THE FACTORS CAUSING DELAYS IN ROAD CONSTRUCTION PROJECTS IN TANZANIA: A CASE OF TANROAD DAR ES SALAAM CITY

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A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER IN PROJECT MANAGEMENT OF THE OPEN UNIVERSITY OF TANZANIA

2017

CERTIFICATION

The undersigned certifies that they have read and hereby recommends for acceptance by The Open University of Tanzania a dissertation entitled" "**The Factors Causing Delays in Road Construction Projects in Tanzania: A of Case of TANROAD Dar es Salaam City",** in partial fulfilment of the requirements for the degree of Masters in Project Management of the Open University of Tanzania.

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Dr. Salvio E. Macha

(Supervisor)

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Date

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DECLARATION

I, **Jenifa Simon**, do hereby declare that this dissertation is my own original work. It has not been presented and will not be presented to any other University or High Learning Institutions for a similar or any other degree award.

……..……

Signature

……

Date

DEDICATION

This will contain dedication to my family, my parents Mr. & Mrs. Simon Timoth Mwakimi for the number of hours they spent to help me to make life foundation and all of my other achievements in life. They are always there to encourage me that I could do whatever I set my mind to accomplish.

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ABSTRACT

This study was aimed at finding the causes of delay in road construction projects in Tanzania. Two variables which are independent and independent as factors that causes of delay were divided into thirteen categories related to consultants, client, contractors, projects, resources and others. A questionnaire was sent to the TANROADS Officials, Contractors, Consulting Firm and other Stakeholders. The collected data were analysed using the both qualitative and quantitative techniques for data analysis. Quantitative data were analyzed using statistical package for social sciences. Qualitative data were content analyzed. Findings presented qualitatively and quantitatively using tables, percentages and diagrams. Collective analysis of all four groups show that the overall of 54.3% out of 45 respondents see that the study variables contribute to the road construction projects delay confirm that are the real contributor of the road construction delay in Tanzania. Politicians are the leading variable with 68.9% to the road constructions delay. The findings show that involvement/performance of other parties and environmental conditions had below average a percentage, which is 44.4% and 42.2% respectively. It is therefore recommended that the government and TANROADS should have long term plan for road construction policy, employ skilled and experienced contract in project management, to have proper design in road project execution, to have adequate communication between parties, to use good quality and enough materials and correct equipment, use of proper organizational structures.

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LIST OF ABBREVIATIONS

FBM	Faculty of Business and Management
GDP	Gross Domestic Product
OUT	Open University of Tanzania
TANROAD	Tanzania National Roads Agency

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

Road sector is an important sector in the economy of any nation due to its impact on the welfare of its citizens and the investment involved. This importance is propounded by the fact that transportation sector has a major role to play in the socio-economic development of a country as it provides access to markets, production, jobs, health, education and other social services. The Tanzanian Road construction industry is also a significant contributor to the national economy accounting for 8 per cent of Gross Domestic Product (GDP) and employing more than 1.9 million people by Talukhaba (1999)

The purpose of this study was to investigate the factors causing delays in road construction projects in Tanzania, Case study Dar es Salaam City. Dar es Salaam has a road network of a total length of about 1,950 kms of which only 1120 kms are paved. The majority of these roads are of poor surface conditions caused partly by lack of maintenance due to, among other factors, financial constraints.

Moreover, most of these roads do not have walkways and bicycle-ways, leading to non-segregation of traffic. The existing road network in the city is inadequate to satisfy the city's densification and expansion. The city has a total of about 1100 kilometres of open lined ditches and 600 kilometres of piped storm water drainage. Lack of regular maintenance and the habit of dumping refuse into the drains has

destroyed the proper functioning of the drains. This has been one of the causes for flooding in the city thereby destroying road pavements, bridges and other road furniture.

1.1.1 Delays

In construction, the word "delay'' refers to something happening at a later time than planned, expected, specified in a contract or beyond the date that the parties agreed upon for the delivery of a project (Pickavance, 2005). Lo, Fung and Tung (2006) define delay as the slowing down of work without stopping construction entirely and that can lead to time overrun either beyond the contract date or beyond the date that the parties have agreed upon for the delivery of the project. Syed, Azhar, Castillo and Kappagantula, (2002) classify delays into non-excusable delays, excusable non-compensable delays, excusable compensable delays and concurrent delays. Non-excusable delays are delays, which the contractor either causes or assumes the risk for. Excusable non-compensable delays are delays caused by factors that are not foreseeable, beyond the contractor's reasonable control and not attributable to the contractor's fault or negligence. Compensable excusable delays these are compensable delays are excusable delays, suspensions, or interruptions to all or part of the work caused by an act or failure to act by the owner resulting from owner's breach of an obligation, stated or implied, in the contract. Concurrent delays occur when both owner and the contractor are responsible for the delay.

1.1.2 Motivation

The most critical factors causing delays in road construction projects in Tanzania in

road construction projects were discussed below:

Financial status of the contractors: one of the most common problems in construction contracting in Palestine is the policy of awarding the bid to the lowest bidder rather than to the most accurate. The owners award the contracts to lowest bidders, but sometimes the lowest bidder is a less well qualified contractor with low capabilities and resources which leads to poor performance and causes delays in completion of the work. This result is supported by Al-Najjar (2008) and Alghbari et al. (2007).

Payment delays by the owner: construction works involve high daily expenses that can't be met by the contractors when progress payments by the owners are delayed. This result is supported by many of the investigated studies (Al-Najjar, 2008; Alghbari et al., 2007; Sambasivan and Soon, 2007, Koushkis et al., 2005) Australasian Journal of Construction Economics and Building.

