

**EFFECT OF PROCUREMENT PROCEDURES ON PERFORMANCE OF  
PUBLIC PROJECTS: THE CASE OF ROAD CONSTRUCTION IN TEMEKE  
MUNICIPALITY IN TANZANIA**

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**CERTIFICATION**

The undersigned certifies that he has read and hereby recommends for acceptance by the Open of University of Tanzania a dissertation entitled: "*Effect of Procurement Procedures on Performance of Public Projects: The Case of Road Construction in Temeke Municipality in Tanzania*", in partial fulfillment of the requirements for the Degree of Masters in Project Management (MPM) of the Open University of Tanzania.

.....  
Dr. France Shayo

(Supervisor)

.....  
Date

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I, **Rachel Heriel Msanga**, do hereby declare that, this dissertation is my own original work, and that it has not been presented and will not be presented to any other University for a similar or any other degree award.

.....

Signature

.....

Date

**DEDICATION**

I dedicate this work to my lovely Children Dionis and Doreen.

## **ACKNOWLEDGEMENT**

The completion of this undertaking could not have been possible without the participation and assistance of so many people whose names may not all be enumerated. Their contributions are sincerely appreciated and gratefully acknowledged. However, I would like to express their deep appreciation and indebtedness particularly the following;

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## ABSTRACT

The study examined effects of procurement procedures on performance of public projects; study focused on the road constructed in Mbagala ward, Temeke municipality specifically the study aimed at identifying effects of procurement procedures on cost performance of public project, examined effects of procurement procedures on quality performance of public project and determining effects of procurement procedures on time performance of public project. Data were obtained from the procurement officers, road construction and Mbagala residence. Descriptive and regression analysis were performed in order to determine strength of the study variables. The study findings reveled that; procurement procedures ware highly effective on cost performance of public projects, while regression analysis confirmed that the procurement procedures had moderate correlation with cost performance in road construction project. Also it was revealed that procurement procedure highly contributed to quality performance of public projects. Further regression analysis revealed that the procurement procedures used had very strong correlation with quality performance and finally it was realized that procurement procedures very highly leads to time performance Finally the study concludes that performance of public project in Temeke municipality was highly facilitated due to the contribution of procurement procedures on cost performance, quality performance and time performance.

**Keywords:** Procurement procedures, Quality performance, Cost performance and Time performance

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**LIST OF ABBREVIATIONS**

|      |  |
|------|--|
| DMDP | Metropolitan Development Project       |
| DLAs | District Local Authorities             |
| NGOs | Non Governmental Organization          |
| NHC  | National Housing Corporation           |
| SPSS | Statistical Package for Social Science |
| TLG  | Tanzania Local Government              |

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Overview**

This chapter is made up of the background of the study explaining the situation of procurement procedures on the performance of public project followed by the statement of the problem, general objective, specific objectives, and significance of the study and scope of the study.

#### **1.2 Background of the Study**

Public projects are the type of scheme or activities that are managed by the government or state focusing at solving community needs (Djankov *et al* 2016). These projects require close attention since they have a great impact in countries economy. There have been raising issues that states the project managers who are given authority with the government on project construction do not follow the recommended procurement procedures in procuring constructional materials. In many parts of the world such as (Europe, Bangladesh, Australia, China, Hong Kong, India, Indonesia, Korea, Pakistan and Palau) apply procurement practices in their constructional activities. Cost, time and quality are constraints in procurement practices that hinder projects development (World Bank 2016). However the construction industry has attracted criticism for inefficiencies result such as cost overruns, low productivity, time delay and poor quality (Owiti 2017).

Developing countries are not far behind from embracing the procurement procedures in their project activities. Both private and public institutions are also using the same procurement procedures in purchasing constructional materials. Agwot (2016) declared

that developing countries have continued to reform their public procurement for the past fifteen years. This is to increase competition, transparency, value for money and accountability to comply with 2004 Johannesburg declaration by the multilateral and bilateral development institutions. Even though the impact of procurement development is not fully cherished and agreements appear to be consistent since the reform is treated as guidance of optimal implementation rather than necessity tied to provision of fund. About US\$100 million is wasted due to weak procurement structure procedures and policies as well failure to impose suction for violations of procurement this was reported by (World Bank 2018). Julius and Gershon (2019) asserted that public project needs to adapt best practices and strategies so as to ensure efficiency and quality delivery of service.

Lewis-Faupel (2016) in Tanzania procurement procedures are also practiced in development activities so as to ensure efficiency and effectiveness in the project implementation. Churchill (2016) reported that in the procurement processes bidders easily access essential information on tenders and transparent proceedings. Though the process are mentioned to distort decisions and selection of purchasing procedures, which result in selection of direct award process rather than a public tender (Marie2018). Tanzanian procurement procedures entail contract negotiation in projects, which involves discussion between parties so as to reach agreement (Lumbanga, 2019).

The study was guided by theory of performance, agency theory and contract theory since it allowed researcher in making assessment of activities conducted by constructors on road construction. Therefore the conducted study examined effects of

procurement procedures on performance of public project in Tanzania specifically the study focused on road construction project conducted in Temeke municipality.

### **1.3 Statement of the Problem**

Project performance is determined by different factors, mainly time, quality and cost. Client acceptance, reputation, and ethical behavior are among the factors that determine project performance. Road construction projects are among important projects that bring development within the country through improvement of transport sub-sector.

There have been raising complaining issues that some roads construction projects within local governments of Tanzania do not meet the recommended standards. The auditing report of 2019 noted that inspections and monitoring of the procurement procedures are not well conducted in local government projects include road construction projects. The project suffered from poor documentations of the records (TCAG, 2019).

It was further noted that there were multiple delays in responding to contractor's requests for extension of time and completion certificates. In real sense the procurement procedures are supposed to assist in making sure that time management is well adhered quality and costs are well administered. Ogunsanya (2019) evidenced that public procurement procedures that are practiced within developing countries have failed to deliver necessary infrastructure for economic development. Significant amount of resources are directed in the public infrastructure but there are no satisfactory development of those infrastructures (NCC, 2019).

Several studies carried out on the procurement procedures have been focusing on materials control, supplier assessment, tendering procedures but could not mention how procurement procedures affect time cost and quality on the public projects in Tanzania. The conducted study uncover effect of procurement procedure on the performance of road construction project carried out by Tanzania local government (TLG), specifically in Temeke Municipality.

#### **1.4 General Objective**

To examine effects of procurement procedures on performance of public projects; a case study of road construction in Temeke municipality.

##### **1.4.1 Specific Objectives**

- (i) To identify the effects of procurement procedures on cost performance of public project.
- (ii) To examine the effects of procurement procedures on quality performance of public project.
- (iii) To determine the effects of procurement procedures on time performance of public project.

#### **1.5 General Question**

What are the effects of procurement procedures on performance of public project in Tanzania?

##### **1.5.1 Specific Questions**

- (i) What are the effects of procurement procedures on cost performance of public project?

- (ii) What are the effects of procurement procedures on quality performance of public project?
- (iii) What are the effects of procurement procedures on time performance of public projects?

### **1.6 Significance of the Study**

The study results provide useful inputs or suggestions to the road sector authorities (such as local government in Tanzania and TARURA) on how to improve execution of road construction projects. The study also is useful to the policy makers in understanding the existing loopholes, in terms of legislation perspective. This study acts as the source of secondary information or literature to future researchers who need to conduct studies on issues pertaining to public procurement in road construction projects.

### **1.7 Scope of the Study**

The study assessed effects of procurement procedures on performance of public project in Tanzania specifically the study based on roads which were completed in Temeke municipality for the past three years. The study used survey study design where qualitative and quantitative research approaches was applied. So far sources of information were collected from primary and secondary data sources which were used as the method of data collection.

### **1.8 Organization of the Research Proposal**

**Chapter One:** This chapter includes the introduction of the study which gives overview of chapter's contents as the background of the study which explains on

effects of procurement procedures on performance of public project. The chapter also contains the Statement of the problem, research objectives, questions, relevance of the study, and organization of the study.

**Chapter Two:** This chapter contains the definitions of the key terms used in the study, theoretical review showing the related theories and the empirical review basing on the specific objectives and lastly conceptual frame work.

**Chapter Three:** This chapter contains research methodologies, which are the methods that were used in conducting the study. These methods used are research design, Population, sample and sampling procedures used in the study, it also explains on the research instruments, methods of data collection, data analysis plan.

**Chapter Four:** This chapter contains analysis of data, presentation and discussion of the findings from the study as guided by the research questions and objectives.

**Chapter Five:** This chapter contains summaries of the study which were established during the research in relation to the objectives and guiding questions of the research also conclusion and recommendations was constructed from the findings and the last part of the study contained references and appendices

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter contains the conceptual definition basing on the definition of important terms, theoretical literature review which explains the relationship between variables, the empirical literature review includes review and analyzes of other similar studies that had contributions in the study, the research gap and lastly the conceptual framework which is a diagram showing the variables of the study and their relationships.

#### **2.2 Conceptual Definitions**

This part explains the definition of the words that were used most frequently in the study. Words, which were used are procurement procedures, performance of public project and road construction.

