ASSESSMENT OF THE PERFORMANCE OF WATER PROJECTS UTILIZING THE FORCE ACCOUNT METHOD IN NKASI AND SUMBAWANGA DISTRICTS

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A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PROJECT MANAGEMENT

DEPARTMENT OF MARKETING, ENTREPRENEURSHIP AND MANAGEMENT

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2023

CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance by the Open University of Tanzania a dissertation entitled; **Assessment of the Performance of Water Projects that Utilize Force Account Method in Nkasi and Sumbawanga Districts".** In partial fulfilment of the requirements for the award of the Degree of Master of Project Management (MPM) of the Open University of Tanzania.

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Dr. France Shayo

(1st **Supervisor)**

……..

Date

Dr. Chacha Matoka

(2nd Supervisor)

……..

Date

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DECLARATION

I, **Gibon Nzowa**, declare that the work presented in this dissertation is original. It has never been presented to any other university or institution. Where other people's works have been used, references have been provided. It is in this regard that I declare this work as original mine. It is hereby presented in partial fulfilment of the requirement for the Degree of Masters of Project Management (MPM) of The Open University of Tanzania.

……

Signature

……

Date

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Lastly, I thank all those who assisted me but whose names do not appear on this list. I acknowledge their support. "May God bless you all".

DEDICATION

This dissertation is dedicated to my parents, my lovely Wife Hyasinter Hyera, my daughter Giovanna Nzowa and my Sons Gianluca and Gadiel Nzowa for the lovely support and tolerance they showed to me all the time I was on study, that they tuned my life in favour of education.

ABSTRACT

This study assessed the performance of water projects utilizing the force account method (FAM) in Nkasi and Sumbawanga districts. It specifically examined the income earned; assessed the service quality; and examined the customer satisfaction issues on water-based projects in the districts. Explanatory research design was used to establish the causal relationship between variables with a mixed approach. A sample size of 77 respondents was obtained from staff and board members with data being solicited using questionnaires and interview guides. Quantitative data were descriptively analysed while qualitative data was analysed using content analysis. In addition, Chi-square was used along with linear regression analysis. The findings revealed that the null hypotheses were all rejected thus accepting the alternative hypotheses as the results were not generally statistically significant at $p>0.05$. Further, the majority of respondents reported that income earned on water-based projects utilizing FAM-enabled irrigation activities to earn income; reduced their disposable income (save) through clean water usage; saved time to travel to and from the water ponds as used before etc. Similarly, the majority of respondents reported that service quality resulted in quality and reliable water services; responsiveness of water authorities to users of water; accessibility of water and usability of water among people. More so, the majority of respondents reported that customer satisfaction issues enhanced customer satisfaction in terms of quality, quantity, affordability, continuity and overall service aspects of drinking water. It is concluded and recommended that the income earned reduced their disposable income; service quality provided resulted in quality and reliable services while customer satisfaction led to quality, quantity and affordability of services.

Keywords: *Performance; Water Projects; Force Account Method.*

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CHAPTER ONE

INTRODUCTION

1.1 Chapter Overview

This chapter presents the background to the problem, statement of the problem, objectives and hypothesis, scope, significance and organization of the study.

1.2 Background to the Problem

The performance of the project is a point of interest for organisations whether in the public or private sector and a well-planned project timeline guarantees a project's performance (Hussein, 2020). The performance of water projects relates to the execution of the technological specifications to the satisfaction of the consumers (Eliamring and Kazumba, 2017). Budhathoki (2019) reported that the performance of a water project is quantified and calculated using several output metrics that may be linked to different variables such as time, consumer satisfaction, service quality and improvements, client efficiency, income earned versus expenses, and health and safety considerations. Hassan et al., (2020) noted that water projects frequently fail to achieve the desired objectives as a result of a problem that could be categorized as managerial, precisely poor stakeholders' management, organizational imperfect project design, interruptions in project identification as well as start-up, postponements in the course of project implementation, budget overruns and organization failure. Measures of water project delivery performance entail project requirements, and outcomes meeting positive and delivered concerning improved revenue or reduced costs within the expected time (Eliamring and Kazumba, 2017).

A study carried out by Hussein (2020) on water projects found the high frequency of break-down is typically prevalent due to the poor condition of infrastructure, limited timely system maintenance, and the lack of an institutional arrangement that supports operation and maintenance. Further, Hassan et al., (2020) opined that the performance of water projects has been found to rely on system-level variables (such as improved water services, effective institutional structures, and capable water user committees and operators) (Budhathoki, 2019) and household-level variables (such as household participation in water project planning and decision making, payment for water services, and the contribution of labour to the construction of the system) (Hassan et al., 2020). Studies have shown that water projects with poor or without unique management procedures report low rating results on average, as assessed by scale, time table and resource usage. Works that do well remain or perform even with the pulling out of the donor (Eliamring and Kazumba, 2017).

Moreover, water projects have been implemented using force account therefore, the adoption of the force account method for the construction and execution of public works is not a new concept in Tanzania (Hussein, 2020). In the business management arena, this method is very similar to the outsourcing-to-insourcing decision (Pedro, 2015; Hassan et al., 2020). Budhathoki (2019) asserted that force account is practised in water projects when the procuring entity executes the work through its personnel and equipment while its adaption depends on the size of the work/project, availability of technology and local skilled labour.

In Tanzania, the Public Procurement Act (PPA) of 2011 and Public Procurement

Regulations (PPR) 2013, which govern procurement activities, defines force account method as the construction by the procuring entity itself or the use of public or semi-public agencies or departments concerned, where procuring entity or the public or semi-public agency uses its personnel and equipment or hired labour. Therefore under force account the procuring entity (PE) does not use contractors for the execution of works projects rather than locally available artisans. Moreover, the utilization of the force account method in water projects has been encountering challenges such as being closed not achieving the quality requirements or being completed with variations to the original quality requirements. Others have not attained the value for money projected leading to losses of taxpayers' money (Eliamring and Kazumba, 2017).

Tanzania only made limited progress on its Millennium Development Goals in the areas of water and sanitation and seems unlikely to meet the Sustainable Development Goal target of universal and equitable access to safe and affordable drinking water by 2030 unless the country's governance and water service delivery arrangements are re-examined (Hassan et al., 2020). Studies done in Tanzania regarding the challenges for the performance of water projects utilizing force accounts show diverse results such as non-sustainability, reliance on external support, leadership challenges, not meeting the income projected, poor service quality and lack of customer focus (Hassan et al., 2020; Budhathoki, 2019; Mbabazi and Mugurusi, 2018; Eliamring and Kazumba, 2017). The participatory theory was used to reflect on the relevance of the community in participating and evaluating the income earned from water projects they own, and through participation water service

quality may be analysed to satisfy the need of the water stakeholders on projects funded by the community members, donors or government using force account method. Thus, empowering water users in decision-making fosters the sustainability of water resources Moreover, few or no studies have examined the performance of water projects utilizing force accounts in selected districts of Nkasi and Sumbawanga to eliminate the challenges thereof. It is from this backdrop that this study examined the performance of water projects utilizing the force account method in the districts stipulated.

1.3 Statement of the Problem

Water projects frequently fail to achieve the desired objectives as a result of a problem that could be categorized as managerial, poor stakeholders' management, organizational imperfect project design, interruptions in project identification etc. while water is the backbone for all known forms of life and therefore it is important to ensure adequate supply in the right quantity and quality performance (Budhathoki, 2019). Moreover, the performance of water projects utilizing the force account method introduced in Tanzania seems to undergo performance difficulties. This has resulted in poor service quality, and lower income versus expenses towards customer satisfaction (Hussein, 2020). Earlier studies provide figures of operational failure rates from individual African countries ranging from 30% to 60% as it is estimated that 55% of all rural water supplies/projects in Kenya, Tanzania and Uganda are not functioning, despite the frequency with which it appears in development discourse, where the reality of performance remains elusive (Hassan et al., 2020). Some notable evaluation studies on the performance of water projects utilizing force accounts

showed indicators of poor project performance including income earned, service quality and customer satisfaction (Mbabazi and Mugurusi, 2018).