The political situation and Segmentations that may cause high costs of material, lack of resources, limitations on material import, high level of taxes imposed by Israel, delays and monopolies are some other results of the political situation. All of these factors lead to time overruns in construction projects. This result is supported by Al-Najjar's study of the situation in Gaza (2008).

1.2 Statement of the Research Problem

The majority of road construction projects in Tanzania do not get completed within the initial set targets of time. Talukhaba (1999) argues that project delay

frustrates the process of development, has an immeasurable cost to the society, and also leads to loss of reputation of the parties involved in the concerned projects. Mbatha (1986) and Talukhaba (1988) revealed that time performance of construction projects in Tanzania was poor to the extent that over seventy percent of projects initiated in Tanzania were likely to escalate in time with a magnitude of over fifty percent.

One of the most widely used measures of project success is time taken to complete the project. Talukhaba (1999) carried out research on factors causing construction project delays in Tanzania based on a case study of high rise building projects in Nairobi but did not cover road construction projects. Road construction projects are more mechanized than building projects. Some of the materials used in road construction projects are different from the materials used in building projects. Activities in road projects are more exposed to the weather than activities in building projects. The Civil Engineer is largely the sole player in road projects with minimal involvement of other construction professionals as opposed to building projects where the various professionals play significant roles. Road projects are essentially public projects whereas building projects could either be public or private. It is therefore the purpose of this study to investigate the factors causing delays in road construction projects in Tanzania.

Road construction delays are often responsible for turning profitable projects into loss-making ventures (Sweis et al 2008). While delays are endemic in the construction industry, this need not be so. The consequences of these delays, which

include cost overruns, loss of profits, increased overheads, stress, acrimony between parties, litigation and loss of opportunities because resources are tied up in delayed projects, warrant a study of this nature. The first step in correcting this anomaly is to identify the root causes of the delays so that corrective measures can be devised. Project managers will then be in a better position to monitor and control their plans. Projects that are on track give implementers satisfaction and stress-free hours of work, as they know that they are in control of their projects. All stakeholder (contractors, consultants, clients and others) should benefit from the findings of this study.

1.3 Research Objectives

1.3.1 General Objective

The general objective of this study is to examine the factors causing delays in road construction projects in Tanzania.

1.3.2 Specific Objectives

i) The range of identified causes of delay in completing road construction projects in Tanzania

ii) The most important causes of delay in road construction projects in Tanzania

iii) Identified differences in perception of contractors, consultants and clients regarding causes of delay in delivering projects by the intended completion date.

1.4 Research Questions

These are statements in questions formed based on the main and specific objectives; this study will be guided by the following questions:

1.4.1 General Research Questions

The main question of the study is what the factors are causing delays in road construction projects in Tanzania

1.4.2 Specific Research Questions

This paper thus answers the following three questions:

i) What are the general causes of delay in road construction projects in Tanzania?

ii) What are the most important causes of delay in road construction projects in Tanzania?

iii) What are the perceptions of contractors, consultants and clients regarding the causes of delay in delivering these projects by the intended completion date?

1.5 Significance of the Study

This work is important because time is one of three pillars of construction project management: time, cost and quality. The study will contribute to the body of knowledge by providing adequate construction budget, timely issuing of information, finalization of design and project management skills. Once the most significant delay causing factors are identified, the parties to the projects shall then be able to channel their energies and resources to the specific factors thereby reducing delays to the projects.

Walker (1994) carried out an investigation in Australia on construction time performance and concluded that through improving its productivity, the construction industry can have an important role in promoting national

competitiveness, and therefore in defending living standards and achieving a satisfactory rate of growth. The benefits from such improvement would include increased attractiveness of Australia as a location for investment in new plants or projects. Measures that prevent or slow steps toward improving building and construction industry productivity are, in effect, an attack on the employment prospects and future welfare of Australian workers. Such measures would also be an attack on the potential performance of Australian industry and the economy generally.

The above view can also be applicable to Tanzania and reinforces the argument for attention to construction time performance. The study on road construction is important in the Tanzanian context because roads contribute to economic growth and poverty reduction.

The study will fulfil researcher's academic need of acquiring Master Degree of Project Management. Furthermore, the researchers will identify the gaps available for further studies. Similarly, the findings of the study will be useful to practitioner, academics and other stakeholders in different organizations as an important reference material.

1.6 Scope of the Study

The study focused on the factors is causing delays in road construction projects in Tanzania. The study undertaken at the TANROADS Dar es Salaam region.

1.7 Organization of the Study

This study is organized in five chapters. Chapter one present background of the study, statement of the research problem, research objectives, research questions, significance of the study, scope of the study and organization of the study. Chapter two present theoretical review, empirical review (latest paper) and conceptual framework. Chapter three covers research paradigm, research design, area of the study, population of the study as well as sample and sampling techniques. In additional, this chapter presents data collection, types of data, data collection methods, data processing and analysis, validity of data, reliability of data, ethical issues and establishing rapport. Chapter four makes interpretation of data, analysis and discussion of the findings. Finally chapter five present summary of the findings and their implications, conclusion, recommendation, limitation of the study and suggested areas for further studies.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Theoretical Review

There are a number of activities that, when not managed properly, can lead to delays in the construction industry worldwide. Hence, Wie states that the classification of delays is dependent upon the type and magnitude of the effect that an activity will have on the project and who is responsible for the delay among the stake holders. Whilst, Theodore categorised delays into four groups as follows; Critical or noncritical, Excusable or non-excusable, Compensable or non-compensable and Concurrent or non-concurrent, which will elaborately discussed in the subsequent sessions.