##### **2.2.1 Procurement**

Business Dictionary (2011) describes Procurement as the action and method through which a party attain goods and services. European Union (2013) defines procurement as the act of buying or obtaining goods and services. Same to Cole (2007) defines procurement as the acquisition of goods or services at the best potential total cost in the correct amount and quality. Tweneboah (2017) defines procurement as the business management function that ensures identification, sourcing, access and management of the external resources.

Project manager and procurement officer who are involved in project implementation needs to understand procurement practices in acquisition of necessary materials that are required in the project (World Bank, 2018). Procurement strategies are means of satisfying customers need in obtaining advantageous pricing and contractual conditions through competitive process (OECD, 2017). The conducted study applied Tweneboah (2017) definition since it considers identification of items and outsourcing which are relevant in the procurement practices.

### **2.2.2 Public Project**

Lock (1989) defines project as a collection of linked activities that are carried out in organized manner and that has a clearly defined beginning and ending purposed to achieve specific results which are desired to satisfy clearly defined objective. The main features of a project include clear scope and clear objectives. Stager (2002) Public project is a project that involves one or several tasks, few or many people, spans one or several functions, and covers a certain period of time and is administered by the government or state. All these depend on the expected technical challenges concerning the project. In Tanzania road constructional projects are the public project that are constructed and managed by the government. The conducted study describes public project as the set of arranged activities having a clear start and completion schedule that is managed by the government.

## **2.3 Theoretical Literature Review**

This part explains on the relevant theories that were used in the study. The study used agency theory, performance management theory and contract theory.

### 2.3.1 The Agency Theory

Agency theory is a management and economic theory that emerged in the 1970s that explains on the relationship within an organization (Eisenhardt, 1989). Agency theory is applicable when an individual (Agent) is capable of taking decision for other individual (Principal) thus makes the theory as the framework for designing and control in organization. Agency theory apply when the road contractors (Agent) makes decisions on behalf of municipal council (principal). The theory is applied in conditions when the principal (Temeke municipal) requires the agent (constructor) to do activity, which requires good quality and cost saving basing on the procurement requirement.

The theory explains that the principal (Temeke Municipal) hires the agent (Constructor) to construct the road. Also both Principal and agent act on their self interest which results into asymmetric information. Gailmard (2009) revealed that the principal mainly focuses on the obtained quality while the agent becomes responsible in maintenance of the road infrastructure.

$$q = e + \varepsilon_q$$

The model presents the relationship between the obtained quality ( $q$ ) and the efforts made by the constructor.  $\varepsilon$  represents the random component which is taken to have a normal distribution, these means that; Temeke municipal cannot directly observe the efforts made by constructors and may estimate directly by values obtained for quality indicators. Also the values do not depend on the effort ( $e$ ) but on other unpredictable factors that are grouped in random variable. The theory is criticized of not showing

the ways that could be used in reducing information asymmetry so as to satisfy the agent and the principal.

### **2.3.2 Performance Management Theory**

The theory states that low performance in project depends on financial, consultants, owners, contractors and environmental related problems. Clos (2015) asserted that high financial costs in implementing the project are caused by challenges that arise in getting financial support to finance the project. The theory further explains that accountability; transparency and limited financial accountability hinder development and performance of project implementation also poor management skills, poor decision making hinder proper performance of projects.

Constructors problems which leads to poor performance are lack of experience, poor site management, poor supervision, allocation problem, inadequate labor skills, inaccurate estimation and inadequate planning (Toor and Ogunlana (2008). The theory is applicable in the study since performance of road construction in Temeke municipal depends on how the constructor solves tribulations facing the construction activities. However; the theory is criticized for not explaining factors that leads to performance such improvement of project control, provision of technical knowledge and experience, adequate planning and specification provision of financial support among others.

### **2.3.3 Contract Theory**

Barnett (1986) described contract theory as the set of promises for the breach of which the law gives a remedy or performance. Contract theory is applicable when there is,

hidden information or when there is contractual incompleteness. Also it gives explanations on how people and organization create and develop legal agreements as well as how parties with conflicting interests build formal and informal contracts.

The theory was applied in the study when the Municipal department dealing with road construction enters into contract with constructing agent so as to build the roads. The contract, which is entered with, the two departments focuses on quality, cost and time. This makes the constructing department to construct roads basing on terms and condition of the contract.

## **2.4 Empirical Literature Review**

This part gives review of the literatures, which are related to the study research problem basing on the effect of procurement procedures on cost, time and quality performance.

### **2.4.1 Effects of Procurement Procedures on Cost Performance**

Procurement procedures are well practiced in different public sector this is due to its important in the attainment of materials especially in the construction industry. Ghana is among the country, which applies procurement procedures in the purchase of public materials. The country has adopted procurement practices and strategies so as to ensure efficiency and quality delivery of service. Road construction project is among the areas where the procurement practices are practiced. Julius and Gershon (2019) assessed on the procurement strategies and contract management practices and how they affect performance of road construction strategies. The study adopted mixed method and purposive sampling in the study methodology. From the findings it was

revealed that competitive and restricted tendering gave value for money in the road construction due to the lowest coefficient variation compared to other attributes for road construction. Lastly the study concluded that; procurement strategy positively affected the performance of road construction project in Ghana.

Momanyi (2016) carried out the study on the effect of procurement process on cost generating power in Kenya. The study adopted case study and descriptive research design where structured questionnaire was applied. From the results it was highlighted that the procurement process had a significant effect on cost of generating energy. Even though the study established that Kengen had taken enough measures so as to ensure that costs are reduced in the procurement activities. Areas of improvement were mentioned to be identified where reuse and recycling of materials to avoid wastage and spending money on fresh materials.

Hillerbradt and Hughes (2016) reported that the costs of procurement such as transaction costs are separated from the direct costs of a project. The author has concentrated on costs of tendering in procurement; which are money costs and opportunity costs, short-term and long-term costs, private and social costs which were defined and examined in relation to different types of product and methods of procurement. The costs of contractor and client are considered as uncertain to those who bear the costs in the short-run and in the long run.

Cost effectiveness in project could be achieved through strict adherence of procurement functions. The study confirms that NGO are struggling in implementing the procurement functions and practices in their constructional project. Donors

supporting the NGOs project are considered with the methods of procurement that are used in procuring the materials. Aputo (2017) established effects of procurement function on project performance in NGOs in Nairobi. Descriptive design was used in the study. From the findings it was revealed that assessment, supplier sourcing and inventory management on project construct management. Finally the study concluded that the procurement functions have a positive effect on project performance therefore the NGOs need to implement the procurement practices in the execution of project.

Odero and Shiteswa (2017) aimed at establishing on the effect of procurement practices on public sugar manufacturing. The study employed descriptive survey research design. The study findings revealed that the procurement planning had a positive impact on project performance in the sugar manufacturing firm especially in management of cost. Further the study recommends the organizations to enhance their planning and to ensure the procurement is well adhered and the employee need to be well trained so as to adapt the procurement practices.

#### **2.4.2 Effects of Procurement Procedures on Quality Performance**

Meeting customer's satisfaction involves making comparison between perception of purchase of customer before and after purchase. These give customers final feelings about whether the outcome provides satisfying or dissatisfying experience. The concept of quality is related to customer's satisfaction, which is connected to the construction industry. Owiti (2017) assessed on the effect of procurement processes on successful completion construction project in Uasin Gishu. The study adopted descriptive design where SPSS (Version 20) was used to analyze the data. From the study results it was revealed that control, regulations, and assurance have 74.7% of the

variation in successful completion of construction. For that case procurement procedures are considered to play a great role in maintaining quality of the project.

Jeptepkeny (2015) aimed at determining the effects of procurement procedures on project performance in Kenya. Survey of 6 construction projects was used where purposively sampling was adopted. The study analyzed data through descriptive statics and regression analysis. From the study results it was confirmed that invitation to bid accounts for 6.7% of variation in project quality performance, contract negation accounts 29.4% of the variation in project quality performance and lastly bid evaluation accounts for 58.5% of the project quality performance. Lastly the study concludes that procurement procedures have a strong and positive correlation with project performance in Kenya.

Procurement procedures are considered to be the best tool that helps the government in their budget formation and in improving the quality of service delivery. Tweneboah (2017) aimed at examining the effectiveness and economic impact on public financial administration capacity in procurement. Descriptive survey was adopted in the study; from the findings it was revealed that the top management interfere the procurement process and this had a great impact in the quality of the construction industry. Lastly the study concludes that there is a great need of the top level management to stop hindering the procurement process since they do not give value for money.

Ogunsanya *et al* (2019) came up with a notion that procurement is an arrangement that defines contractual processes, risk allocation, funding patens, work structure and the

relationship between parties on project. The study aimed at identifying the challenges that face construction procurement in developing nations. Exploratory qualitative study was adopted in the study. Findings from the study revealed that there is improper implementation of legislative framework, funding, corruption inadequate knowledge of practitioners of procurement methods, unstable economic environment are the factors affecting public procurement in Nigeria.

Erick (2016) focused on the effect of procurement procedure on organization performance at Moi and referral hospital, Eldoret. The study adopted case study research design in collecting the relevant information. Stratified sampling and simple random sampling techniques were employed. The study discovered that the use of procurement procedure helped the organization to make good plan of the material hence it enhanced organizational performance and increased financial stability within the organization and provide quality services within the organization.