Mbabazi and Mugurusi (2018) assert that force account is an emergent procurement mechanism that provides a cushion for lead time optimisation and improvement in service delivery (tailored services) depending on the availability of equipment, materials and supervision within the procuring organisation. The performance of water projects in Tanzania shows the presence of insufficient and fragmented quality performance concerning force account undertakings (Hussein, 2020). However, despite the observed potential of the use of force account in water projects, still performance of projects is illusive (Budhathoki, 2019). Additionally, there has not been any serious attempt to examine the performance of water projects utilizing the force account method in the Nkasi and Sumbawanga districts. It is therefore imperative that a study examining such issues be carried out to address the gap.

1.4 Objectives of the Study

1.4.1 General Objective

The general objective of the study is to assess the performance of water projects utilizing the force account method in the Nkasi and Sumbawanga districts.

1.4.2 Specific Objectives

This study was guided by the following specific objectives;

i) To examine the income earned on water-based projects utilizing force accounts in Nkasi and Sumbawanga districts

ii) To assess the service quality on water-based projects utilizing force accounts in Nkasi and Sumbawanga districts

iii) To examine the customer satisfaction issues on water-based projects utilizing force accounts in Nkasi and Sumbawanga districts

1.5 Scope of the Study

This study was done in Nkasi and Sumbawanga districts. It focused on examining the income earned from water-based projects utilizing force accounts in Nkasi and Sumbawanga districts; assessing the service quality from water-based projects utilizing force accounts in Nkasi and Sumbawanga districts; and examining the customer satisfaction issues on water-based projects utilizing force account in Nkasi and Sumbawanga districts.

1.6 Significance of the Study

The results from the study would aid the government in Nkasi and Sumbawanga districts in searching for areas of concern towards eliminating the challenges that lead to poor performance and sustainability of projects. Also, this study might be of great importance for knowledge generation to scholars pursuing research in the fields related to force account usage. This study further accelerates knowledge to the managing authorities at the council level in developing interventions for improving the quality of projects implemented through the force account method. The study is finally used as a partial fulfilment for the award of a master's degree in Project Management from the Open University of Tanzania.

1.7 Organisation of the Study

The rest of the report is organized as follows: Chapter two presents the definition of key concepts, theoretical review and empirical reviews from relevant works related to the study, research gap and the conceptual framework. Chapter three presents the research methodology used in the study including the philosophy, research design and approach, population and sample size, data collection tools, validity and reliability of data, data analysis and ethical considerations. Chapter four presents the results and discussion of findings while chapter five presents the conclusion and recommendations arising from the findings.

CHAPTER TWO

LITERATURE REVIEW

2.1 Chapter Overview

This chapter presents and discusses the definition of key concepts, theoretical and empirical review; research gap and conceptual framework of the study.

2.2 Definition of Key Terms

2.2.1 Performance

Performance means how effective something or someone is at doing a good job (Tatjana, 2012). Hassan et al., (2020) assert that performance means attaining efficiency in terms of the correct use of resources available such as income earned, service quality and customer satisfaction. Therefore, the definition by Hassan et al (2020) guides the study.

2.2.2 Water Projects

Water projects are any undertakings, carried out individually or collaboratively and possibly involving research or design, that are carefully planned (usually by a project team) to achieve a particular aim (Rose, 2010). Hussein, (2020) defined a water project as any work or facility necessary or desirable to conserve, develop, protect, or treat the waters including, without limitation, any reservoir, diversion dam, electrical generation system, irrigation dam and system, culinary water system, water work, water treatment facility, canal, ditch, artesian well, aqueduct, pipeline, conduit, drain, tunnel, and related structures and facilities. Therefore, the definition by Rose (2010) guides the study.

2.2.3 Force Account

Force Account is direct labour, departmental forces or direct work (Young, 2017). It is a process where works are carried out by public or semi-public departments or agencies by using its personnel and equipment or in collaboration with any other public or private entity (PPRA Guideline for Carrying out Works under Force Account, 2020). The definition by PPRA (2020) guides the study.

2.3 Theoretical Review

This study was guided by participatory theory as hereunder;

2.3.1 Participatory Theory

The proponents of the participation theory include Sukhor and Awang (2010). This theory was further developed by Sukhor et al (2011) to carter the performance of water projects to attain sustainability. The proponents Sukhor et al (2011) put forward the assumptions on how empowering stakeholders in decision-making focusing on water projects would lead to water service provision, performance and sustainability where income may be earned through service quality and result in customer satisfaction. They emphasize the idea of empowering stakeholders of a development endeavours to be actors rather than passive subjects in taking decisions and undertaking activities that improve the lives of the people.

The central tenet of this theory according to Singhirunnusorn et al., (2012) is that although change agents serve as catalysts, the ultimate beneficiaries of a development intervention must participate in the intervention such as paying user fees and by owning the project to make it sustainable. Therefore, when community

members participate in water projects, decisions are made that enable the implementation to be easier while the income earned can be known among stakeholders. Besides, the ecological perspective of the participation theory extends this logic by advocating participation in environmental management endeavours by stakeholders for improved health and environment where service quality becomes a focus (Hotta and Aoki-Suzuki, 2014; Ramayah et al., 2012). This participation perspective argues that individual and collective efforts among community members that are capacitated with information on water project management enable stakeholders to harness and address unpleasant community problems associated with water and environmental challenges that get accommodated to sustain water projects that become owned by the community towards customer satisfaction.

This theory is relevant as it enables the community to evaluate the income earned from water projects that they own and participate in enabling water service quality that results in all involved being satisfied based on projects that get funded by donors or the government using the force account method. The theory is also vital for water policy, planning, sustainability, management and practices inherent in water use systems.

2.4 Empirical Review

The World Bank (2017) carried out a study in African countries with the main objective of investigating the involvement of water stakeholders in managing water projects as well as the challenges they encounter. Ten (10) countries were involved in the study that utilized a desk review where analysis was done using descriptive

statistics. The results showed that Governments and water sector stakeholders have worked hard to ensure improvement in institutional capacities through policies and guiding frameworks for sustainable service delivery by adopting technology-friendly for their use. There was a need to move beyond infrastructure development to ensure water service providers receive capacity building with a focus on governance, technical capacity and equipping with information. The findings further showed the challenge of financing rural water supply projects since these projects cannot recover costs, capital maintenance, cost of operations and maintenance yet they collect revenues from the sale of water. It was recommended that rural schemes may require cost recovery in this line of thought where the government is usually called to fix broken parts or replace infrastructure without considering the Life Cost Cycle approach.

Cook (2017) carried out a study in Thailand on investments in the water sector that focused on the economic value of time and cost savings through improved water systems which would enable people to have the ability to pay for and use water for the saved time and costs in other productive activities which in turn boosts the chances of sustainably managing the systems. The findings revealed that an improved water supply is defined as a system that provides water reliably, of potable quality, and of sufficient quantity to meet basic household needs like drinking, bathing, cooking, and washing around the house.

Olela and Wanyonyi (2018) carried out a study on the factors for the sustainability of water supply projects in Kenya. The sample for the study included 96 respondents

and descriptive statistics were carried out together with regression analysis. The findings revealed that there is a positive relationship between the performance of water supply projects and choice of technology, socio-economic factors, socio-cultural factors, water tariffs and specialized training of service teams. The significance values for the relationship between the performance of water supply projects and choice of technology, socio-economic factors, socio-cultural factors, water tariffs and specialized training on technical knowledge and skills influenced water tariffs and choice of technology being the most significant factors. It was further fund that training, availability of spare parts and water abstraction technology were prerequisites towards performance resulting in reliable access to water duration to minimal breakdowns. There was a lack of involvement and participation in the water supply development process including tariff setting with household consumption a major factor to consider in tariff setting something that would affect service quality.