2.1.1 Critical Versus Non-Critical Delays

Theodore writes that delays that affect the project completion time or date are considered as critical delays. Delays that do not affect the project completion time or date are noncritical delays. If certain activities are delayed in the construction project life cycle, the project completion date will be delayed. Determining which activities truly control the project completion date depends on the following: the project itself, the contractor's plan and schedule (particularly the critical path), the requirement of the contract for sequence and phasing and the physical constraint of the project, i.e. how to build the job from a practical perspective.

2.1.2 Excusable versus Non-Excusable Delays

Behboudi states that excusable delays are caused owners actions or responsibilities,

hence, the contractor are entitled to extension of time. Whereas, non-excusable delays are caused by the contractors actions or responsibilities and the client is compensated.

However, Theodore studies that all delays are either excusable or non-excusable. An excusable delay is a delay that is due to an unforeseeable event beyond the contractor's or the subcontractor's control. Delays resulting from the following events would be considered excusable: General labour strikes, Fires, Floods, Acts of God, Owner-directed changes, Errors and omissions in the plans and specifications, Differing site conditions or concealed conditions, unusually severe weather, Intervention by outside agencies and Lack of action by government bodies. Non-excusable delays are events that are within the contractor's control or that are foreseeable. Non-excusable delays include: Late performance of sub-contractors, Untimely performance by suppliers and Faulty workmanship by the contractor or sub-contractors

2.1.3 Compensable Delays versus Non-Compensable Delays

The work of Mohammed and Isah shows that non-compensable delay is caused by third parties or incidents beyond the control of both the owner and the contractor where the contractor is normally entitled to a time extension but no compensation for delay damages and Compensable delay is caused by the owner or the owner's agents. A compensable delay is a delay where the contractor is entitled to a time extension and to additional compensation such as payment for the delay. Relating back to the excusable and non-excusable delays, only excusable delays can be compensable.

Non-compensable delays mean that although an excusable delay may have occurred, the contractor is not entitled to any additional compensation resulting from the excusable delay.

2.1.4 Concurrent Delays

Rider and Long define concurrent delays as two or more parallel and independent delays to the critical path of a project. Concurrent delays can be on the same critical path or on a parallel critical path.

2.2 Empirical Review

Albert (2009) found that there have been significant improvements on project completion within planned time and budgeted cost for projects undertaken after establishment of TANROADS compared to projects implemented by then under the Ministry of Works. The study also revealed important factors contributing to projects time and cost overruns such as fluctuations in materials in terms of quality and cost; fluctuations in labour including plant costs; construction delays (associated with time overruns); inadequate planning; inadequate design of projects; unforeseen circumstances due to third parties and variation orders issued by clients.

In November 2009, Eng. Isaack Aloyce Kamwelwe did a research on Analysis of Financial Management System as Applied in Various Road Projects in Tanzania; A Case of TANROADS Dar es Salaam. The research established that, the financial management skills among or within the road sector industry is not well practiced. Majority of the interviewed indicated that they have just basic skills in financial

management, implying the existing illiteracy as regard to financial management in road projects.

Many studies have been conducted to identify the causes of delay in construction projects. Chan et al. (1997) indicated that the five principal causes of delays in Hong Kong construction projects are: poor site management and supervision, unforeseen ground conditions, low speed of decision making involving all project teams, client-initiated variations and necessary variations of works.

Also in Malaysia, Sambasivan and Soon (2007) concluded that the ten most important causes of delays the construction industry were: contractor's improper planning, contractor's poor site management, inadequate contractor experience, inadequate client's finance and payments for completed work, problems with subcontractors, shortage in material, labour shortages, equipment availability and failure, lack of communication between parties, and mistakes during the construction stage.

2.3 Conceptual Framework

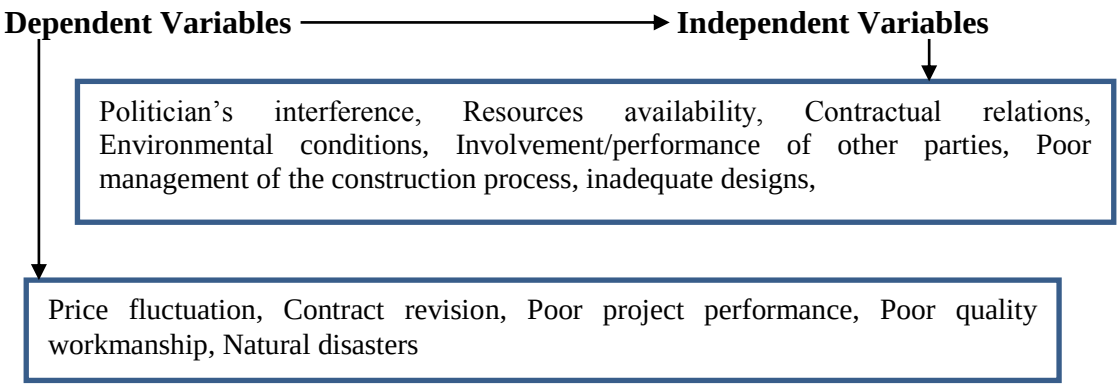

Figure 2.1: Conceptual Framework

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

The chapter presents the following sub-sections which are research paradigm, research design, area of study, population of the study, sample and sampling techniques, methods of data collection, data analysis plan, validity of data, reliability of data, ethical issues and establishing report.

3.2 Research Paradigm

Therefore, research used set of methods and principles to a careful study of a subject, especially in order to discover new facts or information about it. The researcher used both qualitative and quantitative research methods.

3.3 Research Design

The researcher used quantitative research design because information/data presented in numbers, percent and tables. Also the researcher used qualitative research design as some of data expressed in words; prolong contact with the field's holistic approach, lived experience of participants.

