

# TO ASSESS FACTORS CAUSING DELAYS TO CONSTRUCT GOVERNMENT OFFICES IN NEWLY CREATED DISTRICT OF ZAMBIA: A CASE OF PEMBA DISTRICT

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## Abstract

*The construction sector is one of the important drivers of Zambia's economic growth. The sector is also an important pillar in the achievement of country's vision 2030 due to its ability to provide many job opportunities. The construction sector is characterized by time consuming and depletion of the material as a result of its volatility and complexity caused by delays. There is therefore a direct link between time and cost of completing these construction projects. This implies that as project completion delays, costs involved in the project increase. Project delays are a common and regular phenomenon in the*

*Zambian construction industry. Delays can lead to many negative effects such as lawsuits between owners and contractors, increased*

*costs, loss of productivity and revenue, and contract termination. Several factors have been affecting project performance in the Zambian public construction sector, hence*

*causing excessive damages and or delays to the projects. Any factors either internal or external affecting the project implementation performance can be avoided or enhanced using project management skills. The aim of any construction project is to successfully complete the project on time, within budget and with high quality. Time, cost and quality are the basic of successful construction which include also the safety and its environment. This study was aimed at assessing factors causing delays to construct government offices in the newly created districts of Zambia. A case study of Pemba district*

*A non-probability sampling technique was used to select the 50 respondents. Questionnaires, in-depth interview, and observation checklist were developed to collect the primary and secondary data from the field. These instruments were chosen because they are the most appropriate. Questionnaires comprised of many close ended questions and were designed solicit statistical information. This facilitated easy*

*administration of the questionnaires. It also helped to avoid irrelevant answers from respondents and made entering data into the computer fairly easy.*

*Some of the factors identified in the research which contribute to project delay are: lack of project management skills, financial mismanagement skills, high inflation and interest rates from banks, lack of access to finance, late payments to the contractor, lack of ICT by contractor, lack of collateral, bidding for projects beyond contractor technical or financial capacity, lack of skills to properly program projects resources, inability to prepare documents for timely payment. Human resource in the construction industry*

*should be developed through proper and continuous training programs about construction projects performance. Clients are recommended to facilitate payment to contractors in order to overcome delay, disputes and claims. Consultants should be more interested with design cost by using multi criteria analysis and choosing the most economic criteria in order to improve their performance and to increase clients' satisfaction. There should be adequate contingency allowance in order to cover increase in material cost. Contractors should minimize waste rate through project implementation in order to improve cost performance*

## **CHAPTER ONE: INTRODUCTION**

### **Overview**

This chapter presents background information on subject of research and covers statement of the study. In the background of the study the study reviews the key concepts and how they relate to one another

### **1.1 Background**

A project in its basic definition is a temporary endeavour undertaken by people who work cooperatively together to create a unique product or service (Project Management Institute, 2000) within an established time frame and within established budget to produce identifiable deliverables. Project success has been defined by the criteria of time, budget and deliverables (Flaman and Gallagher, 2001). Projects possess certain characteristics that distinguish them from any other activity in the organization, these include the fact that projects are temporary meaning that any project will have a start date and end date although it has nothing to do with short duration, Boyce and Haddad (2001),

At the national and international levels, there is great concern for delays and even abandonment of public construction project as most of them are implemented using tax payers' money as stipulated earlier in the chapter. There is a lot of debate on how to minimise or end this problem. The inability to complete projects on time and within budget continues to be a chronic problem worldwide and is worsening (Ahmed et al., 2002). Azhar and Farouqui (2008) observe that the trend of project delay and abandonment is common worldwide and that it is more severe in developing countries. The debate in the construction industry on how to minimise or

the problem, research objectives, research questions, and significance of the study. The chapter also covers other sections including theoretical framework and operations definitions of

eliminate this problem has been on for some time among professionals, clients and/or end users, and the policy makers. The funding for construction industry activities is, in many countries, used to regulate the economy. As the construction industry continues to grow in size, so do planning and budgeting problems.