A study conducted by Konde (2016) in Kenya investigated the factors influencing the sustainability of water projects in Bamba division, Kilifi County. It was found out that the economic sustainability of the projects was questionable since most of the groups had disintegrated and some projects were un-attended to. The findings further established that economic factors such as the presence of income-generating activities and over-reliance on donor funding have a major effect on the sustainability of community projects.

Hassan et al (2020) in their study carried out in East African countries aimed at

assessing the performance of rural water supply projects. The results showed that the performance of rural water supply projects was minimally implemented but increased as a result of communities owning and managing their water project by utilizing their user fees through village leaders. It was further found that at the village level, the management and protection of the water points encounter challenges as communities are found to inadequately cover the costs fo operation and maintenance. The study recommended the need for capacitating village leaders in the management of water projects.

Thompson and Hope (2015) carried out a study in Tanzania on the performance of water projects and the challenges they face. Eight (8) districts were used in the study where analysis was done and showed that African countries and in particular, Tanzania suffer in terms of achieving performance of water supply services due to barriers of user fees payment as a few users could pay for the services while the earned income being poorly used. It was suggested that it is the availability of resources regarding the operations and management within the capacity of communities which can only make the performance of supply projects sustainable.

2.5 Research Gap

The studies reviewed provide varied orientations something that presents as gap to be filled by this study. For example, the study by Olela and Wanyonyi (2018) focused on evaluating the factors for sustaining water supply projects in Kenya. World Bank (2017) focused on investigating the involvement of stakeholders in water projects in African countries in general. Thompson and Hope (2015) focused on the

performance of water projects in Tanzania and the challenges they face without using force account. Hassan et al (2020) focused on assessing the performance of rural water supply projects in East Africa that revealed a minimal implementation of the project regarding the collection of user fees among the people nearby the water projects without utilizing the force account method. Generally, few studies were done specifically in Tanzania but could not align their focus on the use of force account. Therefore, this study seeks to fill this gap that exists.

2.6 Conceptual Framework

A conceptual framework is an abstract idea or a theory used to develop new concepts or to reinterpret existing ones (Creswell. 2009). It gives the relationship between the dependent and independent variables. Figure 2.1 provides the conceptual framework where the independent variables include income earned from water-based projects; service quality from water-based projects and customer satisfaction while the dependent variable is the performance of water projects.

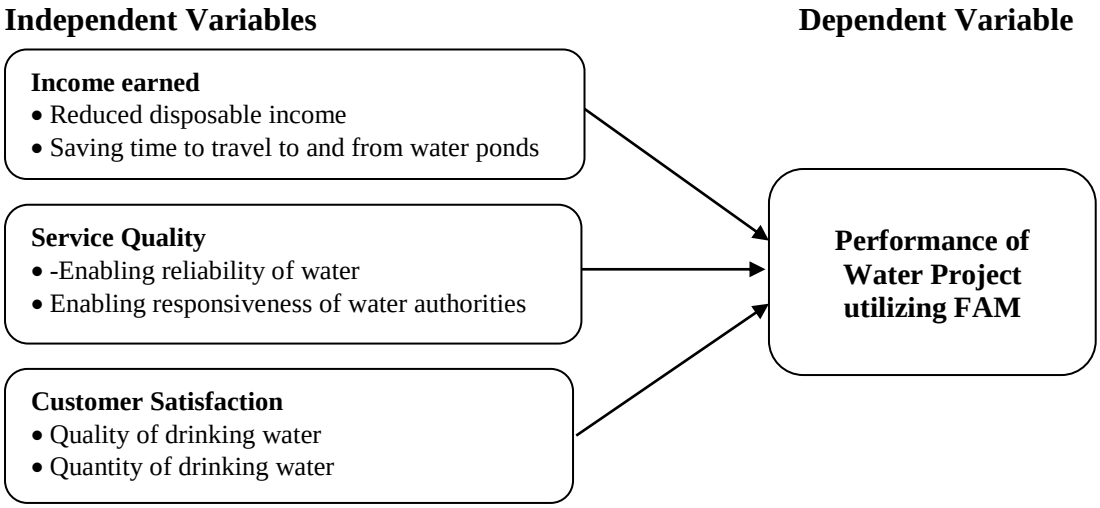

Figure 2.1: Conceptual framework

Source: Researcher's Own Modelling (2023)

2.7 Research Hypothesis

The following hypotheses are presented as per the objectives.

Null Hypothesis: (HO_1): There is no income earned from water-based projects utilizing force account in Nkasi and Sumbawanga districts; *Alternative Hypothesis:* (HA_1): There is income earned from water-based projects utilizing force account in Nkasi and Sumbawanga districts

Null Hypothesis: (HO_2): There is no service quality from water-based projects utilizing force account in Nkasi and Sumbawanga districts; *Alternative Hypothesis:* (HA_2): There is service quality from water-based projects utilizing force account in Nkasi and Sumbawanga districts

Null Hypothesis: (HO_3): There are no customer satisfaction issues on water-based projects utilizing force accounts in Nkasi and Sumbawanga districts; *Alternative Hypothesis*: (HA_3): There are customer satisfaction issues on water-based projects utilizing force accounts in Nkasi and Sumbawanga districts

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Chapter Overview

This chapter presents the systematic approach through which this research was conducted. It consists of research philosophy, research design and approach, population and sample size, sampling procedures, data collection tools, reliability and validity, data management and analysis, and ethical considerations.

3.2 Research Philosophy

Research philosophy is a belief about how data about a phenomenon should be gathered, analyzed and used. The term epistemology (what is known to be true), as opposed to doxology (what is believed to be true), encompasses the various philosophies of the research approach (Creswell, 2018). Four main trends of research philosophy are distinguished and discussed in the works by many authors: the positivist research philosophy, interpretivism research philosophy, pragmatist research philosophy, and realistic research philosophy (Greene et al., 2010). The positivist research philosophy claims that the social world can be understood objectively where the scientist is an objective analyst and, based on it, dissociates himself from personal values and works independently. The interpretivism research philosophy states that based on the principles it is not easy to understand the social world and the social world can be interpreted subjectively. Besides, the pragmatist research philosophy deals with the facts and claims that the choice of research philosophy is mostly determined by the research problem where the practical results

are considered important as researchers have freedom of choice (Zheng, 2015). They are free to choose the methods, techniques and procedures that best meet their needs and scientific research aims. Finally, the realistic research philosophy is based on the principles of positivist and interpretivist research philosophies. Realistic research philosophy is based on assumptions that are necessary for the perception of the subjective nature of the human (Greene et al., 2010). Therefore, in this study, a pragmatic philosophy was used based on freedom of choice of approaches that focus on facts and claims that are determined by the research problem. Also, this philosophy uses a mixed approach.

3.3 Research Approach

This study utilized a mixed method approach that focuses on qualitative and quantitative approaches. The qualitative approach helps in exploring issues when little is known about the problem (Creswell, 2009) while the quantitative approach allows the data to be characterised by the use of statistical analysis (Yin, 2003). The qualitative approach aims to explore and discover issues because very little is known about the problem. It uses soft data and gets rich data (Creswell, 2009). According to Zheng (2015) qualitative approach is designed to help researchers understand people and the social and cultural contexts within which they live and work. Besides, the quantitative approach makes use of questionnaires, surveys and experiments to gather data that is revised and tabulated in numbers, which allows the data to be characterised by the use of statistical analysis. Quantitative researchers measure variables on a sample of subjects and express the relationship between variables using effective statistics such as correlations, relative frequencies or differences

between means. Their focus is to a large extent on the testing of theory (Creswell, 2009).

3.4 Research Design

The study was guided by an explanatory research design to establish the causal relationship between variables whereby data were collected at one point in time from a sample selected to represent a larger population. Moreover, the explanatory design utilizes the questionnaire and interview guide to solicit information in situations where the contextual conditions of the event being studied are critical (Lankshear, 2011). Therefore, given the interpretive position adopted in this research and the nature of the research questions to be answered, an explanatory design was considered the most appropriate design to employ because it provides a systematic way to collect data, analyze information and report the results, thus understand a particular problem or situation in great depth.