3.3.1 Area of the Study

The client for this study was the TANROAD, which is headquartered in Dar es Salaam city. The TANROAD is a natural choice as the client, considering that almost all road construction projects in Tanzania are administered by them. They also have

regional offices in all regions of the country. Questionnaires were sent to senior managers/engineers at the headquarters as well as at regional offices in Dar es Salaam City.

3.3.2 Population of the Study

According to Truant (1995) define population as a group of specific people in which the researcher aimed to study it. Moreover, Coopers (1989) and Vans (1990), target population means all members or individuals or group or other elements that the researcher hoped to present in the study. The target population in this study was as follows:

Table 3. 1: Target Population

S/N	Types of Respondents	Number of Respondents	Actual Number of Respondents	Percentage
1.	TANROAD officials	20	16	80
2.	Contractors	10	7	70
3.	Consulting Firm	10	8	80
4.	Other stakeholders	20	14	70
	Total number of respondents	**60**	**45**	**75**

Source: Data from field Survey (2016)

3.3.3 Sample and Sampling Techniques

The study used purposive sampling technique and survey design. Data were collected using questionnaires which were distributed to TANROAD Officials, contractors, consultants and other stakeholders. The researcher used this simple random since this technique reduced biases or prejudices in selecting samples. Also, purposive

sampling increased utility of results as the researcher selected samples based on a certain purpose.

3.4 Data Collection

Ghauri et al 2005 says that, data collection is any process of preparing and collecting data, for example, as part of a process improvement or similar project. The purpose of data collection is to obtain information to keep on record, to make decisions about important issues, or to pass information on to others. Data are primarily collected to provide information regarding a specific topic.

Data collection usually takes place early on in an improvement project, and is often formalized through a data collection plan which often contains the following activity. Data collection included types of data of which primary and secondary data were evaluated and data collection methods that comprised questionnaires, interviews, observations and documentation.

3.4.1 Types of Data

Data is thought to be the lowest unit of information from which other measurements and analysis can be done. Data can be numbers, images, words, figures, facts or ideas. Data in itself cannot be understood and to get information from the data one must interpret it into meaningful information. The researcher used two methods of interpreting data which were primary and secondary data (Ghauri et al 2005).

3.4.1.1 Primary Data Collection

These are the first hand information obtained by the researcher himself from the field. This is usually obtained when the researcher does a descriptive or survey and uses a number of methods under the case. Primary data are those collected a fresh and for the best of time, this happen to be original in character (Ghauri et al 2005).

Primary data were collected from respondent included in the sample that means from employees of TANROAD, Contractors, Consulting firms and other stakeholders.

3.4.1.2 Secondary Data Collection

In addition to using primary data collection methods, documentary secondary data were used in this research. Documentary data included written materials, local government laws and other government circulars related to the topic, journal articles, books and other records relevant to this research. According to Ghauri and Gronhaug, (2005) cited in Saunders et al., (2007) advantages of using secondary data are that it provides enormous savings in resources, it is less expensive than to collect the data yourself, it helps to contextualize findings within a more general context and facilitates triangulation of the findings. Nonetheless, secondary data has its disadvantages as the data were collected for a specific purpose that differs from the research objectives of this research (Denscombe, 1998) cited in Saunders et al., (2007).

With respect to these draw backs, the researcher gained access in TANROAD to use their research facilities and documentary evidence which is focused on their

communication practices. This research took critical analysis of secondary data from TANROAD.

3.4.2 Data Collection Methods

In collecting data for this study, the all four instruments were used which are observation, questionnaires, interview and documentation.

3.4.2.1 Observation

According to Gajendra and Ruth (1981) define the term observation that, "Observation is the research technique, which utilizes direct contact between the researcher and the phenomena under investigation".

The researcher visited the targeted areas/sites and saw the daily implementation of the ongoing road construction projects and observed effective performance. This technique is important to the researcher as it was most highly used. Thus, avoided biases and prejudice by subjects, overcome language barrier and used at any time.

3.4.2.2 Questionnaires

According to Ghauri and Gronhaug (2005), defines the word questionnaire as a written list of questions that are answered by number of people so that information can be collected from the answers.

Furthermore, these questions were open ended and restricted/closed questions for respondents to answer on a sheet of paper. This instrument helped the researcher to

collect a lot of information and enable the researcher to have access at almost all respondents in the sample within a short time.

Not only that but also the instrument was useful because of its stability, observe data beyond geographical, economy, social; educational as well as political units. In case of big enquires the instrument was very appropriate. Hence, distant subjects and well plan and focus.

3.4.2.3 Interview

According to Ghauri and Gronhaug (2005), said that, "Interview is a formal meeting at which somebody is asked questions to see if they are suitable for a particular job, for a course of study at a college, university at cetera."

Therefore, this involved the oral or vocal questioning technique or discussion. The interview technique required the researcher to ask questions. The researcher decided to use this instrument because of its useful as it was flexible, detailed data obtain and questions that asked were both structured and semi-structured. The researcher met individual employee for interviewing on the study.

3.4.2.4 Documentation

According to Fraenkel and Wallen (2003) define documentation as a written or printed materials that have been produced in some form or another annual reports, art work, bill, books and so on. The researcher found most the advantages of using the instrument because it was easily accessible economical and removes biasness.

3.5 Data Processing and Analysis

Vonrheir et all, 2011, show this as a concerned with the computation of certain measures along with searching for pattern of relationship that exist among data group. It involved estimating the value of unknown parameters of population for drawing inferences. The major aim of analysis in this study was to determine whether the observation conducted in the field support the hypotheses that were formulated earlier or before going to the field, or reject them.