#### **2.4.3 Effects of Procurement Procedures on Time Performance**

Time management is an important feature in constructional projects. Procurement procedures are among the factors that lead to delay in the construction industry. However in Malaysia the quality of time management on construction project is said to be poor. Lok (2015) aimed at examining time practice on construction project in Malaysia. Questionnaires were distributed to the respondents. On the study findings it was revealed that the procurement method requires a lot of documentation of which the project managers had a great responsibility where majority of the respondents preferred to keep progress reports of construction on paper of which was time consuming.

Anane *et al* (2019) this study was conducted to determine effect of procurement policy, planning and sustainable procurement on service delivery and time management. The study employed a quantitative research approach and explanatory design. The target population for the study was staff and management of the Volta River Authority (VRA). From the model estimation, procurement policy was the strongest predictor of service delivery and time management followed by sustainable procurement and lastly procurement planning. The study recommends that the management of VRA should constantly invest in sustainable procurement, procurement planning and procurement policy so as to enhance service delivery to the public.

Mgawe and Masanja (2018) assessed on the influence of procurement practices on performance of construction project in Tanzania. The study focused on national housing corporation (NHC). Descriptive- explanatory was used to allow detailed description and analysis of the variables. The study findings revealed that the procurement practices influence performance of construction. Contract monitoring and control reduced risk and triggers effort to search for solution to the identified threats to the project success. The study lastly concludes that performance of construction project is influenced by adoption of procurement practices. Therefore NHC resources need to apply proper procurement procedures so as to enable development and less wastage in the company.

Onyango (2016) carried out the study on the effect of procurement procedures on the operational performance of private institution. Stratified random sampling technique was used to select the sample of 142 respondents and data were collected through

open ended questionnaire. The study revealed a positive relationship between compliance of public procurement regulations procedures and performance of private sector.

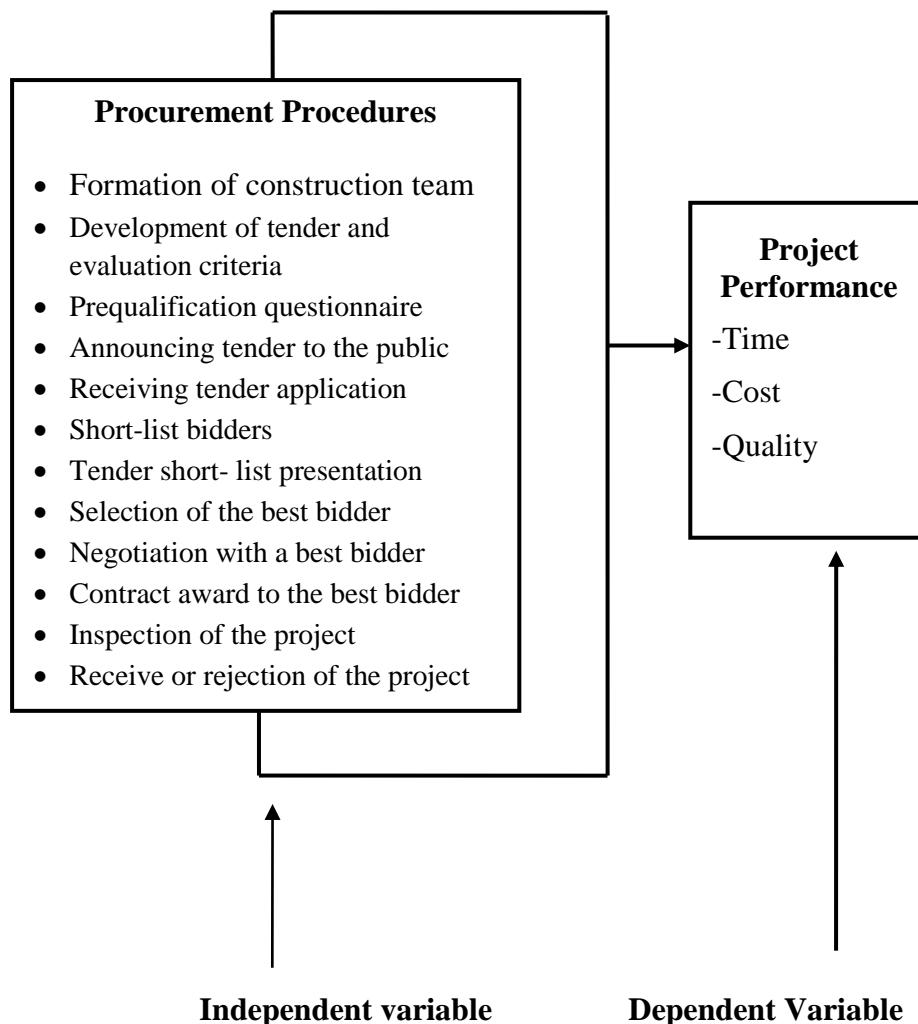
Luka (2016) focused on achieving efficiency and effectiveness in the procurement department so as to improve organizational performance. Questionnaire was used so to collect information from the respondent. The study commented that there is a need of building robust relationships with the key suppliers to guarantee unfailing supply and quality inputs. The inventories manufacturing companies must assess where their greatest investments are made and the benefits that procurement can bring to each category after significant investments are made in machinery, equipment and facilities, the next largest investment should be made in inventories.

## **2.5 Research Gap**

Lancaster (2005) defined research gap as the area of study that miss insufficient information and limits the ability to reach the conclusion. The study have discovered that from the empirical review little have been mentioned on road constructional project specifically on the procurement practices. However past researchers could not find out how quality time and cost affected performance of public project. Also the theories have not given a clear picture on how procurement procedures affect public projects rather they have insisted on the factors that effected performance of public project. The conducted study focused on the effect of procurement procedures on the performance of public project basing on the quality cost and cost specifically in the road construction project in Temeke municipal.

## 2.6 Conceptual Framework

Conceptual framework is the approach that is applied to show graphical form of the points to be discussed in the study Babbie 2001). Conceptual framework explains the way knowledge formulates basis of the research study.



**Figure 2.1: Conceptual Framework of the Study**

Source: Conceptualized from Literature Review (2020)

The conceptual framework of the conducted study has two sets of variables, which are independent variable and dependent variable. Independent variable is the variables that do not depend on any other variable while the dependent variable is the variable

that depends on independent variable. Independent variable of the conducted study involves procurement procedures while the dependent variable involves project performance.

The procurement procedures involves formation of construction team which is responsible in organizing procurement activities, developing tender and evaluation criteria, prequalification questionnaire, announcing tender to the public, receiving tender application, short-listing of bidders, tender short- listing presentation, selection of the best bidder, negotiation with a best bidder, contract award to the best bidder, inspection of the project and finally receiving or rejection of the project. Meanwhile, the procurement performance is measured by time taken to complete project, cost of the project and quality of the project. This conceptual framework believed that better project performance can be attained when proper procurement procedures are followed.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

Methodology is the component of research, which explains methodological procedure used in performing a research study. Saunders,Lewis, and Thornhill (2012) research methodology can be referred as the common standard or values, which expresses the whole research procedure. The chapter explains how the study was conducted, designed and how data was collected, analyzed as well as validity and reliability of the study findings and lastly ethical consideration of the study.

#### **3.2 Research Philosophy**

Research philosophy deals with nature, source and development of knowledge Thakurta and Chetty (2015) research philosophy involves beliefs, ways used to collect and analyze data. Research philosophy helps researcher to reflect the assumptions as a base of research strategy. Saunders, Lewis and Thornhill (2009) described research philosophy as the ontology (based on nature of reality classified based on objectivism and subjectivism), epistemology (acceptable knowledge of particular area of study) and axiology (concerned with judgments, ethics and aesthetics). The conducted study was guided with pragmatism research philosophy. Saunders,Lewis, and Thornhill (2012) this is the type of philosophy that accepts concepts to be relevant only when they support action. Pragmatism philosophy gave the researcher freedom to use any methods, techniques and procedures associated with quantitative and qualitative research. It recognizes that; each method has its limitations thus different methods could be complementary.

Ontology involves the researcher's view of the nature of reality External; multiple enables the researcher to answer the research questions. Epistemology involves the researcher view regarding what constitutes acceptable knowledge. Involves provide acceptable knowledge dependent upon the research question. Focus on applied research integrating different perspectives to help interpret data. Axiology involves researcher's view of the role of values in research; values play a large role in interpreting results the researcher used both objectives and subjective point of view.

### **3.3 Research Strategy**

Research strategy is defined as the structure of research that holds all the elements of research (Kothari, 2006). The conducted study used case study research strategy since information was collected from different sources and different types of data such as interview and questionnaire. Also the strategy allowed investigation of contemporary phenomena within real-life context, mostly applied when boundaries between phenomenon and context are not clearly evident and it allowed the researcher to use both qualitative and quantities method.

### **3.4 Research Design**

Lancaster (2005) described study design as the situation that researcher collects and analyzes research data so as to attain the goal of doing research. Selecting research design depends with the nature of the study, study questions, hypothesis and the variables used in the study. The conducted study used descriptive research design. Maxwell (1992) described research design as the systematic research design that allows collection of qualitative and quantitative data from the targeted sample

population. Kothari (2006) added that descriptive research design describes the characteristics of the place, individual or a certain group of people, which are observed under study. Descriptive research design helped researcher to provide description of places groups and individuals.

