology, methods of rehabilitating and protecting the water points.

Community participation as highlighted in the findings aligns with Julius Nyerere's conceptualization of community participation, stipulating that people's development is better realized when they are committed and involved in the process of designing and developing the project (Nyerere, 1973). The community's involvement and participation in decision-making had made Oltinka Oibor, Olompeuti and Iloshon water boreholes functional to date. In other words, the sustainability of the water projects was a function of community members involvement in decision-making.

With the rising need for water in Maasai land for livestock and domestic use, the community of Elangata-Wuas, Kajiado County have over the years learnt from the failed CCF and Kudu Boreholes what they can do better to have operational boreholes that would serve them for long period of time. Like the Maasai saying *Metolu lung' elukunya engeno* (meaning one single head does not have all wisdom, more head are better), the collaboration among community members was vital for the sustenance of the water projects in their

community. This is to say that the communities came together to make the boreholes work for them.

Findings indicated that the failed donor funded projects (example CCF and Kudu boreholes) did not involve the community from the inception of the project or at any of its development stages but involved them at the project launch. This approach to development contributed to the failure of the two projects. The failure, Freire (1970) stated, is attributed to the project design, planning and implementation excluding people it is meant to benefit. For Okigbo and Eribo (2004), most development projects in Africa fail not because they lack resources but because they lack proper coordination especially by the people and the donor agency. From failed projects, the residents of Elangata-Wuas in Kajiado county learnt that their involvement and participation from the inception to the monitoring and evaluation of the project contributed to the sustainability of the project. Similarly, privately-owned boreholes never engaged the community at any stage of their design and development. The findings showed that the community accessed services from the boreholes but never participated in any decision making for their development.

These findings agreed with Mwesigye (2011) study which concluded that it is very critical for the community to participate in matters affecting their development by actively allowing their decision-making effort, contribution, and critical input to materialize in the project design and implementation. In the absence of such efforts the realization of the implementation of the project aimed at profiting the entire community might fail because of a lack of active participation in the process of project design and. Paul (1987) noted that community participation creates a conducive condition to advance sustainability through the promotion of beneficiaries' engagement to decide their degree of involvement steps and the

extent to which they are willing to commit resources to realize the project. The outcome of community participation enhanced effective management and execution of project planning and implementation, target profits, cost-effective and time-bound delivery of project input as well as more equitable distribution of project benefits.

Further, Melkote and Steeves (2015) stated that participation of the local people should be encouraged from the planning and monitoring phases to evaluation stage. This creates a sense of ownership and makes the community to be self-reliant, confident, and competent to manage and sustain the development projects. Through community participation, hidden capabilities can be identified and unlocked to bear positively on the projects. Literature reveals that community participation is known to bring people from the periphery to core and actively engage them to own and advocate for the development projects. Stakeholder participation throughout the programming cycle ensures ownership, learning and sustainability of result (Mbinya & Fatoki, 2021; UN, 2021).

The Relationship Between the Selection of Technology and Selection of Management Structures on the Sustainability of Water Projects

The third objective of the study was to establish the relationship between the selection of technology and selection of management structures on the sustainability of water projects in Elangata-Wuas, Kajiado County. The study revealed that the community's choice of technology was determined by its cost of maintenance, performance, availability of the materials and expert to repair it. The findings indicated that Oltinka Oibor borehole is electric powered. According to the Oltinka Oibor FGD, what mattered most to them was performance of the pump and not the cost. Olompeuti borehole, on the other hand, used a diesel-powered system. The reason was that diesel is cheaper and available. This is in

addition to the fact that the pumps required to be supplied with oil and diesel daily and the air filters replaced periodically.

Meanwhile, Iloshon water borehole is solar powered. The resident of Iloshon village chose it because it was a cost-effective technology and solar is easily available. The study's finding stated that the solar-powered borehole cannot cater for the enormous water demands of the women and increasing livestock. To repair the water pumps, hired experts were involved in most cases when it overwhelmed the community members. Payments for the repair works were done by the water committee from the sale of the fattened livestock from monthly and annual fee charged. From the findings, it can be summarized that the community members are involved in the operation and maintenance of the water schemes. The findings are supported by previous study that argued that the sustainability of various types of water supply infrastructures depended on the level to which the technology used matched the needs of the community and the capability to maintain and repair it over time (Gleitsmann, 2005).