The construction industry is a key sector in the development and economic growth of Zambia according to the National Council for Construction report (2004). However, the construction industry in Zambia also has not escaped the challenges facing other countries worldwide in terms of delivering projects on time as stipulated in the contracts. Construction failure including construction projects and other civil engineering infrastructure development projects like schools, roads, bridges, dam, clinics etc. litter the whole Zambia. There are many government construction projects which fail in time performance, others fail in cost performance and others fail in Quality performance (Zulu and Chileshe, 2008). The construction projects and construction industry play a very dominant role in the economy of any nation. A healthy economy usually experiences an increase in construction projects and construction activities, but in a depressed economy, the incidence of project delay and construction failure tends to be more prevalent. Construction industry in Zambia suffers from many problems and complex issues in performance. Efficient construction projects can provide a solid platform for reviving the Zambian economy and for building a more balance and independent

economy during stable political conditions. For a number of reasons, the performance of construction Government projects has not been as impressive, fundamentally because of the Zambian Authorities' failure to establish a coherent institutional and policy framework (World Bank, 2004). Performance is related to many topics and factors such as time, cost, quality, client satisfaction; productivity and safety.

Zulu and Chileshe (2008) investigated contractor performance in Zambia and found it below expectations, arguing that nothing can be learned from local ongoing projects that have not been completed or have been delayed. They concluded that contractors' poor performance has huge implications on competitiveness. The construction industry being a key sector in the development and economic growth of Zambia has not escaped the challenges facing other countries worldwide in terms of delivering construction projects as stipulated in the contracts. Lack of planning and a poor understanding of accounting and financial principles have led to many a contractor's downfall (Theodore, 2009). The aim of any construction project is to successfully complete the project on time, within budget and with high quality. Time, cost and quality are the basic of successful construction which include also the safety and its environment. Time and cost have a parallel relationship in which the increase in time will result in an increase of cost. Then, the controlled of time is really important to avoid any loss to the contractor.

The Zambian government has initiated a number of developmental construction projects countrywide in an attempt to improve the living standards of its citizens and grow the national economy such as decentralising of

government's operations for the effectiveness and the efficiency delivery of services to the people of Zambia through creation of new districts. Training institutions have been established to enhance the knowledge and skills of contractors in the country. In addition to that, it has also developed the construction policy and put the evaluation system in place. Huge amounts of money from the national treasury are released periodically to fund the implementation of these projects.

## 1.2 Problem Statement

The problem is that despite of the above vigorous attempts and developments put in place by the government, the project of building of government offices in the newly created districts of Zambia has stalled and abandoned making one wonder whether the skills and funding provided by government and stakeholder support is insufficient. According to the international journal of project management (2018) projects are often over budget, over time, or worse they fail to deliver on their immediate objectives or strategic goals

Hence the aim of this research to assess the factors causing delays in constructing government offices at the newly created district of Pemba. It is hoped that the findings from this research will be used by policy makers, stakeholders and construction management etc. to go to an extra mile of providing new explanations and recommendations to the statement problem identified.

## 1.3 Main Objective of the Study

The research main aim was to critically assess the factors causing delays in constructing of Government offices in the newly created

district of Zambia: A case study of Pemba district.

## 1.4 Specific objectives of the study

To assess causal internal factors delaying the construction activities in newly created district of Pemba.

To determine External factors contributing to the delay in constructing government offices in newly created district of Pemba.

To evaluate the rate/extent to which internal and external factors affect performance of project implementation in study

## 1.5 Research Questions

How do internal factors contribute to the delays in constructing government offices in newly created district of Pemba?

What are the external factors contributing to the delays in constructing government offices in newly created district of Pemba?

What extent do internal and external factors affect performance of project implementation in study?

## 1.6 Theoretical framework

This study was guided by two management theories namely contingency theory and the utility theory.

### *Contingency Theory*

According to Mutema (2013), contingency theory takes into account the interaction and interrelation between the organization and the environment. This theory recognizes that there are a range of contextual variables also referred to as risk factors which influence the

project objectives differently. Examples of these variables are: external environment, technology, organizational structure and size, cost, culture, people involved and strategy. Contingencies for both budgets and schedules provide the project manager with the estimating caution they need to protect their projects from cost and time overruns (PMI 2006). Effectively allocating these contingencies can help project managers control much of the projects' uncertainties.