In the quest of this study, the researcher employed both qualitative and quantitative techniques for data analysis. Quantitative data collected from questionnaires were analyzed using statistical package for social sciences. Qualitative data were content analyzed. Findings presented qualitatively (descriptions) and quantitatively using tables, percentages and diagrams

Self-administered surveys were used and questionnaires delivered to participants by post, e-mail and in person. Participants filled in the questionnaires in their own time without any assistance from the researcher. This approach removed any undue pressure from the respondents and gave them the freedom to fill in the questionnaire as truthfully as possible, unlike one-on-one interviews, where interviewees might be influenced by the interviewer's attitude. The study started with a literature review, followed by identification of the survey participants. Questionnaire developed for data collections and focus on the defined research questions. The study participants (population) comprised TANROAD Officials, contractors, consultants and other stakeholders who have been supervising road works and contractors (contracts

managers, site agents and managing directors) who have been involved in the actual construction of roads.

Other questionnaires were sent to team leaders or highway engineers of consultants who have been involved in the design and supervision of contracts administered by the TANROAD. The third set of questionnaires sent to managing directors, contracts managers and site agents of contractors who have been involved in roads projects under the TANROAD.

3.6 Validity of Data

On the other hand Enon (1998)"validity refers to the quality that a producer or an instrument (tool) used in research is accurate, correct, true, meaningful and right. Validity therefore implies that the researcher wants to obtain what is supposed to measure. So if whatever the researcher use in this study enables him/her to get what he/her wants to get then there is validity"

Furthermore, the researcher constructed clear and understandable instrument to all respondents. The instruments was in English language, because majority of respondents were post primary school levels employees and easy to communicate.

In addition to that, Enon (1998) showed the important of validity in research tool (instrument) validity of research produce (technique) and validity of the research findings (report)

3.7 Reliability of Data

According to Enon (1998:32) talks of reliability by defining that, "Reliability refers to how consistent a research procedure or instrument it is. It, therefore, means the degree of consistency demonstrated in a study. Hence, reliability implies stability or dependability of an instrument or procedure in order to obtain information".

Also, Fraenkel and Wallen (2003) stated the important of reliability as it refers to the consistency of the scores obtained how consistent they are for each individual from one administration of an instrument to another and from one set of items to another.

3.8 Ethical Issues

This research observed and adhered to the ethical standards and issues with regard to voluntary nature of participation and the right to withdraw by individual employees/ respondents from the process. The research maintained the confidentiality of data provided by individuals or identifiable participants and their anonymity. Data collected and information were exclusively used for the purpose of this academic work.

3.9 Establishing Rapport

The researcher established rapport before participant share personal information by treating interviewee with respect thinks about his appearance and the expectations of the person about to interview, body language and maintained appropriate eye-contact and smile in a natural and was not invaded interviewee space.

CHAPTER FOUR

4.0 ANALYSIS OF DATA AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter evaluating data using analytical and logical reasoning to examine each component of the data provided. Data from various sources were gathered, reviewed, and then analysed to form some sort of finding or conclusion. The geographical area covered by the study was contrived in TANROADS Tanzania in Dar es Salaam regionals offices which were Temeke, Ilala and Kinondoni.

Table 4.1: Education Level and Sex Distribution- 45 Respondents

		Sex Distribution		**Total**
Education Level		**Male**	**Female**	
	Primary Level	1 = 2.2%	2 = 4.4%	3 = 6.6%
	Secondary Level	1 = 2.2%	2 = 4.4%	3 = 6.6%
	Certificate Level	1 = 2.2%	2 = 4.4%	3 = 6.6%
	Diploma Level	1 = 2.2%	0 = 0%	1 = 2.2%
	Advance Diploma Level	3 = 6.6%	1 = 2.2%	4 = 8.9%
	Degree Level	6 = 13%	7 = 16%	13 = 29%
	Post Graduate Level	10 = 22%	8 = 18%	18 = 40%

Source: Data analysis (2016)

The age structure was necessary in this kind of study. The presentation of difference age groups was important so as to acquire their views and opinions based on their life experiences and understanding.

All cadres however, participated fully in providing reliable data for the study.

Table 4.2: Variables and % of its Contribution to the Road Construction Projects Delay

S/N	Variables	Actual No. of Respondents	No. of respondents whose see its contribution to the road construction projects delay	%
i.	Politician's interference	45	31	68.9
ii.	Poor Management of the construction process	45	27	60
iii.	Inadequate designs	45	25	55.6
iv.	Involvement/performance of other parties	45	20	44.4
v.	Resources availability	45	23	51.1
vi.	Contractual Relations	45	26	57.8
vii.	Environmental Conditions	45	19	42.2
Average of %				54.3

Source: Field data, (2016)

The Table 4.1 shows the overall of 54.3% out of 45 respondents see that the set variables contribute to the road construction projects delay. This implies that TANROADS should strategies its operation to fasten roads construction for community use. Strange enough is that politicians are the leading variable with 68.9% to the road constructions delay. This is something that need more research and find out why are leading. The findings show that involvement/performance of other parties and environmental conditions had below average percentages which are 44.4% and 42.2% respectively.

The Figure 4.1 shows that 31 respondents which is 68.9% see that the government does not put more effort to improve road construction. At the other hand, it shows that the TANROADS engages skilled personnel on road construction projects by 51%. However, these skilled employed do not put effort to complete the road construction projects on time.