Management structures stand out as a key area that determines project sustainability (Sternad, 2020). In donor-funded projects, the team leader is often an expatriate consultant, and his/her performance can make or mar the project sustainability. The team leader must be responsive to the contractor, donor, and host government - each with its own interests and agenda. Under conflicting circumstances, the team leader and his local counterpart must be able to steer a course that leads the project towards the accomplishment of its objectives and ultimately be sustainable (Sternad, 2020).

The responsibility for the success of a project rests squarely on the performance of the project leader and team members. Sternad (2020) emphasized the need to win acceptance

from the selected project team members which in turn influences the effectiveness of the team. The successful implementation of projects is invariably related to a manager's ability to recognize and use management structures, informal procedures, relationships, agreements, and communication channels. It also the use of behind-the-scenes relationships and maneuvers to explain why things work or do not work. The ability to capture and guide informal dynamics are the hallmarks of good managers (Hanadle & Vansant, 1985). Further, Bell (2018) noted that appropriate technologies affect the performance and sustainability of water supply projects but also cautioned on the need to involve the best and most effective water entities in the choice of water supply system in terms of technology and financial affordability. Similarly, the availability of local technicians, accessibility of spare parts and replacements linked to the choice of technology are prerequisite for sustainable development project.

Apart from the issue of selecting an appropriate technology for a specific level of service it is also important to consider the overall technological context of the entire project. The technological context includes the types of technology envisioned for the water supply project, the general level of mechanical skills available within the population, availability of construction equipment and spare parts, and training opportunities relevant to the technologies used (Sackey, 2014). Relatedly, Bell (2018) noted that the availability of the technological equipment and spare parts during cases of repair for the rural water supply schemes had a great bearing on development project sustainability. In relation to this research, sustainability of water supply projects is associated with availability of standardized spare parts, technological transfer, and planned maintenance procedures (Parry, 2015). This underscores the significance of having trained personnel who understand the

technology used in water projects and therefore the appropriate spare parts that can be used for the maintenance of the water projects for sustainable benefits.

Conclusion

The Maasai for the longest time depended on scooping sand for water until donors introduced construction of boreholes which was a new technology to the Maasai community. Donors constructed two boreholes: the CCF and Kudu borehole with an aim of helping the community without involving the beneficiaries. This resulted into the failing of the two projects. This study has shown that the willingness of the Maasai community to develop water projects through active participation in the designing, decision-making and implementation had translated into operational water projects without the aid of donors and in the face of minimal support from the county government of Kajiado.

Community participation and involvement of the community through the provision of resources, time labor, participation in decision-making, selection of technology and management structures by beneficiaries play a vital role in influencing the sustainability of such projects. In view of this, it can be safely concluded that participatory communication was instrumental in realizing the sustainability of Oltinka Oibor, Olompeuti and Iloshon water boreholes in Elangata-Wuas in Kajiado County.

Recommendations

The study revealed that involving the locals and allowing them to participate, own, maintain and rehabilitate their projects influenced the sustainability of the water projects in their communities. The study therefore recommends that donors, agencies, and county governments intending to support communities should involve and allow them to participate, manage and control the projects to influence project ownership which will contribute to the

project's sustainability. The study indicated that rehabilitation and maintenance of the water projects were facilitated by the community through the water committee but constructed by water engineers. The study therefore recommends training of some of the community members on operating and managing the generators thus saving on finances and time. The study also recommends that inclusion of more women in the committee that manages the water projects to minimize gender imbalance.

Recommendation for Further Studies

The researcher recommends a similar study to be conducted in other constituencies and counties because operations from those in Elangata-Wuas, Kajiado County differs. The researcher also recommends that a similar study should be conducted in other parts of the country to enable generalization and authentication of the research finding across the country. With regards to this study, men have played a significant role. For this reason, the researcher recommends further research on the role of women in sustainability of water projects. The researcher also recommends a further study on participatory communication and sustainability of water projects in other regions to allow comparison and generalization of participatory communication and sustainability of water projects in Kenya.