### *Utility Theory*

Utility is a measure of desirability or satisfaction; a degree of satisfaction or welfare coming from an economic activity. Value of a project depends on its utility while utility depends on the specific circumstances of the stakeholders. The criteria of projects success should include longer term aspects of the project outcome such as its impact. Utility theory should therefore be considered as an important element in the definition of project lead time (Al- Carlos, 2014). According to PMI (2006) the project manager can use a utility- based approach to develop a long-range contingency allocation plan, an approach informed by the relationship between expected utility and the challenges in allocating a project's cost and time contingencies. This relates utility theory to contingency allocation to improve performance. Delay in project completion impacts negatively to the expected users in that it denies them the utility they would have had from the project were it complete on time.

## 1.7 Significance of the Study

The following are the significance of the study;

This study is expected to provide better ways and methods in delivering public construction

projects by minimizing the major factors of delay. It is going to educate the general public and the experts in the construction industry on the factors that cause delays of some construction public projects. The results can enable policymakers to refine their implementation strategies and reallocate budget expenditures appropriately. This research will also serve as a resource base to other scholars and researchers who are interested in carrying out further research in this field subsequently, if applied well will go to an extent of providing new explanations to the topic. It is hoped that this study will reveal areas of weakness, incompetency and attitudes of contractors and how these factors cause delay in the process of implementation and establish areas which need amendment in order to address ineffective, inequality, inefficiencies and incapability among contractors.

## 1.8 Operational Definitions

**Construction Projects:** Are projects undertaken to facilitate the provision of infrastructure to serve as a platform for production activities and comprises buildings, road network, bridges for enhancement of economic development etc.

**Effective Implementation:** Project delivered that meets the original objectives within the constraints and specifications of budget, time and quality.

**Planning:** This is an act of formulating a program for a definite course of action

**Implementation:** Is the act of accomplishing some aim or executing some order

**Infrastructure development:** This is the construction and improvement of foundational

services with a goal of sparking economic growth and improvements in the quality of life

**Contractor:** this is an organization or a group of organizations who have a legal obligation to execute the project on behalf of the client.

**Client:** this is an individual or an organization who legally owns the project.

**Quality of Work:** In construction projects, quality of work is associated with adherence to conditions of the contract and specifications stipulated in the contract documents in their entirety during the execution of the project.

**Project delay:** Failure to complete projects on Time. Time on construction projects is concerned with planning of the work over the anticipated duration in relation to its requirements with full appreciation of the resources needed and resources available.

**Project abandonment:** This is a premature permanent closure of the project by the contractor.

**Project success:** Can be defined by the criteria of time, budget and deliverables

**Business environment:** These are factors in the environments which are crucially important to business.

## CHAPTER TWO: LITERATURE REVIEW

### 2.0 Overview

This chapter identifies types of delays, actors in the construction industry and then it covers review of theories and related literature by other authors in the field under study at global, Region and the Zambian perspective. There are many factors affecting the parameters of government construction project realization.

These factors may lead to project delays or emergence of failure. It is for this reason that they should be identified in order to determine their effect on the construction project parameters. The delays considered in this study are those that occur during the implementation (construction) phase of construction projects.

## 2.2 Actors in the construction industry

There are diverse interests in the construction industry. The principal interest or actors in the construction industry are: the client, the consultant and the contractor.

### 2.2.1 The Client

The Client is, by far, the single most important member of the construction team. He is the initiator and financier of all the projects. Duran (2006) noted that the major contribution the client can make to the successful operations of the construction industry lies in his skill in specifying his needs prior to the preparation of the design. It is also important for the client to set cost limits of the project at the briefing. He should also ensure that adequate financial provisions are made prior to the commencement of any project.

### 2.2.2 The Consultant

Cost considerations are among the most important and basic considerations that Consultants must deal with. It is essential to see that projects are contained within the client's budget and cost forecasts. Cost has the final control over virtually in every project. Accurate cost analysis, estimation and control is one of the necessary services the client requires from the consultants (Duran, 2006).