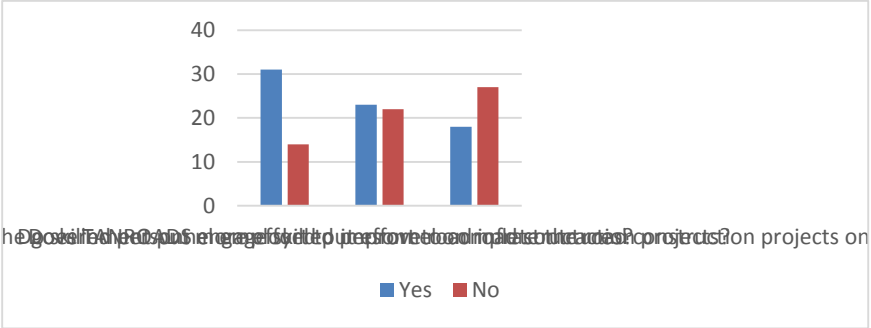

Figure 4.1: Respondents Response on Qualitative Factors that Contribute to the Roads Construction Delay

Source: Data from field survey, (2016)

Table 2.2: Respondents Ranking of the Effects of Road Construction Delay

S/N	Effects	No. of Respondent	% out of 45	Rank
1	Time overrun	35	77.8	1
2	Cost overrun	33	73.3	2
3	negative social impact	32	71.1	3
4	Poor quality of work due to hurry	29	64.4	4
5	Delaying in getting profit by clients	28	62.2	5
6	Create stress on contractors	26	57.8	6
7	Disputes and Arbitration	25	55.6	7

Source: Field data, (2016)

4.2 Politician's Interference

Certain projects are stalled and abandoned when political leadership that initiated them change. Sometimes, change in government policies such as monetary and fiscal policies could lead to an increase in the cost of construction materials and equipment.

Contractors will not be able to continue with the project as scheduled because of the time they need to spend on approvals for price fluctuations and contract revision.

This is usually experienced in public sector projects. Some political leaders have vested interest in particular projects. They interfere by requesting additional scope requirements not captured in the original design or by imposing unqualified contractors/ subcontractors on the client. The above action leads to poor project performance especially in terms of time.

4.3 Poor Management of the Construction Process

Contractor's employees that are not skilled in project management are not able to manage their project site appropriately, thus, culminating in faulty work, reworks and delay in completion of tasks.

Inexperienced contractors usually make errors during construction. Sometimes contractors employ low skilled staff in order to make more profit by paying them lower salaries. Tendencies of errors are, thus, higher. Rework of an already executed aspect of a scope slows down project progress. This has serious impact if it involves execution of critical tasks.

4.4 Inadequate Designs

Improper design stalls project execution because of the time it takes for such design to be reviewed, amended and accepted for construction works. When errors are observed in the design, works are temporary suspended until such errors are

removed. This is predominant in organizations where selection processes of vendors are compromised

Most projects have consultants as the contract managers. They liaise between the client and the contractor. Projects get delayed when the required management principles are not utilized during projects' execution.

4.5 Involvement/Performance of Other Parties

Poor or inadequate communication between parties leads to misunderstanding and misrepresentation of facts. This could breed conflicts and consequently hinders smooth progress of activities. Clients are the project Owners. When they do not make decisions on time regarding project matters, they slow down activities at the project sites. Slow decision making could be caused by an organization's internal bureaucracy or wrong channels of communication.

4.6 Resources Availability

Poor quality materials lead to poor quality workmanship, thus an unacceptable product. Most often, the project owners insist that correction be made or that parts of work be completely redone. Material shortages slowed activities and sometimes temporary abandonment of sites. The use of the incorrect equipment extends tasks while faulty equipment leads to delay due to the time spent to repair.

4.7 Contractual Relations

Organizational structures affect project performance. There are certain projects that cannot be managed by certain types of organizational structures. For instance, it is

difficult to execute quick impact projects in a functional organizational structure because of the slow decision making processes and bureaucracies associated with such a structure.

4.8 Environmental Conditions

There are areas that usually experience natural disasters such as floods. These disasters are generally unpredictable. However, well established project management organizations possess requisite skills to manage natural disasters. In areas where there is frequent rainfall, inexperienced contractor/consultants do not account for weather projections in their project implementation plan.

4.9 Analysis and Discussion

Delay as referred in construction is prolonged construction period and disruptions are events that disturb the construction programme. A delay is among the challenges faced in the course of executing construction projects. Various studies (Cohen and Palmer, 2004; Baloi and Price, 2003; Finnerty, 1996; Miller and Lessard, 2001) have identified sources of and types of construction risks that need to be managed as part of project management process. There are also risks and factors (Zou, Zhang and Wang, 2006; Aiyetan, Smallwood and Shakantu; 2008) that affect construction project delivery time which are also causes of delays.

Causes of delays have been identified in various parts of the world such as Malasyia, Saudi Arabia, Jordan, Kuwait, Hong Kong and Thailand (Sambasivan and Soon, 2007; Al-Kharashi and Skitmore, 2008; Al-Momani, 2000; Kumaraswamyand Chan,

1998; Noulmanee, Wachirathamrojn, Tantichattanont and Sittivijan, 1999). The results reveal that there are differences and similarities as to the causes of delays.

Delays has had effects to construction projects. Some of these effects are (Aibinu and Jagboro, 2002; Sambasivan and Soon, 2007): time overrun, cost overrun, dispute, arbitration, total abandonment and litigation. The purpose of this study was to identify causes and effects of delays in Tanzanian construction sector.

Management of construction projects involves a great deal of managing risks. Managing risks involves: planning, identifying, analyzing, developing risk handling strategies, monitoring and control. Project team members particularly clients, consultants and contractors should eliminate / mitigate delays when playing their respective roles.