### **3.5 The Study Population**

Cooper and Schindler (2006) study population is the study of individuals in the study or can be described individual events or objective with common observable characteristics and meets certain criteria. Mugenda and Mugenda (2008) noted that study population is not necessarily to involve only people but also objects could be part of the studied population. The conducted study was grouped into individual population and object population. Human population involved officers of procurement department within the study area were 27 in total and officers of construction department were 5 in total. Also the study involved 52,582 residents of Mbagala ward. Object population involved road constructed within Mbagala Ward of Temeke Municipality.

### **3.6 The Study Area**

Study area refers to interdisciplinary of research pertaining to particular geographical, cultural, region, nation where the study is limited (Babbie 2001). The study was conducted in Dar es Salaam specifically in Mbagala ward, Temeke district which is located in the southern part of Dar es Salaam, in the north it's located near Kinondoni district and in the southern part is located near Ilala district. In the east is located near Indian Ocean and west is the Coastal region of Tanzania. The national census report of 2012 population was about 52,582 in Mbagala ward.

### **3.7 Sample Design and Procedure**

Mugenda and Mugenda (2008) described study sample as the small part of population taken from the target population. In other word, it can be considered as the subset of target population. There are two types of sampling technique, which are probability and non-probability sampling technique. When total number of individuals is known in targeted population the researcher is required to use probability sampling technique and when it is not known the researcher is advised to use the non probability sampling technique.

Concerning individual population the study used simple random sampling (type of probability sampling technique) since the total number of population was known. For the object population, researcher will use purposive sampling technique (type of non probability sampling technique) to select roads, which were constructed within the last three years.

### **3.8 Sample Size**

Kull (1984) described sample size as the small number of objects or individuals selected from the entire study population using systematic formula. The sample size of the conducted study was obtained using formula proposed by Yamane (1967) for the known population. Where; N is the population, n is the sample size, e is the error term. The study will use 90% degree of accurate therefore the error time was 10% or 0.1.

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

TLG Procurement department of road construction in Mbagala ward:

$$n = \frac{27}{1 + 22(0.1)^2}$$

$$n = \frac{27}{1.27}$$

$$\underline{n = 21}$$

TLG Construction department of road construction in Mbagala ward:

$$n = \frac{5}{1 + 5(0.1)^2}$$

$$n = \frac{5}{1.05}$$

$$\underline{n = 4}$$

The study identified that; 27procurement department and 5 road construction departments in within the study respectively. Therefore by using the formula above the researcher picked 21 procurement officers and4 constructions respectively.

Below is the calculated sample size for Mbagala residents of Temeke municipality

$$n = \frac{52,582}{1 + 52,582 (0.1)^2}$$

$$n = \frac{52,582}{526.82}$$

$$\underline{n = 99.8 \approx 100}$$

Researcher selected 100 residents in Mbagala ward. All together individual sample size was125individuals

### **3.9 Data Collection**

This part explains how data was collected in order to reach conclusion of the study. The study collected both primary and secondary data whereby; Secondary data helped in obtaining information that was already available and primary data helped in obtaining the raw information, which were needed in the study.

#### **3.9.1 Questionnaire**

Mugenda and Mugenda (2008) described questionnaire as the tool used by researcher in collecting data from individuals using planned list of questions. The study questionnaire involved closed ended questions, which allowed respondent to select the provided options structured by researcher. During data collection each respondent was given the same copy of questions to answer so as remove biasness and confusion in data collection.

#### **3.9.2 Interview**

The study conducted face to face interview methods in collecting the necessary information. Interview method was conducted to procurement officer, construction officers and Mbagala.

### **3.10 Data Analysis**

The study involved coding method was applied to convert qualitative data to quantitative. Then SPSS (version 20) was applied in the numerical analyses so as to provide answers to the specific questions. Descriptive analysis and regression analysis was performed in order to determine strength of the study variables. The descriptive analysis involved calculation of frequency, mean and percentage while multiple linear

regressions was used to establish relationship between independent variables (Procurement procedures) and dependent variable (Project performance).

According to Coakes and Ong, (2011) regression analysis is used to examine how two or more variables act together to affect the dependent variable. However coefficient of determinant (Adjusted R square) was used to explain percentage to which independent variables affect dependent variable. And the correlation coefficient (R-square) explained how independent variable was related to dependent variable.

### **3.11 Validity and Reliability of the Study**

This part explains on the validity and reliability of the study.

#### **3.11.1 Validity**

Petty (2009) validity refers to the extent to which the study measures what is intended to measure. The objective of the study focused on the types of validity, which are construct validity and external validity.

Construct validity refers to the process of establishing the correct operational measures for the studied concepts. This was ensured through re-examining data entered in the analytical software (SPSS) so as make sure that the answer(s) were correct.

External validity aims at determining if study findings are possible to generalize beyond the immediate case study. Since the study was carried out in Mbagala ward in Temeke district. Then the obtained information involved a small part which makes the results not to be generalized beyond this ward.

### **3.11.2 Reliability**

Reliability refers to the extent to which study findings are dependable over time and they present the total population of the study Joppe (2000). Chronbach's coefficient alpha is designed as a measure of internal consistency that identifies if all items within the instrument measure the same thing. The study considered Cronbach's alpha of 0.7 to test reliability of the data collected. The normal range of Chronbach's coefficient alpha value is between 0.0 and 1.0. The closer the Alpha is to 1.0, meaning that the greater the internal consistency of items in the instrument being assumed.

The study reliability was tested into groups; the first group involved the dependent variable, which had 3 items, which are cost, quality and time performance of public projects with Cronbach's Alpha of 0.849.

The second group involved Independent Variables with 12 items which are formation of procurement team, development of tender and evaluation criteria, prequalification questionnaire, issuing of tender, pre-tender meetings/receiving tender application, short-list bidders, tender short- list presentation, selection of the best bidder, negotiation with a best bidder, contract award to the best bidder, inspection of the project, receive or rejection of the project and Cronbach's Alpha of 0.941.

The third group involved Mbagala residents, which had 5 items, which are road signs and symbols, pedestrian pathways, smoothness of the road, roads lights and sharp corners. With Cronbach's Alpha of 0.897. This results revels that the conducted study was reliable.

**Table 3.1: Study Reliability**

| <b>Variables</b>  | <b>N of Items</b> | <b>Cronbach's Alpha</b> |
|-------------------|-------------------|-------------------------|
| Dependent         | 3                 | 0.849                   |
| Independent       | 12                | 0.941                   |
| Mbagala residents | 5                 | 0.897                   |

Source: Field data

### **3.12 Ethical Issues**

Ethical issues involve researcher's behavior during the processes of collecting data from the respondents. The study assured all the ethical issues were considered during the processes of data collection by achieving respondent's privacy; all information obtained from the respondent was secured and used only for academic purpose.

## **CHAPTER FOUR**

### **DATA ANALYSIS, DISCUSSION**

#### **4.1 Introduction**

This chapter presents discussions and findings were obtained from both primary and secondary source of information focusing on the effect of procurement procedures on performance of road construction project. This chapter is also presented into two groups, which are demographic of respondent and the study results.

#### **4.2 Demographic of Respondents**

The results below present the background of respondents concerning age of respondent, education and experience of the respondents. Descriptive analysis was performed using cross tabulation in presenting the total percentages of the respondents.

So far the study involved 21 procurement officers from TLG, 4 road contractor officers from TLG and 100 Mbagala residences making a total of 125 respondents located within the study location. Also the study involved three groups of respondents, which are procurement officers, road constructor and Mbagala residents.

#### **4.3 Age of Respondent**

This part explains the age of respondent with aim of identifying the group age involved in the study. Whereby; the study involved respondents who were aged below 18 years up those respondents who were aged 60years. Table 4.1 below presents the number of respondents who participated in the study.

**Table 4.1: Age of Respondent**

| Respondent Age |                                 | Category of respondent |                  |                   | Total  |
|----------------|---------------------------------|------------------------|------------------|-------------------|--------|
|                |                                 | Procurement            | Road Constructor | Mbagala residence |        |
| <18 years      | Frequency                       | 0                      | 0                | 8                 | 8      |
|                | % within Category of respondent | 0.0%                   | 0.0%             | 8.0%              | 6.4%   |
| 19-29years     | Frequency                       | 8                      | 1                | 28                | 37     |
|                | % within Category of respondent | 38.1%                  | 25.0%            | 28.0%             | 29.6%  |
| 30-40years     | Frequency                       | 5                      | 2                | 28                | 35     |
|                | % within Category of respondent | 23.8%                  | 50.0%            | 28.0%             | 28.0%  |
| 41-51years     | Frequency                       | 5                      | 0                | 24                | 29     |
|                | % within Category of respondent | 23.8%                  | 0.0%             | 24.0%             | 23.2%  |
| 52-60 years    | Frequency                       | 3                      | 1                | 12                | 16     |
|                | % within Category of respondent | 14.3%                  | 25.0%            | 12.0%             | 12.8%  |
| Total          | Count                           | 21                     | 4                | 100               | 125    |
|                | % within Category of respondent | 100.0%                 | 100.0%           | 100.0%            | 100.0% |

Source: Field data (2020)

Table 4.1 above presents age of respondents who were aged below 18 years made a total of 8(6.4%)of all respondents, 19 to 29 years made a total of 37(29.6%) of the whole respondents, 30 to 40 years made a total of 35(28.0%)of all respondents, 41 to 51 years made a total 29(23.2%)of all respondents and lastly those who were aged between 52 to 60 years made a total of 16(12.8%) of all respondents. This implies that the study collected information from the different age groups.