### 2.2.3 The Contractor

Duran (2006) further reveals that the major task of Contractors is to assemble and allocate the resources of labour, equipment and materials to the project in order to achieve completion at maximum efficiency in terms of time, quality and cost.

Problems arising from the clients, consultants and contractors may affect the successful completion of the project. Delays of a construction project can be defined as the late in progress or actual completion of works compared to the baseline construction schedule or contract schedule. Vast majority of project delays occur during the construction phase, where many unforeseen factors are always involved. Previous researchers defined construction delays by their own sentence, however it brings similar meaning.

According to Braimah (2008), the term 'delay' in construction contracts has no precise technical meaning. It can be used in different sense to mean different conditions in project execution. However, the term is often used in its basic sense to mean any occurrences or events that extend the duration or delay the start or finish of any of the activities of a project.

In the study of Aibinu and Jagboro (2002), construction delay was defined as the time overrun either beyond completion date specified in a contract, or beyond the date that the parties agreed upon for delivery of a project. They defined delays as the time overrun beyond the contract date or beyond the date that the critical activities have been delayed.

Delay, from the view of Zack (2003), is slowing down of a work without stopping it entirely. It is different from suspension, which

means stoppage of work directed to the contractor by a formal form from client. Aibinu and Jagboro (2002), described delay as a situation when the contractor and the project owner jointly or severally contribute to the non-completion of the project within the original or the stipulated or agreed contract period. Delay was also defined as an act or event which extends required time to perform or complete work of the contract manifests itself as additional days of work. Majid I.A. (2006) interprets delay as a loss of time. 'Time' refers to the duration for completing the construction project. When the project period is delayed, it means the project cannot be completed within original schedule.

### 2.3.0 Types of Delay

There are two main types of delay that occur on construction project, namely excusable and non-excusable delays. In actual practice, delays are frequently difficult to sort out, separate and accurately assess particularly in term of claim process (Yates and Epstein, 2006). The terms of excusable and non-excusable come from the perspective of contractor. A delay that is compensable to the contractor but non-excusable to the employer. On the other part, a delay deemed as non-excusable is compensable to the employer because it results in levying of liquidated damages.

### 2.3.1 Excusable Delays

Delays that excuse a contractor from performing within the contract period and justify an extension of time (EOT) to perform are 'excusable'. According to Naha, Norelina (2008), excusable delays are those not attributable to the contractor's actions or inactions and typically include unforeseen events. These events are beyond the

contractor's control and are without fault or negligence on his part. This type of delays can have an impact on non-critical activities which need a more detailed analysis to determine whether additional time extension is warranted, or if the reduction of float time can be justified. However, whether the delays are excusable it depends on contract provision. Excusable delays can be further classified into delays with compensation and without compensation (Naha, Norelina (2008).

### 2.3.2 Excusable Delays with Compensation

A delay is deemed compensable to the contractor when its cause is within the control of, is the fault of, or is due to the negligence of the project owner. According to Yates and Epstein (2006), contractors are entitled to a time extension as well as monetary compensation due to this type of delays. However, the contractor must show that the delay was "unreasonable" and prove the extent of the additional expense involved. These delays result from circumstances such as:

1. Failure of the owner to have the work site available to the contractor in a timely manner;
2. Owner initiated changes in the work;
3. Owner delays in issuing a notice to proceed;
4. Architect/Engineer supplied designs which are defective;
5. Owner not properly coordinating the work of other contractors;
6. Owner not providing owner furnished equipment in a timely manner;
7. Owner providing misleading information;
8. Owner interfering with the performance of the contractor;



9. Owner, or the Architect/Engineer, delaying the approval of contractor submitted shop drawings;

10. Owner, or the Architect/Engineer, using the shop drawing process as a means by which to change the contract requirements.