3.5 Study Area

This study was conducted in Nkasi and Sumbawanga districts. The reason for conducting the study in this area is that despite the observed potential of the use of force account in water projects, still performance of projects was still illusive (Ministry of Water Report, 2021). Additionally, there has not been any serious attempt to examine the performance of water projects utilizing the force account method in the Nkasi and Sumbawanga districts. Moreover, the performance of water projects utilizing the force account method introduced in Tanzania seems to undergo performance difficulties. This has ended up in poor service quality, and lower

income versus expenses towards customer satisfaction (Hussein, 2020). It is therefore imperative that a study examining such issues be carried out to address the gap.

3.6 Target Population

Braun et al., (2019) assert that a target population is generally a large collection of individuals or objects that is the main focus of a scientific inquiry and it is for the benefit of the population that research is done. In this study the target population included board members and staff that sum up to 340 in Nkasi and Sumbawanga Rural Water Agency and Water Authorities (Rukwa Water Status Report, 2021), Table 3.1 summarizes the distribution.

Table 3.1: Population distribution

No	Category	Population	Sample
1	Board members	12	7
2	Staff at Nkasi District	154	35
3	Staff at Sumbawanga district	174	35
	Total	**340**	**77**

3.7 Sample Size and Sampling Procedures

3.7.1 Sample Size

A sample is a part of the population from which it was drawn. Saunders et al (2017) advise that too large a sample size could become a problem and recommend sample sizes between 30 and 500. Similarly, the Yamane (1967) formula was applied in determining the appropriate portion of respondents to represent the study population. Where n is the sample size, N is the total target population in this case the 340

population size obtained (Rukwa Water Status Report, 2021), and *e* is the error rate in this case 10%. The sample size for this study was calculated as shown below.

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

N = the Total Population

e = the margin of error (10% has been used to obtain the best sample given the population size)

n = the sample size

$$n = \frac{340}{1+340(0.1)^2}$$

n = 77.3

Therefore, the sample size was **77** respondents.

3.7.2 Sampling Procedures

The sampling technique is the procedure used to select people, places or things to study in the target area (Cresswell, 2018). Purposive and simple random sampling procedures were used. Purposive sampling is a non-probability sampling, which refers to sampling procedures where the sample for the study is deliberately selected by the researcher. In this respect, elements of the population have no equal and known chance of being selected for the sample (Saunders et al., 2017). This was used by Nkasi and Sumbawanga board members as these respondents possessed key information regarding the matter to attain the study objectives.

Furthermore, simple random sampling was used to select staff from Nkasi and Sumbawanga Rural Water Agency and Water Authorities where each staff had a

chance of being chosen. In this study a complete list of staff was provided by Nkasi and Sumbawanga water authorities' human resources managers and a random approach was used to select the needed respondents (Saunders et al., 2017). Pieces of paper with Yes or No were used and those with Yes were randomly selected and approached to answer questions regarding the matter.

3.8 Data collection Tools

In this study, primary data were collected through questionnaires and interview guides. Creswell (2018) defines a questionnaire as a data collection instrument consisting of a series of questions and other prompts to gather information from respondents and is often designed for statistical analysis of the response. In this study, the researcher applied a structured questionnaire to collect data from Nkasi and Sumbawanga Rural Water Agency and Water Authorities staff. These questionnaires were self-administered and managed with drop and pick method.

The interview guide was administered to board members. This was considered appropriate for this study as it enabled one to obtain and elaborate answers to open-ended questions from the respondents. Yin (2003) states that the interview tool is a very important source of information and it is supportive in administering exploratory study-related matters as the study design indicates.

3.9 Data Cleaning and Analysis

3.9.1 Data Cleaning

The researcher embarked on a data cleaning and analysis process after data collection from the field that involved identifying common views from the respondents'

descriptions of their experiences. Frequency counts of the responses were obtained to generate information about the respondents and to illustrate the general trend of findings on the various variables that were under investigation.

3.9.2 Data Analysis

Quantitative data were analyzed descriptively using frequencies and percentages through Statistical Packages for Social Science (SPSS Version 20) and Chi-square (Creswell, 2018). Furthermore, the linear regression analysis was carried out by using the following regression model.

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon}$$

Where;

Y = performance of water projects; X_1 = income earned; X_2 = service quality; X_3 = customer satisfaction; $ß_0$ = is the Y-intercept which is a constant being a dependent variable value, while all other Independent variables remain 0.

$ß_1$, $ß_2$ & $ß_3$ = these are regression coefficients/constants of independent variables of X_1, X_2, and X_3 in relation to Y. While, e = the standard error term

Therefore,

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon}$$

Besides, qualitative data from interviews were coded and analysed through content analysis where themes and emerging patterns were coded from the interview transcripts. Content analysis involves transcribing all information from verbal

discussions with informants followed by breaking the recorded information into meaningful smallest units of thematic information, subjects and tendencies and presenting them as a text (Saunders et al., 2017).

3.10 Reliability and Validity of Data

3.10.1 Reliability

Reliability refers to the consistency of a research study or measuring test or the repeatability of findings. If findings from the research are replicated consistently they are reliable (Creswell, 2009). Mohajan (2017) defines reliability as a measure of how consistent the results from a test or measuring instrument are; that is the consistency with which a test measures what it is supposed to measure. It is the ability of the measurements or the degree to which the instrument measures the same way each time it is used under the same condition with the same subjects. The researcher used a scientific research methodology in the acquisition of data hence no doubt about the results obtained by the researcher, whoever used the same procedures would obtain the same or more likely as the researcher (Mohajan, 2017).

To test the reliability, the researcher carried out a Cronbach's Alpha test on questionnaires to determine the Alpha value which was 0.820. According to Kothari (2004), a Cronbach's Alpha above 0.7 is preferable. Since the reliability of data goes with the accuracy or precision of a measuring instrument, in this research study, reliability was concerned with the questions' consistency of responses in repeated measurements (Carmines and Zeller, 2006).

Table 3.2: Conbach's Alpha

Cronbach's Alpha	N of Items
.820	15

3.10.2 Validity

Validity is defined as the instrument's ability to measure exactly what concept it is supposed to measure (Cresswell, 2009). It also refers to the credibility or believability of the research. To validate the data and instruments (questionnaires) used in the research, the researcher asked for the experts to recommend their representativeness and suitability. Besides, the researcher allowed suggestions to be made to the structure of the questions as argued by Cooper and Schindler (2008). In this study validity of data was ensured by choosing the sample from a true representative of the population, preparing a good research tool, having appropriate methods of data collection, pre-testing and pilot testing of research instruments, and proper recording of data (Mohajan, 2017).

3.11 Ethical Considerations

All necessary procedures were followed to conform to the ethical standards of research. The researcher sought permission from the relevant authorities before carrying out the research. All information obtained in this research was strictly used for academic purposes and respondents were assured of the confidentially of the information given. Moreover, anonymity together with accessibility to research information was observed. Treatment was done according to the organizational protocol for the management of data collection. Moreover, confidentiality and informed consent were given higher priority as follows.

3.11.1 Confidentiality

The confidentiality arrangement between the researcher and the respondents was treated with confidentially to avoid public search. Yet, the confidentiality of information was observed by preventing respondents to write their names on the questionnaire and maintain privacy during the interviews.

3.11.2 Informed Consent

The researcher provided informed consent to respondents for voluntary participation where sufficient information to respondents concerning the purpose of the study was given. Additionally, the researcher assured all participants that they have the right to participate or withdraw from the study any time the wish.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Chapter Overview

This chapter offers the results and discussions from the assessment of the performance of water projects utilizing the force account method in the Nkasi and Sumbawanga districts. It starts with the response rate and demographic information and then the objectives follow.