#### 4.4 Education Level

The study was also interested in identifying the education level of respondents. The study involved respondents with secondary education, Bachelor degree and postgraduate degree. Results are presented in Table 4.2.

**Table 4.2: Education Level**

| <b>Education of respondent</b> |                                 | <b>Category of respondent</b> |                         |                          | <b>Total</b> |
|--------------------------------|---------------------------------|-------------------------------|-------------------------|--------------------------|--------------|
|                                |                                 | <b>Procurement</b>            | <b>Road Constructor</b> | <b>Mbagala residence</b> |              |
| Secondary                      | Frequency                       | 0                             | 0                       | 10                       | 10           |
|                                | % within Category of respondent | 0.0%                          | 0.0%                    | 10.0%                    | 8.0%         |
| Diploma/Technical              | Frequency                       | 4                             | 1                       | 20                       | 25           |
|                                | % within Category of respondent | 19.0%                         | 25.0%                   | 20.0%                    | 20.0%        |
| Bachelor degree                | Frequency                       | 12                            | 2                       | 51                       | 65           |
|                                | % within Category of respondent | 57.1%                         | 50.0%                   | 51.0%                    | 52.0%        |
| Post-graduate degree           | Frequency                       | 5                             | 1                       | 19                       | 25           |
|                                | % within Category of respondent | 23.8%                         | 25.0%                   | 19.0%                    | 20.0%        |
| Total                          | Frequency                       | 21                            | 4                       | 100                      | 125          |
|                                | % within Category of respondent | 100.0%                        | 100.0%                  | 100.0%                   | 100.0%       |

Source: Field data (2020)

Table 4.2 presents education level of respondent whereby; those with secondary education were 10(8.0%) of all respondents, diploma/technical presented 25 (20.0%)of the all respondent, bachelor degree presented 65(52.0%)of the all respondents and post-graduate degree presented 25 (20.0%) of all respondents. This implies that the study was able to analyze the level of understanding from respondents with different level of education.

#### **4.5 Experience of Respondents**

The study was interested in identifying experience of respondents concerning the performance of road construction projects in Tanzania. The study involved

respondents who had experience of below 2 years up to those who had experience of more than 17 years. Results are presented in Table 4.3.

**Table 4.3: Experience of Respondents**

| Experience  |   | Category of respondent |                  |                   | Total          |
|-------------|---|------------------------|------------------|-------------------|----------------|
|             |   | Procurement            | Road Constructor | Mbagala residence |                |
| < 2 years   | Frequency % within Category of respondent | 3<br>14.3%             | 0<br>0.0%        | 12<br>12.0%       | 15<br>12.0%    |
| 2-6 years   | Frequency % within Category of respondent | 3<br>14.3%             | 1<br>25.0%       | 12<br>12.0%       | 16<br>12.8%    |
| 7-11 years  | Frequency % within Category of respondent | 7<br>33.3%             | 1<br>25.0%       | 36<br>36.0%       | 44<br>35.2%    |
| 12-16 years | Frequency % within Category of respondent | 7<br>33.3%             | 2<br>50.0%       | 36<br>36.0%       | 45<br>36.0%    |
| >17 years   | Frequency % within Category of respondent | 1<br>4.8%              | 0<br>0.0%        | 4<br>4.0%         | 5<br>4.0%      |
| Total       | Frequency % within Category of respondent | 21<br>100.0%           | 4<br>100.0%      | 100<br>100.0%     | 125<br>100.0 % |

Source: Field data (2020)

Table 4.3 present's experience of respondent concerning the performance public projects; respondents who had experience below 2 years were 15(12.0%)of all respondents, between 2 to 6 years were 16(12.8%)of all respondents, 7 to 11 years were 44(35.2%)of all respondents, 12 to 16 years were 45(36.0%) of all respondents and above 17 years were 5(4.0%) respondents. This implies that the study was able to analyze the level of understanding from people with different experience.

#### **4.6 Study Results**

This section analyses the main findings of the study, which ware presented as per specific objective. Mainly the study focused on three objectives which are to: identifying effects of procurement procedures on cost performance of public project,

examining effects of procurement procedures on quality performance of public project and determining effects of procurement procedures on time performance of public project. The quantitative data are presented in tables while qualitative data are presented in summary. Data were analyzed using descriptive analysis and multiple linear regressions in all objectives.

#### **4.7 Procurement Procedures of Public Projects**

The study used descriptive analysis in identifying the procurement procedures that were involved in road construction project. Mainly the study focused on procurement officers and road constructors within the study area. The variables were presented in Likert scale with possible answers ranging from 1=Very low(VL), 2=Low(L); 3=Average(A), 4=High(H) and 5=Very high(VH). Results are presented in Table 4.4

**Table 4.4: Procurement Procedures**

| Variables  | VL | L | A | H  | VH | N  | Mean |
|--|----|---|---|----|----|----|------|
| Formation of construction team                   | 3  | 1 | 4 | 4  | 12 | 25 | 3.71 |
| Development of tender and evaluation criteria    | 5  | 0 | 3 | 10 | 7  | 25 | 3.48 |
| Prequalification questionnaire                   | 1  | 4 | 7 | 5  | 8  | 25 | 3.33 |
| Issuing of tender                                | 2  | 4 | 3 | 8  | 8  | 25 | 3.38 |
| Pre-tender meetings/receiving tender application | 2  | 2 | 6 | 11 | 4  | 25 | 3.43 |
| Short-list bidders                               | 1  | 2 | 1 | 7  | 14 | 25 | 3.52 |
| Tender short- list presentation                  | 5  | 2 | 2 | 6  | 10 | 25 | 3.29 |
| Selection of the best bidder                     | 1  | 5 | 4 | 8  | 7  | 25 | 3.33 |
| Negotiation with a best bidder                   | 1  | 5 | 2 | 6  | 11 | 25 | 3.62 |
| Contract award to the best bidder                | 3  | 4 | 3 | 10 | 5  | 25 | 3.29 |
| Inspection of the project                        | 5  | 0 | 3 | 6  | 11 | 25 | 3.71 |
| Receive or rejection of the project              | 2  | 5 | 3 | 8  | 7  | 25 | 3.43 |
| <b>Mean Interpretation</b>                       |    |   |   |    |    |    |      |
| 4.21-5.00 = Very highly used                     |    |   |   |    |    |    |      |
| 3.41-4.20= Highly used                           |    |   |   |    |    |    |      |
| 2.61-3.40= Moderate used                         |    |   |   |    |    |    |      |
| 1.81-2.60= Low used                              |    |   |   |    |    |    |      |
| 1.00-1.80= Very low used                         |    |   |   |    |    |    |      |

Source: Field data (2020)

Table 4.4 presents the results of procurement procedures in frequencies and mean values. Formation of construction team was highly used in construction projects (3.71), development of tender and evaluation criteria highly used (3.48), prequalification questionnaire was moderately used (3.33), issuing of tender was moderately used 3.38, pre-tender meetings/receiving tender application was highly used (3.43), short-list bidders was highly used (3.33), tender short- listing presentation was moderately used (3.29), selection of the best bidder was moderately used (3.52), negotiation with a best bidder was highly used (3.48), contract award to the best bidder had was moderately used(3.29), inspection of the project was highly used (3.29) and lastly receiving or rejecting the project was highly used (3.43).

#### **4.7.1 Procurement Procedures on Cost Performance of Public Projects**

The first objective of the study aimed at identifying procurement procedures on cost performance of public project. Data for this objective were obtained from procurement officers and road constructors using questionnaire. The variables ware presented in Likert scale ranging from 1=Very Low (VL), 2=Low (L); 3=Average (A), 4=High (H) and 5=Very High (VH). The findings were subjected to descriptive analysis and regression analysis. Descriptive results are shown on the Table 4.5 and the regression analysis is presented in Table 4.6.

**Table 4.5: Cost Performance of Public Projects**

| Responses    | Frequency | Percentage |
|--------------|-----------|------------|
| Very low     | 8         | 32         |
| Low          | 0         | 0          |
| Average      | 1         | 4          |
| High         | 15        | 60         |
| Very High    | 1         | 4          |
| <b>Total</b> | <b>25</b> | <b>100</b> |

Source: Field data (2020)

Those who graded very high were 8 officers presenting 32% of the all officers, those average response was graded with 1 respondent presenting 4% of the all officers, High response was graded with 15 officers presenting 60% of all officers and very high response was graded with 1 respondent presenting 4% of the all officers.

Researcher went ahead in analyzing how procurement procedures influence cost performance in Temeke municipality. This was done through multiple linear regression analysis. Table number 4.6 has the results of that regression analysis.