11. Contractor encountering differing site conditions.

### 2.3.3 Non-Compensable Excusable Delays

Non-compensable excusable delays are caused by the factors that are beyond the contractor's reasonable control and not attributable to the Contractor's fault or negligence (Ahmed *et al.*, 2002). When this type of delay is encountered, the contractor will not receive any compensation for the cost of delay, but he will be entitled only for an extension of time (EOT) to complete the work and relieved from any contractually imposed liquidated damages for the period of delay.

In order for delay to warrant an extension of contract time, the delay must affect the completion of the project. This provides the basis for the high importance attached to the use of critical path method (CPM) of scheduling for proving or disproving time related claims such as extension of time and prolongation cost (Bramble and Callahan, 1992). The major elements that represent non-compensable excusable delays include events such as following:

i. *Unforeseen events*. Unforeseeable causes generally refer to future events, not existing causes. By contrast, conditions of which the contractor should have been aware are not considered unforeseeable.

ii. *Events beyond the contractor's control*. These are cases in which work on the project is impossible.

iii. *Events without fault or negligence*. Such events are those in which the contractor is blameless, such as acts of god and labor or material shortages beyond what was expected at the time the contract was made.

### 2.3.4 Non-Excusable Delays

In this category, the contractor's own actions or inactions have caused the delay. It is a delay on which the contractor could have foreseen or prevented, but failed to do so Naha, Norelina (2008). Consequently, this type of delay presents no entitlement to a time extension or delay damages for the contractor, if the delay can be proved to have affected the whole project. The owner, however, could be entitled to liquidate damages. According to Ahmed *et al* (2002), the amount of damages is dependent on the contract value of the project, which is based on the length of delay and the rate of damages per day. Such delays are inherently the Contractor's responsibility and no relief is allowed.

### 2.3.5 Concurrent Delays

When two or more separate delay events occur during the same time period, which affects the completion date experienced on a project are often termed "concurrent delays" (Reynolds and Revay, 2001). If the delays are inextricably intertwined, neither the contractor can be held responsible for the delay or recover the delay damages from the owner. It is difficult to determine which delays are concurrent. The resolution of this type of delay has been a contentious legal and technical subject in construction and engineering contracts (SCL, 2002). The reason for this is largely due to the fact that resolving

it requires the consideration of the interaction of different factors such as the time of occurrence of the delays, their length of duration, their critically, the legal principles of causation and float ownership (Bubshait and Cunningham, 2004).

## 2.4.0 Global factors affecting timely project completion

The building industry is important for both the developing and developed economies. It contributes 10% towards GDP for developed economies and more than 4% for the developing countries (Gwaya et al, 2014). Construction time has always been used as one of the benchmarks for assessing the performance of a project and the efficiency of an organization. There are severe criticisms of the industry when projects take far longer than planned (Jagboro & Ogunsemi, 2006).

### 2.4.1 Causes of Delay:

Many researches have been carried out both in developed and developing countries to investigate the factors that have a substantial effect on the performance of construction projects. Some literature is explained below to highlight the factors affecting performance of construction projects.

### 2.4.2 Florida

Ahmed S.M. *et al.* (2002) conducted an empirical study regarding construction delays in Florida. Based on the contractor surveyed the most critical categories of delays are Code-Related Delays followed by Design-Related Delays and Construction-Related Delays. Odeh and Battaineh (2002) evaluated the result of their survey aimed at identifying the most important causes of delays in construction projects with traditional type contracts. The results indicate that contractors

and consultants agreed that owner interference, inadequate contractor experience, financing and payments, labour productivity, slow decision making, improper planning, and subcontractors were among the top ten most important factors.

### 2.4.3 Hong Kong

Sepasgozar et' al (2015) conducted a survey to determine and evaluate the relative importance of the significant factors causing delays in Hong Kong construction projects. They analyzed and ranked the main reasons of delays according to different groups classified on the basis of the role of the parties in the local construction industry (i.e. whether clients, consultants or contractors) and the type of projects. Results indicate that the five principal and common causes of delays 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.