4.2 Results

4.2.1 Response Rate

The response rate included (70) questionnaires distributed to Nkasi and Sumbawanga Rural Water Agency and Water Authorities staff and was managed through a method of drop and pick. The questionnaires were all filled and collected with 100% response. More so, the board members (7) were served with interviews as scheduled to attain a 100% response from interview schedules. Therefore, 77 participants were involved in the study.

4.2.2 Demographic Information

The demographic information included; gender, age, length of service and employment status. Table 4.1 summarises the information.

Table 4.1: Demographic Information

Category	Frequency	Percentage %
Gender		
Male	52	67.5
Female	25	32.5
Age (in yrs)		
Under 20	04	05.2
21-30	32	41.6
41-50	18	23.4
Above 50	23	29.8
Length in service (in yrs)		
Less than 3	12	15.6
3 to 6	24	31.2
Above 6	41	53.2
Employment status		
Permanent	65	84.4
Temporally	12	15.6

The results in Table 4.1 show that gender distribution was 67.5% and 32.5% for males and females respectively. Also, concerning age distribution, those aged under 20 years were 5.2%, those between 21 to 30 years were 41.6%, those between 41 to 50 years were 23.4%, and those who were above 50 years were 29.8%. On the other hand, respondents had served Nkasi and Sumbawanga districts for different years; those who worked for less than 3 years were 15.6%, those who worked for 3 to 6 years were 31.2% and those who worked more than 6 years were 53.2%. More so, respondents who worked as permanent staff were 84.4% while those who worked temporally were 15.6%. Those who worked as temporal workers included board members.

4.2.3 Income Earned On Water-Based Projects Utilizing Force Account in Nkasi and Sumbawanga Districts

The first objective examined the income earned on water-based projects utilizing force accounts in Nkasi and Sumbawanga districts. Questionnaires were

administered to staff while interviewing the board members while carrying out Chi-square. The results are summarised in Table 4.2.

Table 4.2: Income earned on water-based projects utilizing FA

Statement	% strongly agree	% agree	% not sure	% disagree	% strongly disagree	X^2
Income earned from water projects can result from irrigation activities that are charged from the policies put on water supply schemes	(60)85	(11) 15	0	0	0	0.35^{NS}
Water projects that result from the force account method enable people to reduce their disposable income (save) through clean water usage	(63) 90	(7) 10	0	0	0	0.46^{NS}
The construction of water projects enables people to earn income from water schemes by saving time travelling to and from the water ponds they used to	(60) 85	0	0	(11) 15	0	0.51^{NS}
Water-based projects from FAM saved waiting time for collecting water from water schemes	(67) 95	0	(3) 5	0	0	0.62^{NS}
Water projects using FAM aided people from productivity loses that they saved previously	(56) 80	0	(14) 20	0	0	0.42^{NS}

NS=Non-Significant at $p>0.05$

Generally, the results show that the majority of respondents (87%) strongly agreed with the income earned on water-based projects utilizing force accounts in Nkasi and Sumbawanga districts, which was not generally statistically significant at $p>0.05$ with the alternative hypothesis being accepted. It was indicated that water projects enabled irrigation activities something that enabled people to earn their income; reduced their disposable income (save) through clean water usage; saved time to travel to and from the water ponds used before; saved waiting time for collecting water from water schemes and aided people from productivity loses due to water projects' implementation using force account in Nkasi and Sumbawanga districts.

4.2.4 Service Quality On Water-Based Projects Utilizing Force Account in Nkasi and Sumbawanga Districts

The second objective assessed the service quality on water-based projects utilizing force accounts in Nkasi and Sumbawanga districts. Questionnaires were administered to staff while interviewing the board members while carrying out Chi-square. The results are summarised in Table 4.3.

Table 4.3: Service quality on water-based projects utilizing FA

Statement	% strongly agree	% Agree	% not sure	% disagree	% strongly disagree	X^2
Utilizing FAM in water projects enabled the quality service and reliability of water services	(53) 75	0	(17) 25	0	0	0.55 NS
Utilizing FAM in water projects enabled quality service provision and responsiveness of water authorities to those served	(56) 80	0	0	(14) 20	0	0.27 NS
Utilizing FAM in water projects enabled quality service provision and assurance of water authorities to those served	(60) 85	0	0	(11) 15	0	0.52 NS
Utilizing FAM in water projects enabled quality service provision and accessibility of water from water authorities	(53) 75	0	0	(17) 25	0	0.71 NS
Utilizing FAM in water projects enabled quality service provision and usability of water services	(63) 90	(7) 10	0	0	0	0.61 NS

NS=Non Significant at $p>0.05$

Generally, the results show that the majority of respondents (81%) strongly agreed on service quality regarding water-based projects utilizing force accounts in Nkasi and Sumbawanga districts, which was not generally statistically significant at $p>0.05$ with the alternative hypothesis being accepted. It was indicated that utilizing FAM in water projects resulted in quality and reliable water services; responsiveness of water

authorities to users of water; assurance of water authorities to water users; accessibility of water and usability of water among people.

4.2.5 Customer Satisfaction Issues On Water-Based Projects Utilizing Force Accounts in Nkasi and Sumbawanga Districts

The third objective examined the customer satisfaction issues on water-based projects utilizing force accounts in Nkasi and Sumbawanga districts. Questionnaires were administered to staff while interviewing the board members while carrying out Chi-square. The results are summarised in Table 4.4.

Table 4.4: Customer satisfaction issues on water-based projects utilizing FA

Statement	% strongly agree	% agree	% not sure	% disagree	% strongly disagree	X^2
Water-based projects utilizing FAM enhanced customer satisfaction in terms of the quality of drinking water	(49) 70	0	(21) 30	0	0	0.25 ^{NS}
Water-based projects utilizing FAM enhanced customer satisfaction in terms of quantity of drinking water	(60) 85	(11) 15	0	0	0	0.38 ^{NS}
Water-based projects utilizing FAM enhanced customer satisfaction in terms of affordability of drinking water	(63) 90	(7) 10	0	0	0	0.46 ^{NS}
Water-based projects utilizing FAM enhanced customer satisfaction in terms of the continuity of drinking water	(60) 80	0	(14) 20	0	0	0.41 ^{NS}
Water-based projects utilizing FAM enhanced customer satisfaction in terms of overall service aspects of drinking water	(63) 90	0	0	(7) 10	0	0.50 ^{NS}

NS=Non-Significant at $p>0.05$

Generally, the results show that the majority of respondents (83%) strongly agreed with the statements on customer satisfaction issues regarding water-based projects

utilizing force accounts in Nkasi and Sumbawanga districts, which was not generally statistically significant at p>0.05 with the alternative hypothesis being accepted. It was found that water-based projects utilizing FAM enhanced customer satisfaction in terms of quality, quantity, affordability, continuity and overall service aspects of drinking water.

4.2.6 Regression Analysis

In presenting regression analysis, the findings ought to indicate its R Square variable implying that, independent variables explain the percentage of the model variations. Therefore, the results of the model show statistically significant at (p<0.05). Table 4.5 shows the analysis.

Table 4.5: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig
1	.711[a]	.506	.483	.598	.000

Predictors: (Constant), Customer satisfaction, Income earned, Service quality

Dependent Variable: Water-based projects utilizing FAM[b]

The regression analysis indicates that the coefficient of correlation R is 0.711 an indication of a positive relationship between variables. The coefficient of adjusted determination R^2 is 0.506 which changes to 50.6% an indication of changes in the dependent variable that can be explained by income earned, service quality and customer satisfaction. The residual of 49.4% can be explained by other variables beyond the scope of the current study. This is in concurrence with Hussein (2020) who reported that changes in water projects utilizing FAM are the outcome of

income earned, service quality and customer satisfaction. The ANOVA results accorded the following in Tabel 4.6;

Table 4.6: Analysis of Variance

ANOVA					
Performance of water projects utilizing FAM					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	12.863	4	3.216	5.988	.000
Within Groups	34.909	65	.537		
Total	47.771	69			

The is a significant difference in DV scores across groups with F (5.988) and a significance of 0.000 as shown above. Moreover, the regression coefficients are shown in Table 4.7 as hereunder;

Table 4.7: Regressions coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.104	.255		.464	.000
	Income earned	.300	.061	.446	4.927	.000
	Service quality	.492	.067	.682	7.363	.000
	Customer satisfaction	-.021	.069	-.027	-.307	.042

Predictors: (Constant), Customer satisfaction, Income earned, Service quality
Dependent Variable: Water-based projects utilizing FAMb

The results in Table 4.7 show the regression coefficients that suggest that all variables were significant predictors (p<0.05) of the model. This informs that one unit increase of income earned explains a 0.300 increase in water projects utilizing FAM. An increase in one unit of service quality suggests a 0.492 unit increase in water-based projects utilizing FAM. Also, a unit increase in customer satisfaction explains a -0.021 decrease in water-based projects utilizing FAM.