Cohen and Palmer (2004) identify sources of construction risks to include changes in project scope and requirements; design errors and omissions; inadequately defined roles and responsibilities; insufficient skilled staff; force majeure; and new technology. Baloi and Price (2003) categorize construction risks as technical, social, construction, economic, legal, financial, natural, commercial, logistics, and political. Similarly, Mills (2001) lists three most important risks to include: weather, productivity of labour and plant and quality of material. Other researchers such as Finnerty (1996), and Miller and Lessard (2001) have categorized same risks in addition to demand, supply, regulatory, operational, completion and sovereign.

Time related risks identified by Zou et al (2006) that are have influence on project delivery are: tight project schedule, design variations, excessive approval procedures in administrative government departments, variations by the client, incomplete approval and other documents, unsuitable construction program planning and inadequate program scheduling. Aiyetan et al (2008) point out that the three most significant factors that adversely impact construction project delivery time performance are: quality of management during construction; quality of management during design, and design coordination.

4.9.1 Causes of Delays

Construction projects are carried out within a specified time the scenario that calls for proper time management in particular eliminating all avenues of delays and disruptions. A study by Kumaraswamy and Chan (1998) on causes of construction delays in Hong Kong found differences in perceptions as to causes of delays by different groups of participants in building and civil engineering works. They suggested that biases of different industry groups might direct blame for delays to other groups. Noulmanee et al(1999) investigated causes of delays in highway construction in Thailand and concluded that delays can be caused by all parties involved in projects; however, main causes come from inadequacy of sub-contractors, organizations that lack sufficient resources, incomplete and unclear drawings and deficiencies between consultants and contractors. Al-Momani (2000) investigated causes of delay in 130 public projects in Jordan and found that main causes of delay were related to designer, user changes, weather, site conditions, late deliveries, economic conditions and increase in quantity.

Al-Kharashi and Skitmore (2008) point out that the main cause of delay in Saudi Arabia construction sector for public projects is the lack of qualified and experienced personnel. A study by Ahmed, Azhar, Castillo and Kappagantula, (2002) identified ten most critical causes in Florida as building permits approval, change order, changes in drawings, incomplete documents, inspections, changes in specifications, decision during development stage and shop drawings and approval. Sambasivan and Soon (2007) identify ten most important causes of delay in Malaysian construction industry contractor's improper planning, contractor's poor site management, inadequate contractor experience, inadequate client's finance and payments for completed work, problems with subcontractors, shortage in material, labor supply, equipment availability and failure, lack of communication between parties, and mistakes during the construction stage.

Other researchers looked into delay factors in construction projects. Chan and Kumaraswamy (1997) identified five principal delay factors which are: poor risk management and supervision, unforeseen site conditions, slow decision making, client-initiated variations and work variations. Other delay factors in a study by Kaming, Olomolaiye, Holt and Harris (1997) are classified under cost and time overruns. The study reveals that the major factors influencing cost overrun are: material cost increase due to inflation, inaccurate material estimation and degree of complexity. On the other hand, under time overrun, the most important factors causing delays are: design changes, poor labor productivity, inadequate planning, and resource shortages. Haseeb, Xinhai-Lu, Bibi, Maloof-ud-Dyian, and Rabbani (2011) point out that the most common factors of delay are natural disaster in Pakistan like

flood and earthquake. The study also acknowledged others which are: financial and payment problems, improper planning, poor site management, insufficient experience, and shortage of materials and equipment.

4.9.2 Effects of Delays

A study by Aibinu and Jagboro, (2002) revealssix effects of delay on project delivery in Nigerian construction industry which are: time overrun, cost overrun, dispute, arbitration, total abandonment and litigation. Sambasivan and Soon (2007) disclose the same effects of delay in Malaysian construction industry. Haseebet al (2011) identify effects of delays in Pakistan construction industry as clash, claims, total desertion and slowing down the growth of the construction sector. Ramabodu and Verster (2010) identify critical factors that cause cost overruns in construction projects as changes in scope of work on site, incomplete design at the time of tender, contractual claims (extension of time with cost), lack of cost planning and monitoring of funds, delays in costing variations and additional works. These critical factors in turn are the delay factors. Chileshe and Berko (2010) indicate that causes cost overrun in Ghanian road construction sector are delay in monthly payments to contractors; variations; inflation, and schedule slippage. Again, these explain the causes of delays and the effect of cost overrun.

CHAPTER FIVE

5.0 SUMMARY OF THE FINDINGS, CONLUSION AND RECOMMENDATION

5.1 Introduction

This chapter presents the summary, conclusion, recommendations and areas for further study. The main objective of the study was to examine the factors that cause of delay in road construction projects in Tanzania.

5.2 Summary of Findings

The primary purpose of the study was to examine the causes of delay in road construction projects in Tanzania. This study deployed two variables which are independent and independent as factors that causes of delay were extracted from the literature on the subject. The two variables causes of delay were divided into thirteen categories related to consultants, client, contractors, projects, resources and others. A questionnaire based on these causes of delay was sent to the TANROADS officials, contractors, consulting firm and other stakeholders. The collected data were analysed using the both qualitative and quantitative techniques for data analysis. Quantitative data collected from questionnaires were analyzed using statistical package for social sciences. Qualitative data were content analyzed. Findings presented qualitatively (descriptions) and quantitatively using tables, percentages and diagrams.

From this study a collective analysis of all four groups show that, the overall of 54.3% out of 45 respondents see that the study variables contribute to the road

construction projects delay confirm that are the real contributor of the road construction delay in Tanzania. Politicians are the leading variable with 68.9% to the road constructions delay. The findings shows that involvement/performance of other parties and environmental conditions had below average percentages which is 44.4% and 42.2% respectively

5.3 Conclusions

This study was aimed at finding the factors causes of delay in road construction projects in Tanzania. The overall top five causes of delay identified by all TANROADS officials, contractors, consulting firm and other stakeholders were: politician's interference, poor management of the construction process, inadequate designs, resources availability and contractual relations. The factor that causes of delay in completing road construction projects in Tanzania was identified. Therefore, the objectives of this study were substantially accomplished.