### 2.4.5 Malaysia

Traditional contractual approach is still dominant in Malaysia construction sector and this may likely continue to be a trend. Malaysia construction sector comprises the clients or project owners, contractors, subcontractors, suppliers, and others key professional actors responsible for design and supervision of projects. These professionals include architects, engineers and quantity surveyors. Due to this mixed variety of parties involves in projects, they often encounter difficult situations and some degree of pressures. According to Odeh and Battaineh (2002), many of these problematic conditions are beyond control and often lead to delays or project time overrun.

Sambasivan and Soon (2007) cited a project may be delayed as a result of the direct action of major parties, or of their failure to act especially if they have a duty to act in the circumstances. The outside forces also could intervene to delay a project. Hence, it is important to describe the causes of delay by looking at factors relating to actions and inactions of project participants.

Naha, Norelina (2008), studied the causes of delay in building projects limited in Johor Bahru. The study found that (1) contractor's financial problems, (2) shortage in material, (3) fluctuation of materials price, (4) poor management and planning, (5) poor subcontractor performance, (6) inclement weather, (7) inadequate of contractor's experience, (8) construction mistake and (9) poor monitoring and controlling were the major causes of delays at the time.

Sambasivan and Soon (2007) conducted a study by taking an integrated approach and analyze the impact of specific causes on specific effects of delays in Malaysia. Based on their survey, the most important causes of delay were: (1) contractor's improper planning, (2) contractor's poor site management, (3) inadequate contractor experience, (4) inadequate client's finance and payments for completed work, (5) problems with subcontractors, (6) shortage in material, (7) labour supply, (8) equipment availability and failure, (9) lack of communication between parties, and (10) mistakes during the construction stage.

## 2.4.6 Indonesia

Majid, I.A. (2006), carried out a study on causes and effect of construction project delays in Aceh Indonesia. Contractor-related

delays was ranked the most significant groups that cause delays, followed by equipment-related delay, client-related delays, material-related delays, finance related delays, consultant-related delays, external-related delays, and labour related delays.

## 2.4.6 Lebanon

Mezher and Tawil (1998) carried out a study on causes of delays in Lebanon from the viewpoint of owners, contractors and architectural/engineering firms. It was found that owners had more concerns with regard to financial issues; contractors regarded contractual relationships the most important, while consultants considered project management issues to be the most important causes of delays.

## 2.4.7 Saudi Arabia

Ogunlana (2008), have addressed 56 main causes of delay in Saudi Arabia large building construction projects and their relative importance. Based on the contractors surveyed the most important delay factors were: preparation and approval of shop drawings, delays in contractor's progress, payment by owners and design changes. From the view of the architects and engineers the cash problems during construction, the relationship between subcontractors and the slow decision-making process of the owner were the main causes of delay. However, the owners agreed that the design errors, labour shortages and inadequate labour skills were important delay factors.

There were many possible causes that contribute to construction project delay. However, according to Ogunlana (2008), although the principle reasons for delays are comparable across developing countries, several factors pertaining to local industry, social-economic and cultural issues and

project characteristics also contribute to delays.

## 2.4.8 Jordan

In Jordan, Al-Momani identified the main causes of project delay as poor project design, change orders and weather. Change orders refer to design changes by the owner or his agent during the course of the construction. In Malaysia Yau et al identified improper planning, poor site management and inadequate contractor experience while in Hong Kong, Tung et al identified inadequate resources due to lack of capital, unforeseen ground conditions and exceptionally low bids as the major factors that cause project delay. Over several years, a great deal of attention around the world has been devoted to attempts to identify the potential causes of construction project delays and thereby facilitate the efforts of project management teams to address these possible delays. For instance, a previous study investigated the causes of delays in building projects in the United States by conducting a survey of architects, engineers, and contractors. From the survey results, weather, labor supply, and subcontractors were the primary causes of construction delays (Baldwin & Manthei, 1971) Many researchers have identified additional delay causes for various types of projects in different countries. All of the delay causes can be classified into two categories: universal causes, such as change orders (Al- Momani, 2000) and local causes, such as the effects of social and cultural factor (Assaf & AlHejji, 2006). A previous study concluded that improper planning, public interruptions, resource shortfalls caused by contractor issues or deficiencies in capital, setbacks during the preparation and approval of drawings, the financial difficulties of contractors, and

change orders are the most severe delay causes in various countries (Long et al., 2008; Yang et al, 2013).