REFERENCES

- Adesida, I. E., & Okunlola, J. O. (2015). Effects of community participation on the sustainability of rural infrastructure in Ondo state, Nigeria. *Asian Journal of Agricultural Extension, Economics & Sociology*, 7(1), 1-9
- Adhikari, S. (2019). *What is community ownership?* Retrieved from www.publichealthnotes.com/community-ownership/
- Babbie, E. (2021). *The practice of social research* (15th ed.). Boston, MA: Cengage.
- Baumann, E., & Carter, R. (2006). The rural water supply in network. *Waterlines*, 25(1), 2-3
- Bell, S. (2018). *Urban water sustainability: Constructing infrastructure for cities and nature*. New York, NY: Routledge.
- Benoliel, P., & Somech, A. (2016). Functional heterogeneity and senior management team effectiveness: The mediating role of school leadership. *Journal of Educational Administration*, 54(1), 492-512
- Bessette, G. (2004). *Involving the community: A guide to participatory development communication*. Retrieved from www.idl-bnc-idrc.dspacedirect.org/handle/10625/31476
- Binder, D. (2008). *Sustainability of water service delivery in rural environment; Past approaches and the way forward*. Retrieved from www.scrip.org/reference/referencespapers.aspx
- Bobekova, E. (2015). Third party conflict management of transboundary river disputes. *International Journal of Conflict Management*, 26(4), 402-426
- Boru, A. J. (2012). *Determinant of community ownership of water projects in Kenya: A case of Central Division, Isiolo County* (Unpublished master's thesis). University of Nairobi, Nairobi, Kenya.
- Braun, V., Clarke, V., Hayfield, N., & Terry, G. (2019). Thematic analysis. In P. Liamputtong (Ed.), *Handbook of research methods in health social sciences* (pp. 843-860). Cham, SL: Springer.
- Carpentier, N. (2020). Media and participation. In J. Servaes (Ed.), *Handbook of communication for development and social change* (pp. 195-216). Cham, SL: Springer.

- Cornwall, A. (2007). Buzzwords and fuzzwords: Deconstructing development discourse. *Development in Practice*, 17(4-5), 471-484
- Crawford, L., & Langston, C. (2013). Participatory project management for social change. *International Journal*, 4(3), 19-31
- Coalition for Work with Psycho-Trauma & Peace. (2019). *Community-based training*. Retrieved from www.cwwpp.org/community-based-training.html
- Fielmua, N. (2011). The role of community ownership and management strategy towards sustainable access to water in Ghana: A case of Nadowli District. *Journal of Sustainable Development*, 4(3), 174-184
- Fox, J. (2019). *Community radio's amplification of communication for social change*. Cham, SL: Palgrave Macmillan.
- Fraser, C., & Restrepo-Estrada, S. (1998). *Communicating for development: Human change survival*. London, UK: Bloomsbury Academy.
- Freire, P. (1970). Cultural action and conscientization. *Harvard Educational Review*, 40(3), 39-68
- Gleitsmann, B. (2005). *The importance of community involvement in the planning and design phases of rural water supply development projects in the Koro region of Mali, West Africa* (Unpublished master's thesis). Cornell University, Ithaca, NY.
- Guijt, I., & Shah, M. K. (1998). *The myth of community: Gender issues in participatory development*. New Delhi, IN: Practical Action Press.
- Hanadle, G., & Vansant, J. (1985). *Implementation for sustainability: Lessons from IFAD (2009) sustainability of rural development projects best practices and lessons from IFAD (2006) people's participation program*. West Hartford, IN: Kumarian Press.
- Hancock, P. (2006). The spatial and temporal mediation of social change. *Journal of Organizational Change Management*, 19(5), 619-639
- Harvey, P. A., Reed, R. A. (2007). Community managed water supplies in Africa: Sustainable or dispensable? *Community Development Journal*, 42(3), 365-378.
- Hayhoe, G. F., & Brewer, P. E. (2021). *A research primer for technical communication: Methods, exemplars, and analyses* (2nd ed.). New York, NY: Routledge.

- Howitt, D., & Cramer, D. (2020). *Research methods in psychology* (6th ed.). Harlow, UK: Pearson Education Limited.
- Independent Electoral and Boundaries Commission. (n.d.). *Statistics of voters*. Retrieved from www.iebc.or.ke/registration/
- International Fund for Agricultural Development. (2009). *Engagement with indigenous peoples*. Rome, IT: Author.
- Kahariri, G. (2016). *Assessment of the challenges of water supply and sanitation in uncontrolled residential developments of Haruma estate* (Unpublished master's thesis). Kenyatta University, Nairobi, Kenya.
- Kamruzzaman, P. (2017). Understanding the role of national development experts in development ethnography. *Development Policy Review*, 35(1), 39-63
- Kenya Law. (2010). *The constitution of Kenya, 2010*. Nairobi, Kenya: Author.
- Kimani, I. (2009). *Effects of internet addiction: A case study of selected students in Christian universities in Nairobi* (Unpublished master's thesis). Daystar University, Nairobi, Kenya.
- Kloppers, E., & Fourie, L. (2018). Principles of participatory communication reconceptualized for instructional corporate social responsibility communication. *Communication*, 44(1), 89-106
- Kombo, D., & Tromp, D. (2006). *Proposal and thesis writing: An introduction*. Nairobi, KE: Kenyatta University Institute of Open Learning.
- Leal, P. A. (2007). Participation: The ascendancy of a buzzword in neoliberal era. *Development in Practice*, 17(4-5), 539-548.
- Leedy, P. D., Ormrod, J. E. (2021). *Practical research: Planning and design* (12th ed.). Essex, UK: Pearson Education Limited.
- Macharia, K. M., & Kirui, M. K. (2018). Risk transfer strategy and performance of construction projects in public secondary schools in Murang'a County, Kenya. *International Journal of Management and Commerce Innovation*, 6(1), 1815-1820
- Mbinya, E. W., & Fatoki, O. I. (2021). Effects of blended finance on access to water in Kenya. *International Journal of Development Research*, 11(1), 43615-43622