**Table 4.6: Effect of Procurement Procedures on Cost**

| Model  | Unstandardized Coefficients |            | t     | Sig.  |
|--|-----------------------------|------------|-------|-------|
|  | B                           | Std. Error |       |       |
| (Constant)                                       | 2.152                       | 1.955      |       | 0.303 |
| Formation of construction team                   | 0.201                       | 0.576      | 0.349 | 0.736 |
| Development of tender and evaluation criteria    | 0.224                       | 0.562      | 0.200 | 0.700 |
| Prequalification questionnaire                   | 0.364                       | 0.584      | 0.283 | 0.551 |
| Issuing of tender                                | 0.448                       | 0.559      | 0.388 | 0.446 |
| Pre-tender meetings/receiving tender application | 0.815                       | 0.839      | 0.663 | 0.360 |
| Short-list bidders                               | 1.768                       | 0.740      | 1.376 | 0.044 |
| Tender short- list presentation                  | 0.231                       | 0.654      | 0.247 | 0.733 |
| Selection of the best bidder                     | 1.817                       | 1.247      | 1.999 | 0.183 |
| Negotiation with a best bidder                   | 2.049                       | 0.867      | 2.167 | 0.046 |
| Contract award to the best bidder                | 0.623                       | 0.978      | 0.499 | 0.542 |
| Inspection of the project                        | 0.619                       | 0.740      | 0.592 | 0.427 |
| Receive or rejection of the project              | 0.724                       | 0.519      | 0.700 | 0.201 |
| <b>R-squire interpretation</b>                   |                             |            |       |       |
| 0.1-0.2= Very weak correlation                   |                             |            |       |       |
| 0.21- 0.4= Weak correlation                      |                             |            |       |       |
| 0.41- 0.6= Moderate correlation                  |                             |            |       |       |
| 0.61- 0.8= Strong correlation                    |                             |            |       |       |
| 0.81- 1.0= Very strong correlation               |                             |            |       |       |
| R-squire=0.573 Adj R-squire= 0.670               |                             |            |       |       |

Source: Field data

The study results revealed that procurement procedures used by Temeke municipality has moderate correlation with cost performance in road construction project ( $R^2$ =0.573). Further it was detected that procurement procedures used by Temeke municipality could contribute up to 67% of the cost performance of road construction ( $Adj\ R^2= 0.670$ ). It was found that procurement factors which could have significant power to predict cost performance in road construction was short listing of bidders ( $p-value=0.44$ ) and negotiation with best bidder ( $p-value=0.46$ ). The remaining factors could not statistically significantly predict cost performance in road construction since their probability values were found to be greater than 0.05. Below is the discussion of the obtained results relating to short listing of bidders and negotiation with best bidders.

#### **4.7.1.1 Short Listing of Bidders**

The study discovered that project manager and the construction committee had the authority of short listing the applications, which were requested for the construction project. Also the construction committee selects the applicant who is able to undertake the project at reasonable costs. One among the officer who was interviewed concerning effect of procurement procedures on cost performance confirmed that;

*“It’s true that we receive many applications concerning construction project but we have the tendency of short listing the bidders who will suit for the project mainly focusing on the actual costs that would be required in constructing the project”.*

Aputo (2017) declared that short listing allows the project manager in making selection of the best bidder that could be used in the construction project. The project manager is able to select suppliers or contractors focusing in minimizing the

construction work. Assessment is conducted on the shortlisted bidders so as to confirm if they fit with the project requirements. The study further states that the construction committee needs to short list the best supplier so as to obtain best results of the project. If constructors failure to short list the bidder's results into construction problems which leads to poor performance this was cited by (Toor and Ogunlana (2008).

#### **4.7.1.2 Negotiation with Best bidder**

The study revealed that negation is one of the best ways that could be used in reducing cost of construction. One among the officer who was interviewed reported that;

*"It is a good thing that we get chance to negotiate with our bidders before selecting the best bidder; bidders are able to make estimations of the actual costs that would be used in road construction projects. After that the construction committee gets to identify the best bidder who suits for the project construction"*

Marie (2018) highlights that; the Tanzanian procurement procedures necessitate contract negotiation in projects where discussion between the parties is considered so as to reach agreement. Also the study reveals that it is through negotiation that the committee gets to identify bidder's intention towards the project.

#### **4.7.2 Procurement Procedures on Quality Performance of Public Project**

The second objective examined effect of procurement procedures on quality performance of public project. The objective focused on LGA and Mbagala residents. Table 4.7 presents results obtained from the LGA officers whereby; the results are presented in Likert scale ranging from 1=Very low (VL), 2=Low (L); 3=Average (A), 4=High (H) and 5=Very high (VH).

**Table 4.7: Quality Performance of Public Project**

| <b>Variables</b> | <b>Frequency</b> | <b>Percent</b> |
|------------------|------------------|----------------|
| Very low         | 0                | 0.0            |
| Low              | 5                | 23.8           |
| Average          | 5                | 23.8           |
| High             | 7                | 33.3           |
| Very High        | 4                | 19.0           |
| <b>Total</b>     | <b>21</b>        | <b>100.0</b>   |

Source: Field data (2020)

There was no respondent who reveled that procurement procedures on quality performance was very low presenting 0% of all officers, however 5 officers reported the procurement procedure on quality performance was low presenting 23.8% of all officers, 5 officers neither agreed nor disagreed on quality performance presenting 23.8% of all officers, 7 officers responded on high performance presenting 33.3% of all officers while 4 officers responded very high presenting 19% of all officers.

**Table 4.8: Effect of Procurement Procedures on Quality Performance**

| <b>Model</b>                                     | <b>Unstandardized Coefficients</b> |                   |             | <b>t</b> | <b>Sig.</b> |
|--|------------------------------------|-------------------|-------------|----------|-------------|
|  | <b>B</b>                           | <b>Std. Error</b> | <b>Beta</b> |          |             |
| (Constant)                                       | 0.049                              | 0.455             |             | 0.108    | 0.917       |
| Formation of construction team                   | 0.138                              | 0.134             | 0.187       | 1.033    | 0.332       |
| Development of tender and evaluation criteria    | 0.106                              | 0.131             | 0.130       | 0.812    | 0.440       |
| Prequalification questionnaire                   | 0.199                              | 0.136             | 0.213       | 1.467    | 0.181       |
| Issuing of tender                                | 0.086                              | 0.130             | 0.103       | 0.663    | 0.526       |
| Pre-tender meetings/receiving tender application | 0.190                              | 0.172             | 0.204       | 0.106    | 0.301       |
| Short-list bidders                               | 0.492                              | 0.195             | 0.551       | 2.520    | 0.036       |
| Tender short- list presentation                  | 0.130                              | 0.152             | 0.192       | 0.857    | 0.416       |
| Selection of the best bidder                     | 0.035                              | 0.290             | 0.052       | 0.119    | 0.908       |
| Negotiation with a best bidder                   | 0.008                              | 0.202             | 0.011       | 0.039    | 0.970       |
| Contract award to the best bidder                | 0.375                              | 0.228             | 0.413       | 0.647    | 0.138       |
| Inspection of the project                        | 0.115                              | 0.172             | 0.151       | 0.668    | 0.523       |
| Receive or rejection of the project              | 0.119                              | 0.121             | 0.159       | 0.989    | 0.352       |
| <b>R-squire interpretation</b>                   |                                    |                   |             |          |             |
| 0.1-0.2=   | Very weak correlation              |                   |             |          |             |
| 0.21- 0.4=                                       | Weak correlation                   |                   |             |          |             |
| 0.41- 0.6=                                       | Moderate correlation               |                   |             |          |             |
| 0.61- 0.8=                                       | Strong correlation                 |                   |             |          |             |
| 0.81- 1.0=                                       | Very strong correlation            |                   |             |          |             |

R-squire=0.956 Adj R-squire= 0.891

Source: Field data (2020)

Procurement procedures used by Temeke municipality has very strong correlation with quality performance in road construction project ( $R\text{-square}=0.956$ ). Additional it was detected that procurement procedures used by Temeke municipality could contribute up to 89.1% of the quality performance of road construction ( $\text{Adj } R\text{-square}=0.891$ ). It was established that procurement factors which could have significant power to predict quality performance in road construction was shortlist bidders ( $p\text{-value}=0.036$ ) the remaining factors could not statistically significantly predict quality performance in road construction since their probability values were found to be greater than 0.05.

#### **4.7.2.1 Short list of Bidders**

Short listing of bidders has been discovered to be the best procedure that helped in quality performance of public projects in Temeke municipality. Through short listing of bidders TLG was able to select best constructor of road construction. One among the officer who was interviewed concerning procurement procedures on quality performance stated that;

*“During short listing the best bidders are selected in terms of qualification materials to be used and experience all this aspect was found to be considered in selecting the bidders”.*

However Jeptepkeny (2015) asserts that during bidder short listing the construction committee needs to consider the necessary requirement that needs to be achieved within the project. A list of requirement is checked across the bidders requirement by doing this the TLG is able to achieve the requested item. Agency theory believes that; selecting the best bidder as the agent leads to good performance of the project activities since the bidder act on behalf of the principle (Eisenhardt, 1989).