Improvement methods are necessary actions to minimize losses. Proper planning and payment of the contractor are the basic measures that can be put in place to avoid project delay. Mamon et al (2014) in their investigation on how to improve time performance in construction projects in Malaysia through a quantitative research targeting contractors identified, proper work planning, committed leadership and management, close monitoring sending clear and complete messages to workers and hiring skilled workers as the main improvement methods among the 13 that they identified.

## 2.5.0 Regional factors affecting timely project completion

### 2.5.1 Nigeria

Aibinu and Odeyinka (2006), have assessed the causes of delays in Nigeria. They have analyzed quantitative data from completed building projects to assess the extent of delays factors contributed to overall delays on a project. By using a Pareto analysis, they revealed that 88% of the factors (representing 39 highest priority factors) were responsible for 90% of the overall delays. The result of the study indicated that financing projects in Nigeria continue to be one of the major sources of project delays and of poor time performance.

### 2.5.2 Swaziland

Thwala and Mvubu (2008), identified the following factors as constraints to the success of contractors in Swaziland: lack of business management skills, lack of financial management skills, exorbitant interest rates

from banks, compulsory business management services, risks involved in construction industry, lack of access to finance both during preconstruction and construction, bad relationships with suppliers, late payments of completed work by the client, lack of collateral, bidding for projects beyond contractor technical or financial capacity, lack of skills to properly program projects resources in monthly segments for healthy cash flow, inability to prepare documents for timely payment, misunderstanding of terms of contract and inability to use applicable contractual instruments to demand performance by client.

### 2.5.3 Kenya

Musa (2010) conducted a study on factors influencing delays in water projects in Kenya funded by the Government. Lack of capacity for contractors to execute projects diligently was found to be the cause of delay in his study. A similar study by Karimi (1998) focused on factors contributing to cost overruns in projects under the Ministry of Water and the observations in the study were that most projects experience delays due to the fact that the clients delayed in honoring progress payments towards contractors. Jonathan et al., (2001) presented a paper on method for calculating activity delays and appraising their contributions to project delay. The method consisted of a set of equations, which could be easily coded into a computer program that would provide fast access to project delay information. The observations were that delays are mostly caused by the non-payment by the client to the contractor and lack of coordination of project activity by the consulting team. Alkass, Mazerolle & Harris (1996) presented a paper which discusses delays analysis techniques that was issued by

practitioners in the construction industry and this technique is called the Isolated Delay Type (IDT). The technique was tested against a case example and its strengths and weaknesses underscored. It was found to give fair results in the determination of causes of delay. Developing countries like Kenya and others, maybe lacking resources, managerial skills and have low human capital productivity. Another factor identified in review for delays is incompetent designers/contractors, poor estimation and cost management, social and technological issues, site related issues, and improper techniques and tools as in the case study of the (Economic Stimulus Projects) ESP15 projects in Kenya. Therefore, project design standards, specifications and construction methods must be carefully selected so that they will be appropriate to local financial, human, and material resources required during both the implementation and its subsequent operation. It is important to appreciate that, for a country like Kenya, projects are sometimes implemented on “fast track” basis and some issues are easily overlooked during project preparation and often lead to projects implementation issues that result in delays.

### 2.5.4 Malawi

Kululunga (2012), explained that training (to teach writing and reading skills, financial management and business management skills), business management skills (to ensure sustainable business enterprises), financial management (to manage cash flow, among other things), unethical manners (to combat collusion, professional pricing the same job for more than one bidder, among others) and information technology (to make specific software available such as those required to aid preparation of works programmes) were

areas identified to be amongst constraints and challenges faced by contractors in Malawi.

According National Construction Industry of Council of Malawi (2012), the causes of delay in traditional contracts were due to owner interference, inexperienced contractor, and improper payments of completed work, labour productivity, poor site management, slow decision making, construction methods and improper planning subcontractors.