5.4 Recommendations

On the basis of these findings, the following recommendations are made as following:

5.4.1 Politician's Interference

The government should have long term plan for road construction policy that may help the road construction projects not be stalled and abandoned when political leadership that initiated them change as well as change in government policies such as monetary and fiscal policies that may increase in the cost of construction materials and equipment.

5.4.2 Poor Management of the Construction Process

TANROADS should make sure that contractor's employees that are skilled and experienced in project management are deployed to manage their project site appropriately to avoid errors during construction.

5.4.3 Inadequate Designs

To have proper design in road project execution to avoid the time it takes for such design to be reviewed, amended and accepted for construction works. This proper design will avoid temporary suspended when errors are observed until such errors are removed. Contractors should prepare adequate plans and schedules during execution of road projects.

5.4.4 Involvement/Performance of other Parties

To have adequate communication between parties or good channels of communication that leads to understanding and representation of facts which minimize conflicts and consequently hinders smooth progress of activities. Also, parties should make decisions on time regarding project matters. Bureaucracy and red tape should be reduced in client organisations in order to speed up the slow decision making process.

5.4.5 Resources Availability

To use good quality and enough materials and correct equipment that will lead to good quality workmanship, thus an acceptable product. Claims should be settled quickly so that they do not become a source of delays.

5.4.6 Contractual relations

The use of proper organizational structures which is not functional organizational structure that speed up decision making processes and remove bureaucracies associated with such a structure for good project performance.

5.4.7 Environmental Conditions

To have well established project management organizations possess requisite skills and experienced contractors/consultants to manage natural disasters such as frequent rainfall and account for weather projections in their project implementation plan. Thus, during the rainy season, contractors should plan to execute activities that are not normally affected by the rain in order to mitigate delays.

5.5 Limitation of the Study

Despite valuable insight uncovered by this study, it should be read with few limitations. One limitation of this study was that participants predicted its nature and biased the results. Also, the time period for survey administration had negative effect on the study. Time was the negative factor because attitudes and conditions of the work environment can change quickly. The last limitation of the study was the willingness of individuals in the organization to pretend honestly.

5.6 Areas for Future Research

This study was aimed at finding factors that causes of delay in road construction projects in Tanzania. The following are recommended areas for further research: Investigation of factors that cause delays in road projects during the design stage.

It is also recommended to develop performance measurement framework and modeling system in order to measure performance of road construction projects in Tanzania.

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APPENDICES

Appendix 1: Questionnaire for TANROAD Officials, Contractors, Consulting Firm and Other Stakeholders

Part 1: Introduction

Dear Prof /Dr/Sir/Madam

My name is JENIFA SIMON currently I am in the process of writing my dissertation for the completion of a MASTERS IN PROJECT MANAGEMENT under the auspices of the Faculty of Business Management (FBM) at the Open University of Tanzania (OUT).

The purpose of this questionnaire is to investigate the factors causing delays in road construction projects in Tanzania: Case study TANROAD Dar es Salaam city. It will be appreciated if you could answer all the questions in the attached questionnaire.

The questions focus on delay of the majority of road construction projects in Tanzania in that do not get completed within the initially set targets of time in that the project delays frustrate the process of development, have an immeasurable cost implication to the society, and also lead to loss of reputation of the parties involved in the projects' execution.

Furthermore by not placing your name on the questionnaire your responses are kept anonymous and no one will be able to identify you as a respondent in this study.

In addition to that, data collected and information gained in this study will be exclusively used for the purpose of the aforementioned academic work.

You're sincerely,

Jenifa Simon.

RESEARCHER

QUESTIONNAIRE

DATE……..

Part 2: Personal Particulars

Instructions: (Tick the appropriate answer /fill the blanks were necessary)

1. District: _____ Institution:_____

2. What is your rank/title/Position? _____

   Gender: (i) Male ( ) (ii) Female ( )

3. Please indicate your highest qualification

   (i) Form four ( ) (ii) Form six ( )

   (iii) Certificate or Diploma ( ) (iv) Bachelor's degree( )

   (v) Master's degree ( ) (vi) Doctorate ( )

   (vii) Others, specify_____

4. What is your age group?

   (i) 20-29 ( ) (ii) 30-39 ( )

   (iii) 40-49 ( ) (iv) 50-59 ( )

   (v) 60+ ( )

5. How long have you worked in your current position?

   i) Less than 1 year ( ) ii) 1 - 5 years ( )

   iii) 6 -10 years ( ) iv) 11 - 15 years ( )

   v) 16-19 years ( ) vi) 20+ years ( )

Part 3: Mixed questions

1. Does the government put more effort to improve road infrastructures?

   Yes ( ) No ( )

2. Does TANROADS engage skilled personnel on road contraction projects?

   Yes ( ) No ( )

3. Do skilled personnel employed put effort to complete the road construction projects on time?

   Yes ( ) No ( )

4. How do the following variables/personnel below in the table contribute to the road construction projects delay?

S/N	Variables/ Personnel	Contribution to the road construction projects delay
i	Politician's interference	
ii	Poor management of the construction process	
iii	Inadequate designs	
iv	Involvement/performance of other parties	
v	Resources availability	
vi	Contractual relations	
vii	Environmental conditions	

5. What should be done differently to complete the road construction projects on time?

   (i) _____

   (ii) _____

   (iii) _____

   (iv) _____

   (v) _____

6. What are the effects of the road construction delay?

   (i) _____

   (ii) _____

   (iii) _____

   (iv) _____

   (v) _____

The end