#### **4.7.2.2 Resident's Response on Quality Performance on Public**

However the study was also concerned in knowing views of Mbagala residents in Temeke municipality. Descriptive analysis was used to determine quality performance of roads constructed. Results were graded in Likert scale ranging from Very low (VL), Low (L), Average (A), High (H), and Very High (VH). Results are presented in Table 4.9.

**Table 4.9: Residents Response on Quality Performance on Public**

| Variables                         | VL | L  | A  | H  | VH | N   | Mean |
|-----------------------------------|----|----|----|----|----|-----|------|
| Road signs and symbols            | 16 | 26 | 17 | 6  | 35 | 100 | 3.18 |
| Pedestrian Passage                | 23 | 16 | 8  | 32 | 21 | 100 | 3.12 |
| Smoothness of the road            | 25 | 13 | 12 | 28 | 22 | 100 | 3.09 |
| Roads Lights                      | 17 | 27 | 13 | 20 | 23 | 100 | 3.05 |
| Sharp corners                     | 9  | 25 | 14 | 32 | 20 | 100 | 3.29 |
| <b>Mean Interpretation</b>        |    |    |    |    |    |     |      |
| 4.21-5.00 = Very high performance |    |    |    |    |    |     |      |
| 3.41-4.20= Highly performance     |    |    |    |    |    |     |      |
| 2.61-3.40= Moderate performance   |    |    |    |    |    |     |      |
| 1.81-2.60= Low performance        |    |    |    |    |    |     |      |
| 1.00-1.80= Very low performance   |    |    |    |    |    |     |      |

Source: Field data

Table 4.9 above revels that Road signs and symbols were moderate performed with mean score of 3.18, pedestrian passage was moderately performed with mean score of 3.12, smoothness of the road was moderately performed with mean score of 3.09, roads lights was moderately performed with mean score of 3.05, Sharp corners was moderately performed with mean score 3.29.

The study discovered that the roads constructed within the study area considered important requirement for the roads, which run to the urban districts and the areas around the intersection. These roads were well marked with center lines and margin

line, dotted lines and zebra stripes. One among the resident who was interviewed reveled that;

*“The roads that are attached to the main roads are having the road lights, symbol and marks this have been very useful to road pedestrians in realizing identifying the areas that they will be safe while using the roads”*

However the study also revealed that roads running through the streets had few road signs, pedestrian pathways and the road lights. Owiti (2017) reports that a quality road needs to have the pedestrian passages so as to reduce unnecessary accidents that occur unexpectedly. Below are the answers that were reveled from the Mbagala residents of Temeke municipality;

*“TLG has tried it best in constructing good roads that are used in facilitating transportation. But it seems that few of the roads tend to lack the road marks, signs and lights that guide road pedestrian on the areas that need be used.*

#### **4.7.3 Procurement Procedures on Time Performance of Public Project**

The third objective of the study aimed at identifying procurement procedures on time performance of public project. Data for this objective was obtained from TLG officers. The response mode had Likert scale ranging from 1=Very low, 2=Low; 3=Average, 4=High and 5=very high. The findings were subjected to descriptive analysis and regression analysis. Descriptive results are shown on the Table 4.10 and the multiple linear regression analysis is reveled in Table 4.11.

Those who responded procurement procedures affects time management very low was 1 respondent presenting 4% of the all officers, 7 graded at low effect presenting 28% of the all officers, 5 officers neither agreed nor disagreed presenting 20% of all

officers1 officer graded high effect presenting 4% of all respondent and lastly 11 officers graded very high presenting 44% of all officers. Researcher went ahead and analyzed how procurement procedures influence time performance within the study area.

**Table 4.10: Procurement Procedures on Time**

| Response     | Frequency | Percent    |
|--------------|-----------|------------|
| Very low     | 1         | 4          |
| Low          | 7         | 28         |
| Average      | 5         | 20         |
| High         | 1         | 4          |
| Very High    | 11        | 44         |
| <b>Total</b> | <b>25</b> | <b>100</b> |

Source: Field data (2020)

**Table 4.11: Effect of Procurement Procedure on Time Performance**

| Model  | Unstandardized Coefficients |            | Stad. Coefficients | t     | Sig.  |
|--|-----------------------------|------------|--------------------|-------|-------|
|  | B                           | Std. Error |                    |       |       |
| (Constant)                                       | 2.726                       | 1.622      |                    | 1.681 | 0.131 |
| Formation of construction team                   | 1.883                       | 0.719      | 2.058              | 2.619 | 0.031 |
| Development of tender and evaluation criteria    | 0.268                       | 0.466      | 0.247              | 0.576 | 0.581 |
| Prequalification questionnaire                   | 0.700                       | 0.484      | 0.563              | 1.447 | 0.186 |
| Issuing of tender                                | 0.418                       | 0.614      | 0.414              | 0.682 | 0.515 |
| Pre-tender meetings/receiving tender application | 0.502                       | 0.696      | 0.422              | 0.721 | 0.491 |
| Short-list bidders                               | 1.384                       | 0.614      | 1.113              | 2.256 | 0.054 |
| Tender short- list presentation                  | 0.183                       | 0.543      | 0.202              | 0.337 | 0.745 |
| Selection of the best bidder                     | 1.379                       | 1.034      | 1.567              | 1.334 | 0.219 |
| Negotiation with a best bidder                   | 0.334                       | 0.478      | 0.338              | 0.699 | 0.504 |
| Contract award to the best bidder                | 0.598                       | 0.811      | 0.495              | 0.737 | 0.482 |
| Inspection of the project                        | 1.084                       | 0.464      | 0.969              | 2.336 | 0.048 |
| Receive or rejection of the project              | 0.803                       | 0.430      | 0.802              | 1.866 | 0.099 |
| <b>R-squire interpretation</b>                   |                             |            |                    |       |       |
| 0.1-0.2=   | Very weak correlation       |            |                    |       |       |
| 0.21- 0.4=                                       | Weak correlation            |            |                    |       |       |
| 0.41- 0.6=                                       | Moderate correlation        |            |                    |       |       |
| 0.61- 0.8=                                       | Strong correlation          |            |                    |       |       |
| 0.81- 1.0=                                       | Very strong correlation     |            |                    |       |       |
| R-squire=0.687 Adj R-squire= 0.71                |                             |            |                    |       |       |

Source: Field data (2020)

Procurement procedures used by Temeke municipality has strong correlation with time performance in road construction project ( $R\text{-square}=0.687$ ). Further it was detected that procurement procedures used by Temeke municipality could contribute up to 71% of the time performance of road construction ( $\text{Adj } R\text{-square}= 0.71$ ). It was found that procurement factors, which could have significant power to predict time performance in road construction, were inspection of the project ( $p\text{-value}=0.048$ ), formation of procurement team ( $p\text{-value}=0.031$ ). The remaining factors could not statistically significantly predict time performance in road construction since their probability values were found to be greater than 0.05.

#### **4.7.3.1 Formation of Construction Team**

Forming a procurement team was considered to be important in saving time of the project. It's believed that a good team work together and gives good results. Good formation of construction team had a great impact in making selection of best bidders who best qualify for the job offered. One among the officer who was interviewed concerning effect of procurement procedure on time performance of public project reveled that;

*"The construction team is responsible in setting the actual time that the project is expected to be completed focusing on the scope of the project. If the construction committee fails to address the right time to complete the project then will results into mistakes"*

The study connects formation of construction team with theory of construction focusing on time performance in the essence that formation of construction team is responsible in amending the contract that would involve commencement of the project. Barnett (1986) asserts that contract theory is applicable when there is, hidden

information or when there is contractual incompleteness. Also it gives explanations on how people and organization create and develop legal agreements as well as how parties with conflicting interests build formal and informal contracts.

#### **4.7.3.2 Inspection of the Project**

Project inspection was identified to have good performance in time management. The study identified that it is through inspection the construction committee is able to identify the progress and the time that would be required to finish the task. One among the officer who was interviewed concerning effect of procurement procedure on cost performance of public project reported that;

*“Doing inspection in projects allows project manager to identify the percentage of work that has been conducted basing on the agreement moreover; it is through inspection that we are able to identify the mistakes that have been made in the project.”*

Theory of performance management believes that performance could be achieved when the tribulations are well identified. This happens to be true during inspection of the project. At this point problems are early identified before commencement of the project. However inspection was found out be effective in speeding up the activities that were supposed to be accomplished according to the agreement.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter explains on gives the summary of the results obtained in chapter four basing on the specific objectives conclusion of the study, recommendations and area for further studies.

#### **5.2 Summary of the Study**

The study aimed at determining effect of procurement procedures on performance of public project in Temeke municipality. Mainly the study findings were obtained from primary source of information and secondary source of information. Procurement officers and the road constructors through the questionnaires while interview methods was used to Mbagala residence in answering quality of the road. Descriptive analysis and regression analysis was applied in determining the effect of procurement procedures on cost performance. The study focused on three specific objectives which are:- what are the effects of procurement procedures on cost performance of public project? What are the effects of procurement procedures on quality performance of public project? And what are the effects of procurement procedures on time performance of public project?