The following regression model was used

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon}$$

Where;

Y = Water based projects utilizing FAM; X_1 = income earned; X_2 = service quality; X_3 = customer satisfaction

β_0 = is the Y-intercept which is a constant being a dependent variable value, while all other Independent variables remain 0.

β_1, β_2 & β_3 = these are regression coefficients/constants of independent variables of X_1, X_2, and X_3 in relation to Y. While, e = the standard error term

Therefore,

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon}$$

$$Y = 0.104 + (0.300)\ \beta_1 + (0.492)\ \beta_2 + (-0.021)\ \beta_3 + \varepsilon$$

4.3 Discussion of Findings

4.3.1 Income Earned On Water-Based Projects Utilizing Force Account in Nkasi and Sumbawanga districts

The results in Table 4.2 show that, on average, the majority of respondents (87%) strongly agreed with the statement listed on income earned on water-based projects utilizing force account in Nkasi and Sumbawanga districts, which was not generally statistically significant at $p>0.05$ where the alternative hypothesis is accepted. This suggests that the respondents were generally aware of income earned according to their perceptions.

Moreover, the results in Table 4.2 show that (60) 85% of respondents strongly agreed while (11) 15% of respondents agreed that the income earned from water projects resulted from irrigation activities that are charged due to policies put on water supply schemes. This implies that people in the water projects were able to earn more income by utilizing less time in fetching water than before while utilizing the other time in income-related activities. The time saved necessitated people to have adequate and quality water that aided in curbing waterborne diseases. The statement above concurs with Konde (2016) who opined that water projects improved people's day-to-day dealings as they had ample time to do other income-generating activities.

On the other hand, the results in Table 4.2 show that (63) 90% of respondents strongly agreed while (7) 10% of respondents agreed that water projects implemented under force account enable people to reduce their disposable income (save) through clean water usage. This implies that, before the implementation of water projects, people utilized water that was not of high quality something that caused diseases that consumed their income through buying drugs and medicine for treatment. Therefore, after obtaining quality water, people would save the amount used before for other activities. This is in line with Hussein (2020) who insisted that when people utilize quality water, savings are achieved from the fact that the amount used for treating waterborne diseases would be allocated for other activities while enabling people to have good health.

The interviewees were of the following view;

> *It has been fortunate that after having water that is of good quality, many households have been able to save their income and utilise it for other economic activities.*

Moreover, the results in Table 4.2 show that (60) 85% of respondents strongly agreed that the construction of water projects has enabled people to earn income from water schemes by saving time to travel to and from the water ponds they used before. This implies that people are enable to fetch water at their nearby places something that reduces their time in accessing water. Yet, (11) 15% of respondents disagreed that although people have saved time, there has been an inadequate supply of water something that demands additional costs in case of frequent water cuts. The statement above concurs with Eliamring and Kazumba (2017) who caution against the inadequate supply of water that does not follow the timetable.

The interviewees were of the following view;

> *Although there has been improvement in the water supply, the frequent water cut that does not accompany information delivery necessitates additional costs among water users. This needs to be solved.*

Similarly, the results in Table 4.2 show that (67) 95% of respondents strongly agreed that water-based projects from FAM saved waiting time for collecting water from water schemes. This has been caused by the fact that the implementation of water projects in the study area enabled the supply of water to nearby households for community consumption while those able to connect to their homes were able to connect at an affordable price. The statement above supports the affirmation by Mbabazi and Mugurusi (2018) who stated that the water projects need to enable households to connect the water to their nearby water facilities and enable people to

save time in searching for water. Yet, (3) 5% of respondents were not sure of the matter.

Finally, the results in Table 4.2 show that (56) 80% of respondents strongly agreed that water projects using FAM aided people from productivity loses that they saved previously. This implies that before the water project implementation, people could produce little as they searched for water far away. On top of that, the water searched was not of good quality which necessitated waterborne diseases. The diseases consumed peoples' income through buying medicine for their treatment something that reduced their productive capacity. Therefore, the availability of quality water at nearby places enhances people's productivity. Moreover, (14) 20% of respondents were unsure of the matter. The statement above agrees with Budhathoki (2019) who stated that when water projects are completed and utilized well, people can enhance their income and produce goods in a healthy situation.

The interviewees were of the following view;

> *Water projects that are implemented and managed well result in enabling users to attain their productive capabilities that are accompanied by healthy situations.*

4.3.2 Service Quality on Water-Based Projects Utilizing Force Account in Nkasi and Sumbawanga Districts

The results in Table 4.3 show that, on average, the majority of respondents (81%) strongly agreed with the statement listed on service quality regarding water-based projects utilizing force account in Nkasi and Sumbawanga districts, which was not

generally statistically significant at p>0.05 with the alternative hypothesis being accepted. This suggests that the respondents were generally aware of service quality provided according to their perceptions.

The results in Table 4.3 show that (53) 75% of respondents strongly agreed that utilizing FAM in water projects enabled quality service and reliability of water services. This implies that the implementation of water projects in the study area improved the service and reliable water. Yet, (17) 25% of respondents were not sure of the matter from the fact that not all projects resulted in quality service as there were projects that could not adequately provide water consistently. The statement above concurs with the affirmation by Olela and Wanyonyi (2018) who reported that some water projects do not provide water due to technical faults as well as the inability of contractors to follow well the designs towards providing reliable water supply.

The interviewees were of the following view;

> *Our water project was completed and started being used. Unfortunately, it got into challenges of being unable to consistently produce water due to design-related problems that resulted in poor quality of water as well as frequent supply of water as expected.*

Nonetheless, the results in Table 4.3 show that (56) 80% of respondents strongly agreed that utilizing FAM in water projects enabled quality service provision and responsiveness of water authorities to those served. This implies that quality service was enhanced by the responsiveness of the project supervisors with the assistance of the users of the water projects. Although it was not easy to attain the full corporation,

strategies were used to enable the implementation that would result in the proper use of water. This is ni line with Hassan et al (2020) who reported that where there is little corporation among water users, strategies need to be put to enable queer implementation of the projects as users are part and parcel of project implementation. Moreover, (14) 20% of respondents disagreed that there has been little responsiveness on the part of the authority to enable water quality provision something that undermines the service provision.

Similarly, the results in Table 4.3 show that (60) 85% of respondents strongly agreed that utilizing FAM in water projects enabled quality service provision and assurance of water authorities to those served. This implies that water authorities were able to assure users of the supply time tables to enable users to adhere to them while ensuring quality water supply. The statement above concurs with the World Bank (2017) report that insists on an equitable supply of water to all users to enable them to utilize the service without challenges. Moreover, (11) 15% of respondents disagreed that utilizing FAM in water projects could not enable well the authorities to manage water supply as in some instances, the supply of water encountered challenges that disacouraged the users such as frequent water cuts that did not accompany information delivery.