- Mbithi, A., Ndambuki, D., & Juma, F. O. (2019). Determinants of public participation in Kenya county government. *Journal of Asian and African Studies*, 54(1), 52-69.
- McIvor, C. (2000). Community participation in water management: Experiences from Zimbabwe. Retrieved from <https://www.ircwash.org/resources/community-participation-water-management-experiences-zimbabwe>
- Meera, A. (2015). Declonizing what? Categories, concepts and the ending 'not yet'. *Cultural Dynamics*, 27(2), 253-265.
- Mefalopulos, P. (2003). *Theory and practice of participatory communication: The case of the FAO project "Communication for development in Southern Africa."* Retrieved from www.citeseerx.ist.psu.edu/viewdoc/download
- Mefalopulos, P. (2008). *Development communication sourcebook: Broadening boundaries of communication*. Washington DC: World Bank.
- Melkote, S. R., & Steeves, H. L. (2001). *Communication for development in the Third World: Theory and practice*. London, UK: Sage.
- Melkote, S. R., & Steeves, H. L. (2015). *Communication for development: Theory and practice for empowerment and social justice* (3rd ed.). London, UK: Sage.
- Minar, W., & Greer, S. (2007). *The concept of community: Readings with interpretations*. New Jersey, NJ: Aldine Transaction.
- Mingers, J. (2001). Combining in research methods: Towards a pluralist methodology. *Information Research Systems*, 12(3), 240-259.
- Mirhosseini, S.-A. (2020). *Doing qualitative research in language education*. Cham, SL: Palgrave Macmillan.
- Mugenda, M. O., & Mugenda, G. A. (2012). *Research methods: Quantitative and qualitative approaches*. Nairobi, KE: ACTS Press.
- Mukunga, F. M. (2012). *Influence of community participation on the performance of Kiserian dam water project, Kajiado county Kenya* (Unpublished master's thesis). University of Nairobi, Nairobi, Kenya.
- Mulwa, M. M. (2013). *Factors influencing sustainability of water supply projects in central division, Machakos district of Machakos County, Kenya*. Retrieved from www.erepository.uonbi.ac.ke/handle/11295/55734

- Murithi, T., Mwanja, J. M., & Mwinzi, J. (2016). The influence of financial resources on the integration of the national goals of education. *International Journal of Education and Research*, 4(9), 51-62.
- Mushtag, A. M. (2004). *Community participation in water supply and sanitation schemes around Hyderabad, Pakistan*. Retrieved from [www.kitakyushu.iges.o.jp/docs/mtgs/seminars/themes/pp/Presentations/2_Water/Hyderabad\(PP\)](http://www.kitakyushu.iges.o.jp/docs/mtgs/seminars/themes/pp/Presentations/2_Water/Hyderabad(PP))
- Musyimi, J. M. (2007). *Dominant communication dimensions in internet use and their potential for modelling persuasive strategies or behavior change* (Unpublished master's thesis). Daystar University, Nairobi, Kenya.
- Mwesigye, H. (2011). *Role of community participation in the design and implementation of community interventions*. Retrieved from www.mwesigyes.blogspot.com/2011/05/role-of-community-participation-in.html
- Nkongo, D. (2009). *Management and regulation for sustainable water supply schemes in rural communities in Tanzania*. Retrieved from <http://www.wateraid.org/-/media/Publications/sustainable-water-supply-schemes-rural-communities>
- Nyerere, J. K. (1973). *Freedom and development/Uhuru na Maendeleo: A selection of writings and speeches, 1968-1973*. Dar es Salaam, TZ: Oxford University Press.
- Ochelle, G. O. (2012). *Factors influencing sustainability of community water projects in Kenya: A case of water projects in Mulala Division, Makueni County*. Retrieved from www.erepository.uonbi.ac.ke/handle/11295/8196
- Ogolla, A. (2000). *Communication strategies and development: A case study of selected non-governmental organizations in Kajiado, Kenya* (Unpublished master's thesis). Daystar University, Nairobi, Kenya.
- Okafor, C. (2015). *CCD: Concepts and procedure*. Paper presented at the LEEMP Workshop in Kainji National Park, New Bussa, Nigeria.
- Okigbo, C., & Eribo, F. (2004). *Development and communication in Africa*. London, UK: Rowman and Littlefield.
- Olson, B. (1978). *Bruchko*. New York, NY: Charisma House.
- Parfait, T. (2004). The ambiguity of participatory communication: A qualified defense of participatory development. *Third World Quarterly*, 25, 537-556