##### **5.2.1 Procurement Procedures on Cost Performance of Public project**

Using descriptive analysis it was found that; procurement procedure was highly effective on cost performance of public projects in Tameke municipality. On the other side regression analysis confirmed that the procurement procedures used in Temeke

municipality has moderate correlation with cost performance in road construction project. Also it was detected that procurement procedures used by Temeke municipality had high contribute on cost performance of road construction in Temeke municipality Meanwhile short listing of bidders and negotiation with best bidder had significant power in predicting cost performance of road construction while the remaining factors were discovered not statistically predict cost performance in road construction since their probability values were found to be greater than 0.05.

### **5.2.2 Procurement Procedures on Quality Performance of Public Project**

Using descriptive analysis it was found that procurement procedure highly contributed to quality performance of public projects in Temeke municipality. On the other side the study involved the Mbagala residence of Temeke Municipality to grade the quality of roads contracted in Temeke municipality and it was revealed that roads that were constructed within the streets areas failed to have the road lights symbols and signs and the pedestrian passages.

However the regression analysis revealed that the procurement procedures used in Temeke municipality had very strong correlation with quality performance in road construction project constructed in Temeke municipality. Additional it was detected that procurement procedures used by Temeke municipality highly contributed to quality performance of road construction. Moreover shortlist bidders had significant power to predict quality performance in road construction the remaining factors could not statistically significantly predict quality performance in road construction since their probability values were found to be greater than 0.05.

### **5.2.3 Procurement Procedures on Time Performance of Public Project**

using descriptive analysis it was realized that procurement procedures very highly leads to time performance of public projects also the regression analysis revealed that procurement procedures used by Temeke municipality has strong correlation on time performance in construction project Temeke municipality. However it was detected that; procurement procedures used by Temeke municipality had high contributions on time performance of road construction significant power to predict time performance in road construction were inspection of the project and formation of procurement team. The remaining factors could not statistically significantly predict time performance in road construction since their probability values were found to be greater than 0.05.

### **5.3 Conclusion**

Finally the study concludes that performance of public project in Temeke municipality was highly facilitated due to the contribution of procurement procedures on cost performance, quality performance and time performance on public projects constructed in Temeke municipality.

### **5.4 Recommendations**

In order to improve project quality then the study recommends Temeke municipality to put more efforts in short listing bidders so as to have good performance.

However the study recommends that cost effectiveness could be achieved by improving negation system through paying attention on the bidder's requests.

Lastly the study insists on improvement of project inspection so as to identify the course of delay in project completion.

#### **5.4.1 Area for Further Studies**

Since the study was conducted in one ward within the country the study suggests that more research should be conducted in other areas that involves public project so as to widen understanding of the readers.

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## APPENDICES

### **Appendix 1: Questionnaire to procurement officers and road constructor**

#### **Section A: Introduction**

This survey-questionnaire is designed to collect data on the **Effect of Procurement Procedures on Performance of Public Project**. This questionnaire is designed specifically to collect academic data. And it won't be published in any place without your approval. Please select your appropriate choice. Selecting the first choice will require you to complete the questionnaire.

#### **Section B: General information.**

The researcher would like to know the general information of the respondent. Please tick the correct choice

|                            |                      |  |
|----------------------------|----------------------|--|
| Employment category        | Procurement officer  |  |
|                            | Road constructors    |  |
| Your age                   | <18 years            |  |
|                            | 19-29years           |  |
|                            | 30-40years           |  |
|                            | 41-51years           |  |
|                            | 52-60 years          |  |
| Your level of education    | Diploma              |  |
|                            | Bachelor degree      |  |
|                            | Post-graduate degree |  |
| Experience in job location | < 2 years            |  |
|                            | 2-6 years            |  |
|                            | 7-11 years           |  |
|                            | 12-16 years          |  |
|                            | >17 years            |  |

#### **Section C: study questions**

The study wants to assess extent to which the following procurement procedures have been used in the road construction projects. Please indicate how you would rate

usability of the mentioned procurement procedures in (Mbagala ward) Temeke Municipality.

| S/N  | Procurement procedures                           | Used<br>Very<br>rarely | Used<br>rarely | Used<br>sometime | Used<br>often | Used<br>always |
|------|--|------------------------|----------------|------------------|---------------|----------------|
| i    | Formation of construction team                   | 1                      | 2              | 3                | 4             | 5              |
| ii   | Development of tender and evaluation criteria    | 1                      | 2              | 3                | 4             | 5              |
| iii  | Prequalification questionnaire                   | 1                      | 2              | 3                | 4             | 5              |
| iv   | Issuing of tender                                | 1                      | 2              | 3                | 4             | 5              |
| v    | Pre-tender meetings/receiving tender application | 1                      | 2              | 3                | 4             | 5              |
| vi   | Short-list bidders                               | 1                      | 2              | 3                | 4             | 5              |
| vii  | Tender short- list presentation                  | 1                      | 2              | 3                | 4             | 5              |
| viii | Selection of the best bidder                     | 1                      | 2              | 3                | 4             | 5              |
| ix   | Negotiation with a best bidder                   | 1                      | 2              | 3                | 4             | 5              |
| x    | Contract award to the best bidder                | 1                      | 2              | 3                | 4             | 5              |
| xi   | Inspection of the project                        | 1                      | 2              | 3                | 4             | 5              |
| xii  | Receive or rejection of the project              | 1                      | 2              | 3                | 4             | 5              |

The study wants to assess performance of road construction project in (Mbagala ward) Temeke Municipality. You have been given variable of project performance; please show how you would judge performance of road construction in this municipality by referring to the variables given.

| Variables of project performance         | Very-low | Low | Average | High | Very-high |
|--|----------|-----|---------|------|-----------|
| Cost of road construction                | 1        | 2   | 3       | 4    | 5         |
| Time taken to complete road construction | 1        | 2   | 3       | 4    | 5         |
| Quality of road construction             | 1        | 2   | 3       | 4    | 5         |

## **Appendix 2: Questionnaire to Mbagala Residents**

### **Section A: Introduction**

This survey-questionnaire is designed to collect data on the **EFFECT OF PROCUREMENT PROCEDURES ON PERFORMANCE OF PUBLIC PROJECT**. This questionnaire is designed specifically to collect academic data. And it won't be published in any place without your approval. Please select your appropriate choice. Selecting the first choice will require you to complete the questionnaire.

### **Section B: General information.**

The researcher would like to know the general information of the respondent. Please tick the correct choice

|  |                      |  |
|--|----------------------|--|
| Your age   | <18 years            |  |
|  | 19-29years           |  |
|  | 30-40years           |  |
|  | 41-51years           |  |
|  | 52-60 years          |  |
| Your level of education  | Diploma              |  |
|  | Bachelor degree      |  |
|  | Post-graduate degree |  |
| For how long have you been staying in Mbagala resident Temeke municipality | < 2 years            |  |
|  | 2-6 years            |  |
|  | 7-11 years           |  |
|  | 12-16 years          |  |
|  | >17 years            |  |

### **Section C: General Information.**

The study wants to assess performance of road construction project in Temeke Municipality. You have been given variable of project performance; please show how you would judge performance of road construction in this municipality by referring to the variables given.

| Variables of project performance | Very-low | Low | Average | High | Very-high |
|----------------------------------|----------|-----|---------|------|-----------|
| Road signs and symbols           | 1        | 2   | 3       | 4    | 5         |
| Pedestrian Passage               | 1        | 2   | 3       | 4    | 5         |
| Smoothness of the road           | 1        | 2   | 3       | 4    | 5         |
| Roads Lights                     | 1        | 2   | 3       | 4    | 5         |
| Sharp corners                    | 1        | 2   | 3       | 4    | 5         |

**THANK YOU**

### **Appendix 3: Interview to procurement officers**

Which procurement procedures do you prefer often in achieving **cost** performance use in road construction projects?

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Which procurement procedures do you prefer often in achieving **quality** performance use in road construction projects?

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Which procurement procedures do you prefer often in achieving **time** performance use in road construction projects?

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**THANK YOU**

**Appendix 4: Interview to Mbagala Residents**

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What factors do you consider a quality road to have?

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\_\_\_\_\_How do you judge the quality of roads constructed in Temeke municipal?

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\_\_\_\_\_How do you explain on the smoothness of the road surface

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\_\_\_\_\_How can you speak about the width of each lane on the road constructed in Temeke municipal?

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How can you explain about road lights and road signs in Temeke municipal?

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**THANK YOU**

## Appendix V: Research Clearance Letter

**THE OPEN UNIVERSITY OF TANZANIA  
DIRECTORATE OF POSTGRADUATE STUDIES**

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**Our Ref: PG201800272**

Date: 06<sup>th</sup> December 2019

Rachel H. Msanga  
Dar es Salaam

**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 **Rachel H. Msanga, Reg No: PG201800272** pursuing **Master Degree of Project Management (MPM)**. We hereby grant this clearance to conduct a research titled: ***"Effect of Procurement Procedures on Performance of Public Projects: The Case of Road Construction in Temeke Municipality in Tanzania"***, she will collect her data in Dar es Salaam, Tanzania from 10<sup>th</sup> December 2019 to 7<sup>th</sup> February 2020.

In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) 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 sincerely,

Prof. Hossea Rwegoshora  
**For: VICE CHANCELLOR**  
**THE OPEN UNIVERSITY OF TANZANIA**