The interviewees were of the following view;

> *There has been a challenge with constant supply of water. This necessitates water users to find alternative ways such as having vessels that could keep water for two to three days and aid them in case of non-supply of water. But, for those without such vessels, this challenge results*

> *in buying water from vendors something that adds hardship to the lives of the water users.*

More so, the results in Table 4.3 show that (53) 75% of respondents strongly agreed that utilizing FAM in water projects enabled quality water service provision and accessibility of water from water authorities. This implies that the accessibility of water from water authorities is accompanied by quality service that enables users to avoid contracting unnecessary waterborne diseases. Yet, (17) 25% of respondents disagreed that accessibility of water does not go hand in hand with affordability something that hinders some users in accessing the service.

The interviewees were of the following view.

> *Although, water is accessible; affordability in some instances has been a hindrance to some users. Thus, reduced costs may enable more users to access the water.*

Finally, the results in Table 4.3 show that (63) 90% of respondents strongly agreed while (7) 10% of respondents agreed that utilizing FAM in water projects enabled quality service provision and usability of water services. This implies that people were able to use the water all the time it is available for their domestic and economic uses although with little challenges that could be accommodated. The statement above is in support of Mbabazi and Mugurusi, (2018); Eliamring and Kazumba (2017) who reported that the challenges for the performance of water projects utilizing force account show diverse results such as non-sustainability, the reliance on external support, leadership challenges, not meeting the income projected, with

poor service quality and lack of customer focus something that renders users to access the service that is accompanied with challenges.

4.3.3 Customer Satisfaction Issues On Water-Based Projects Utilizing Force Accounts in Nkasi and Sumbawanga Districts

The results in Table 4.4 show that, on average, the majority of respondents (83%) strongly agreed with the statement listed on customer satisfaction issues on water-based projects utilizing force accounts in Nkasi and Sumbawanga districts, which was not generally statistically significant at $p>0.05$ where the alternative hypothesis is accepted. This suggests that the respondents were generally aware of customer satisfaction issues provided according to their perceptions.

Furthermore, the results in Table 4.4 show that (53) 70% of respondents strongly agreed that water-based projects utilizing FAM enhanced customer satisfaction in terms of quality drinking water. This implies that water users were satisfied with the quality of water as compared to the water they used to access. Because the implementation of FAM brought about water to many areas that were not covered, the need and use of water satisfied the majority of people in the study area. Yet, (21) 30% of respondents were not sure of the matter.

Similarly, the results in Table 4.4 show that (60) 85% of respondents strongly agreed while (11) 15% of respondents agreed that water-based projects utilizing FAM enhanced customer satisfaction in terms of quantity of drinking water. This implies that satisfaction among users was accompanied by quantity provision where more people were reached by the project and could access water with few challenges. The

statement above concurs with Cook (2017) who asserted that when water is provided in an enhanced quantity, users can utilise that water for domestic and commercial purposes thereby improving their standard of living.

The interviewees were of the following view;

> *We access water in a good quantity something that enables us utilize it for both domestic and commercial uses. This has aided in improving our living standards*

Furthermore, the results in Table 4.4 show that (63) 90% of respondents strongly agreed while (7) 10% of respondents agreed that water-based projects utilizing FAM enhanced customer satisfaction in terms of affordability of drinking water. The affordability was enhanced by external funding that enabled water users to pay little from the subsidized amount. The statement above is in support of Hussein et al (2020) who reported that external support from the government or donors has subsidized the prices that would have been paid by water users. Such subsidy cover the price that would be incurred directly by users.

On the other hand, the results in Table 4.4 show that (56) 80% of respondents strongly agreed that water-based projects utilizing FAM enhanced customer satisfaction in terms of continuity of drinking water from the fact that users were able to continuously access water as needed for their day to day uses. Yet, (14) 20% of respondents were not sure of the matter as some projects could not attain the value for money projected leading to losses of taxpayers' money as reported by Eliamring and Kazumba (2017).

Finally, the results in Table 4.4 show that (63) 90% of respondents strongly agreed that water-based projects utilizing FAM enhanced customer satisfaction in terms of overall service aspects of drinking water. It was found that users of water were freely fetching and utilizing water at their leisure something that satisfied them. Moreover, (7) 10% of respondents disagreed that not all users were satisfied with the service provided as some would not timely access water or were unable to afford the costs that are accompanied by the service provided.

4.3.4 Discussion on Regression

Although the regression analysis indicated the coefficient of correlation R to be 0.711, indicating a positive relationship between variables; the coefficient of adjusted determination R^2 was 0.506 which results in 50.6%. This indicates that the changes in the dependent variable (water projects utilizing FAM) can be explained by income earned, service quality and customer satisfaction. The residual of 49.4% is explained by other variables beyond the scope of the current study where unoverseen variables may influence the dependent variable and vice versa. This statement supports the affirmation by Hussein (2020) who opined that the changes in water projects utilizing FAM are the outcome of income earned, service quality and customer satisfaction. Moreover, the statement above concurs with Robert (2010) and Eliamring and Kazumba (2017) that water projects with poor or without unique management procedures report low rating results on average, as assessed by scale, time table and resource usage. Yet, works that do well remain or perform even with the pulling out of the donor where the income earned, service quality and customer satisfaction become significant.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Chapter Overview

This chapter presents the summary, conclusion and recommendations arising from the study findings. It commences with a summary of the study, a conclusion; then recommendations and finally further studies.

5.2 Summary

This study assessed the performance of water projects utilizing the force account method in Nkasi and Sumbawanga districts in the Rukwa region. Specifically, it examined the income earned on water-based projects; assessed the service quality on water-based projects; and examined the customer satisfaction issues on water-based projects utilizing force account. Besides, hypotheses were developed and tested to facilitate the study. Explanatory research design was used to establish the causal relationship between variables with a mixed approach. A sample size of 77 respondents was obtained from staff and board members with data being solicited using questionnaires and interview guides. Quantitative data were descriptively analysed, Chi-square being tested while qualitative data being analysed using content analysis. Furthermore, linear regression analysis was carried out to test the relationship among variables.

The findings revealed that the null hypotheses were all rejected thus accepting the alternative hypotheses as the results were not generally statistically significant at

p>0.05. Further, the majority of respondents (87%) strongly agreed that income earned on water-based projects utilizing FAM enabled irrigation activities to earn more income; reduced their disposable income (save) through clean water usage; saved time to travel to and from the water ponds as used before etc. Similarly, the majority of respondents (81%) strongly agreed that service quality indicated that utilizing FAM in water projects resulted in quality and reliable water services; responsiveness of water authorities to users of water; accessibility of water and proper usability of water among people. More so, the majority of respondents (83%) strongly agreed on customer satisfaction issues that water-based projects utilizing FAM enhanced customer satisfaction in terms of quality, quantity, affordability, continuity and overall service aspects of drinking water in the districts. It was concluded and recommended that productivity may be enabled through water projects' implementation with water users achieving their goals equitably.

5.3 Conclusion

This study assessed the performance of water projects that utilize the force account method in the Nkasi and Sumbawanga districts. The null hypotheses were all rejected thus accepting the alternative hypotheses. The findings show that the majority of respondents (87%) strongly agreed with the statements on income earned on water-based projects utilizing force accounts in Nkasi and Sumbawanga districts, which was not generally statistically significant at p>0.05 with alternative hypothesis being accepted. It was indicated that water projects enabled irrigation activities something that enabled people to earn their income; reduced their disposable income (save) through clean water usage; saved time to travel to and from the water ponds

used before; saved waiting time for collecting water from water schemes and aided people from productivity loses due to water projects' implementation.

In addition, the findings show that the majority of respondents (81%) strongly agreed with the statements on service quality regarding water-based projects utilizing force accounts in Nkasi and Sumbawanga districts, which was not generally statistically significant at $p>0.05$ with the alternative hypothesis being accepted. It was indicated that utilizing FAM in water projects resulted in quality and reliable water services; responsiveness of water authorities to users of water; assurance of water authorities to water users; accessibility of water and usability of water among people.

Finally, the findings show that the majority of respondents (83%) strongly agreed with the statements on customer satisfaction issues regarding water-based projects utilizing force accounts in Nkasi and Sumbawanga districts, which was not generally statistically significant at $p>0.05$ with the alternative hypothesis being accepted. It was found that water-based projects utilizing FAM enhanced customer satisfaction in terms of quality, quantity, affordability, continuity and overall service aspects of drinking water.