- Parry, G. (2015). English higher education and its vocational zones. *Research in Comparative & International Education*, 10(4), 493-509
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). London, UK: Sagen.
- Paul, B. (1987). *Community participation in development projects*. Washington, DC: World Bank.
- Robertson, M. (2019). *Communicating sustainability*. London, UK: Routledge.
- Rosenberry, J., & Vicker, L. A. (2017). *Applied mass communication theory: A guide for media practitioners* (2nd ed.). New York, NY: Routledge.
- Sackey, E. (2014). The role of grassroots communication in NGO development projects in Africa: A case of ABT associates in the US government indoor residual spraying program. *Management Journal*, 2(8), 348-359
- Scrampickal, S. J. (2006). *Development and participatory communication*. Rome, IT: Pontificia University Press.
- Servaes, J. (2020). Terms and definitions in communication for development and social change. In J. Servaes (Ed.), *Handbook of communication for development and social change* (pp. 3-13). Cham, SL: Springer.
- Spaling, H. (2003). Innovation in environmental assessment of community-based projects in sub-Saharan Africa. *Canadian Geographer*, 47(2), 151-168
- Sternad, D. (2020). *Effective management: Developing yourself, others and organizations*. London, UK: Red Globe Press.
- Tacchi, J., & Tufte, T. (Eds.). (2020). *Communicating for change: Concepts to think with*. Cham, SL: Palgrave Macmillan.
- Tracy, S. J. (2020). *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact* (2nd ed.). Hoboken, NJ: John Wiley & Sons.
- Tufte, T., & Mefalopulos, P. (2009). *Participatory communication: A practical guide*. Washington, DC: World Bank.
- UN. (2021). *Financing for sustainable development report 2021*. New York, NY: Author.
- United Nations Development Program. (2009). *Handbook on planning, monitoring and evaluating for development results*. New York, NY: Author.

- World Health organization. & UNICEF. (2010). *Progress on sanitation and drinking water: 2010 updates*. Geneva, Switzerland: World Health organization.
- Uphoff, N. (1991). A field methodology for participatory self-evaluation. *Community Development Journal*, 26(4), 271-285.
- Van, S. C. (2008). *Gender in water resources management, water supply and sanitation: Roles and realities revisited*. Retrieved from www.susana.org/en/knowledge-hub/resources-and-publications/library/details/226
- White, S., N., & Ascoft, J. (1994). *Communication and human values: Participatory communication, working for change and development*. Thousand Oaks, CA: Sage Publication.
- World Bank. (2013). *Localizing development: Does participation work?* Washington, DC: Author.
- World Bank. (2018). *Malawi: Systematic country diagnostic: Breaking the cycle of low growth and slow poverty reduction*. Washington, DC: Author.

APPENDICES

Appendix A: Semi-structured Moderator's Guide

Good day. My name is Barbara Linkoy Ntoipo. I am a master's student at Daystar University, majoring in Development Communication. I am currently writing a thesis on *Participatory communication and sustainability of water projects: A case of Elangata-wuas, Kajiado county*.

This focus group is meant to help me get your views on the stated topic. I urge you to feel free to actively participate in the discussions and seek clarification where necessary. I appreciate your time in taking part in these discussions. Your opinions are welcome. Thank you.

Composition of the group;

Date:

Venue:

Start time;

Finish time:

Instructions

1. Introduce the moderator, research assistants, and the reason for the meeting
2. Offer refreshments as the discussion proceed.

Question schedule

Introductory question: Have you ever been directly involved in the brainstorming, decision-making, planning and implementation of any water project in Elangata-wuas location?