5.4 Recommendations

The subsequent recommendations are put forward based on the conclusion as follows:

Income earned on water-based projects utilizing force accounts in Nkasi and Sumbawanga districts enabled irrigation activities towards income generation;

reduced their disposable income; saved time to travel to and from the water ponds used before. It is recommended that the productivity that is enabled through water projects' implementation need to be enhanced.

Service quality was observed indicating that utilizing FAM in water projects resulted in quality and reliable water services, responsiveness and assurance of water authorities to water users. It is recommended that the accessibility of water and its usability need to be improved to enable water users to achieve their goals.

Customer satisfaction issues were enhanced in terms of quality, quantity, affordability and continuity. It is recommended that overall service aspects of drinking water need to be improved.

5.5 Recommendation for Further Studies

This study assessed the performance of water projects that utilize the force account method. It is opined that further studies be done on the following issues.

Examining the challenges that water projects that utilize FAM in other districts in Tanzania

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APPENDICES

Appendix 1 Questionnaire

Dear Prospective Respondent;

This questionnaire is designed to solicit information from you. The purpose of this research is for the academic award of a Master's degree in project management from the Open University of Tanzania. Kindly fill in the required information as per the researcher's requirement.

Gender: Male ( ), Female ( )

Age: under 20 ( ), 21 to 30 ( ), 31 to 40 ( ), 41 to 50 ( ), over 50 ( )

Length of services with the organization (In years) ----------,

Employment status: Permanent ( ), Temporary ( )

For each of the following aspects shown below rate your level of agreement using the following Likert-type scale provided:

Agreement: 1= strongly agree, 2= Agree, 3= Not sure, 4= Disagree, 5= strongly disagree

Na.	**Income earned from water-based projects utilizing the force account method**	**Level of agreement**
1.	Income earned from water projects can result from irrigation activities that are charged from the policies put on water supply schemes	1 2 3 4 5
2.	Water projects that result from the force account method enable people to reduce their disposable income(save) through clean water usage	1 2 3 4 5
3.	The construction of water projects enables people to earn income from water schemes by saving time to travel to and from the water ponds they used to	1 2 3 4 5
4.	Water-based projects from FAM saved waiting time for collecting water from water schemes	1 2 3 4 5
5.	Water projects using FAM aided people from productivity losses that they saved previously	1 2 3 4 5
	Service Quality from water-based projects utilizing FAM	**Level of agreement**
6	Utilizing FAM in water projects enabled the quality service and reliability of water services	1 2 3 4 5
7	Utilizing FAM in water projects enabled quality service provision and responsiveness of water authorities to those served	1 2 3 4 5

8	Utilizing FAM in water projects enabled quality service provision and assurance of water authorities to those served	1	2	3	4	5
9	Utilizing FAM in water projects enabled quality service provision and accessibility of water from water authorities	1	2	3	4	5
10	Utilizing FAM in water projects enabled quality service provision and usability of water services	1	2	3	4	5
	Customer satisfaction from water-based projects utilizing FAM	**Level of agreement**				
11	Water-based projects utilizing FAM enhanced customer satisfaction in terms of the quality of drinking water	1	2	3	4	5
12	Water-based projects utilizing FAM enhanced customer satisfaction in terms of quantity of drinking water	1	2	3	4	5
13	Water-based projects utilizing FAM enhanced customer satisfaction in terms of affordability of drinking water	1	2	3	4	5
14	Water-based projects utilizing FAM enhanced customer satisfaction in terms of the continuity of drinking water	1	2	3	4	5
15	Water-based projects utilizing FAM enhanced customer satisfaction in terms of overall service aspects of drinking water	1	2	3	4	5

Appendix 2: Interview Guide

i) Do you save your income in terms of time to travel after having a water project nearby than it was before?

ii) Do you save your income in terms of waiting time to fetch water after having water projects in nearby places than before?

iii) Has service quality been a priority in the Nkasi and Sumbawanga districts after owning water projects utilizing force accounts?

iv) Has service quality been assessed in terms of its reliability?

v) Has service quality been assessed in terms of the water authority's responsiveness to provide the service?

vi) Has customer satisfaction been assessed in terms of the quantity of drinking water one gets in Nkasi and Sumbawanga districts?

vii) Has customer satisfaction been assessed in terms of the quality of drinking water one gets in Nkasi and Sumbawanga districts?

viii) Has customer satisfaction been assessed in terms of the continuity of drinking water one gets in Nkasi and Sumbawanga districts?

Appendix 3: Budget

The following budget will support the execution of the study whereby the whole budget comes from the researcher's pocket money.

Budget Items	**Details**	**Cost (Tshs)**
Research proposal preparation and submission	• Proposal preparations and stationeries • Tools preparation	350,000/= 150,000/=
Sub-Total		500,000/=
Pilot study	• Transport • Training 3 research assistants @ 20,000/= per diem per person for 2 days	80,000/= 120,000/=
Sub-Total		200,000/=
Primary Data collection	• Transport to and from the study area 30 days • Subsistence allowance for principal research @ 25,000/= * 30 days • Subsistence allowance for research assistant @ 15,000/= * 30 days	1,500,000/= 750,000/= 1,800,000/=
Sub-Total		4,050,000/=
Data processing and report writing	• Data entry, cleaning and editing • Correction of dissertation • Printing and photocopy • Soft binding 4 copies @ 12,000/= • Hard binding 5 copies @ 50,000/=	140,000/= 80,000/= 70,000/= 48,000/= 250,000/=
Sub-Total		588,000/=
TOTAL		**5,338,000/=**

Appendix 4: Work Plan

The study is planned to be completed in November 2023 as the Schedule of Activities shown hereunder.

No	Activity	Duration										
		Year 2023										
		J	F	M	A	M	J	J	A	S	O	N
1	Completion of preparation of Research Proposal, Questionnaire and Submission of Research Proposal											
2	Pilot study and Questionnaire testing											
3	Fieldwork and Data Collection											
4	Data Processing and Analysis											
5	Dissertation writing, correction and Submission											

Appendix 5: Research Clearance Letter

THE OPEN UNIVERSITY OF TANZANIA
DIRECTORATE OF POSTGRADUATE STUDIES

P.O. Box 23409
Dar es Salaam, Tanzania
http://www.out.ac.tz

Tel: 255-22-2668992/2668445
ext.2101
Fax: 255-22-2668759
E-mail: dpgs@out.ac.tz

Our Ref: PG202185997

Date: 14th March, 2023

DED,
Nkasi District Council,
P.O. Box 2,
NAMANYERE-NKASI

RE: RESEARCH CLEARANCE

The Open University of Tanzania was established by an act of Parliament No. 17 of 1992, which became operational on the 1st March 1993 by public notice No. 55 in the official Gazette. The act was however replaced by the Open University of Tanzania charter of 2005, which became operational on 1st January 2007. In line with the later, the Open University mission is to generate and apply knowledge through research.

To facilitate and to simplify research process therefore, the act empowers the Vice Chancellor of the Open University of Tanzania to issue research clearance, on behalf of the Government of Tanzania and Tanzania Commission for Science and Technology, to both its staff and students who are doing research in Tanzania. With this brief background, the purpose of this letter is to introduce to you **Gibon Nzowa**, **Reg No: PG202185997** pursuing a **Degree of Master of Project Management.** We hereby grant this clearance to conduct a research titled: **"Assessment of the Performance of Water Projects that utilize Force Account Method in Nkasi and Sumbawanga Districts."**, He will collect his data in Nkasi District Council from 21st March to 11th April, 2023.

In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic, Research and Consultancy) of the Open University of Tanzania, P.O. Box 23409, Dar es Salaam. Tel: 022-2-2668820. We lastly thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours,

Prof. Magreth Bushesha
DIRECTOR OF POSTGRADUATE STUDIES

MANUSCRIPT