Objective 1:

1. Did you as a community contribute any resources, time and labour toward the development of the water project?
2. What can you say about your level of involvement and contribution to the water project, is it voluntary or forced?
3. How is the man power towards the rehabilitations of the water projects selected, and who is the custodian/ regulates the resources time and labour contributed towards the sustainability of the resources?

Objective 2:

1. How have you been involved in the decision-making process pertaining the water project and at what phase of the water project development were you involved majorly?
2. Were you or have you ever been asked to give your view or opinion on the water project and what would you say about the way your views were incorporated in the implementation and maintenance of the project?
3. After the water project was completed and the donors left do you still find yourselves making decisions on the utilization, maintenance and rehabilitation of the water project?

Objective 3:

1. Did and would you say you still form part of the team that gets to decide what technology to use on the water projects?
2. What informs your selection of a technology to be used for the water project? Or what informed the selection of the technology that the donors used in constructing the water project?
3. How do you ensure sustainability of the water project?

Appendix B: Ethical Clearance

DAYSTAR UNIVERSITY
Excellence • Transformation • Servant Leadership

Athi River Campus
P.O. Box 12 90145
Daystar University, Kenya
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www.daystar.ac.ke

Daystar University Ethics Review Board

Our Ref. DU-ERB/24/06/ 2019 /00304
Date: 24-06-2019

Barbara Linkoy

Dear Barbara,

PARTICIPATORY COMMUNICATION AND SUSTAINABILITY OF WATER PROJECTS: A CASE OF ELANGATA-WUAS, KAJIADO COUNTY.

Reference is made to your request dated 29-05-2019 for ethical approval of your proposal by Daystar University Ethics Review Board.

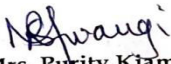
We are pleased to inform you that ethical review has been done and approval granted. In line with the research projects policy, you will be required to submit a copy of the final research findings to the Board for records.

Before proceeding to the next stage, ensure the following attached comments are addressed to the satisfaction of your supervisor. Note that it's an offence to proceed without addressing the concerns of ERB.

This approval is valid for a year from 24-06-2019

This approval does not exempt you from obtaining a research permit from the National Commission for Science, Technology and Innovation (NACOSTI).

Yours sincerely,

for 
Mrs. Purity Kiambi,
Secretary, Daystar University Ethics Review Board

"...until the day dawn and the **daystar** arise in your hearts"
2 Peter 1.19 KJV

Appendix C: Researcher's Letter from Daystar University

Director General
National Commission for Science Technology and Innovation
P. O. Box 30623, 00100
Nairobi, KENYA

26th July, 2019

Dear Sir,

RE: BARBARA LINKOY, STUDENT NO. 11-1019

Barbara is a fully registered student in the School of Communication at Daystar University. She has completed her course work towards a Masters of Arts in Communication. She is now working on the research for her thesis.

Barbara's thesis topic is:

"Participatory Communication and Sustainability of Water Projects; a case of Elangata-Wuas, Kajiado County"

The purpose my writing is to request that you give Barbara any necessary assistance to enable her to complete this important academic exercise.

We assure you that any information collected will be used strictly for academic purposes and will remain absolutely confidential. Upon completion of the research, her thesis will be available at our library.

We appreciate your support for our student towards the successful completion of her thesis research.

Yours Sincerely,


Dr. KINYA MWITHIA
HOD, STRATEGIC & ORGANISATIONAL COMMUNICATION

Office of the Chairman
Department of Communication
Daystar University
P. O. Box 44400
Nairobi 00100
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"...until the day dawn and the daystar
arise in your hearts"

Appendix D: Research Permit

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: 535299	Date of Issue: 16/October/2019
RESEARCH LICENSE	
	
<p>This is to Certify that Ms.. Barbara Ntoipo of Daystar University, has been licensed to conduct research in Kajiado on the topic: PARTICIPATORY COMMUNICATION AND SUSTAINABILITY OF WATER PROJECTS. A CASE OF ELANGATA-WUAS , KAJIADO COUNTY for the period ending : 16/October/2020.</p>	
License No: NACOSTI/P/19/2178	
535299 Applicant Identification Number	 Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
	Verification QR Code 
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Appendix E: Plagiarism Report

Barbara Linkoy thesis - 31st october 2021

ORIGINALITY REPORT

16%	13%	5%	11%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	ir-library.ku.ac.ke Internet Source	3%
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3	www.comminit.com Internet Source	2%
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