## 2.5.5 Tanzania

Kikwasi (2012) investigating the causes of delay and disruptions in construction projects in Tanzania, through questionnaire found that only 22%, 30% and 44% of the projects were completed on estimated time according to clients, consultants and contractors respectively while the maximum time overrun was 78%, 70% and 56% for clients, consultants and contractors respectively. Frimpong in his study on the causes of delay in construction of ground water projects in Ghana observes that monthly payment difficulties from agencies, poor contractor management and material procurement are the critical factors causing project delay, (Huang et al, 2012).

## 2.5.6 Egypt

In addition, Mubarak et al when investigating the causes of delay in Egyptian construction projects cited financial problems of the contractor and delays in payment by project sponsor these problems can slow project progress and result in the suspension of ongoing work and the delay of both critical activities and the completion of the construction project as a whole. Design changes is another cause of delay that he

established that arises if the original scope of the work in a contract has been changed for example if the size and scope of a project have been expanded without allowances for extended scope (Yang 2013).

## 2.6.0 Local factors affecting timely project completion

According to Zulu and Chileshe (2008), the Zambian construction industry has undergone some change due to the changing nature of the market place, globalization of the economy and markets, the upsurge of technology including information technology (IT), the changes in government policy including privatization and liberalization and strategic changes in supply chains. Nsabika (2002), explained that the changing nature of the market place With the liberalisation and privatization programmes which were put into effect in the early 1990s almost complete, construction customers no longer have to stay loyal to their former sister companies under the Zambia Industrial and Mining Corporation (ZIMCO) group of companies, the Industrial Development Corporation (INDECO) group of companies or the Zambia Consolidated Copper Mines (ZCCM). INDECO and ZCCM jointly formed ZIMCO, which until its unbundling and subsequent privatisation of the individual corporations was the second largest corporation in Africa. Nsabika (2002) added that the changes have a fundamental implication on the way ZIMCO construction contractors used to conduct business. The privatized companies have become increasingly more knowledgeable about construction products and have become much more demanding about price and quality. Quality and delivery are and will remain the most critical factors in the market. Moreover,

they have a free market from which to choose contractors from.

Chonya (2002) mentioned that the Zambian economy is experiencing the full effects of globalisation such as floatation of the Kwacha on the exchange market. Mashamba (2001) noted that international players have entered the Zambian construction market and are a serious threat to the local contractors. According to Shachinda (2002), the number of international firms winning multimillion projects especially donor funded as well as projects attracting international financial investment, is on the increase. Suddenly, local contractors require an international credibility beyond the profile and reputation that they used to enjoy in Zambia. Moreover, they find they need to adapt to meet the requirements of clients from different cultures and with disparate values. Nsabika (2002) observes that the Zambian financial market has not been very successful, and this has made the raising of capital and attraction of private sector investment difficult. Krebs, who is quoted by Nsabika, added that government bonds and treasury bills, which have a negative effect on the whole Zambian economy, dominated the financial markets. As observed above, there are serious threats and opportunities in the globalised Zambian economy and construction market, and this requires paradigm shifts in business alignment and operations.

Shakantu (2000) said that a key driver of transformation for the Zambian construction industry is technological change. Global telephony, satellite communications and video links are now widely available. Information and communication technology (ICT) is significantly influencing technological change. Overby et al. (2001), explained that ICT has a pronounced effect on the way the industry

communicates and its ability to access information. Improvements in communication capabilities have released the potential for construction professionals to have greater access to data, knowledge and other support nationally and otherwise. The developments in information technology are facilitating information flow through all aspects of the Zambian construction industry including design, construction, deployment, decommissioning, finance, marketing and sales as completely integrated packages. There is an argument for potentially using the Internet as a tool to raise efficiency of the industry. Overby et al. (2001) added that the Internet commerce revolution could transform organisations and organisational processes and create new opportunities and challenges for international marketers. Shakantu (2000), mentioned that the impact of changing computer technology on the construction industry has been far reaching.

Complex tasks such as scheduling are much more routine due to the use of desktop computers. Simulations of entire construction processes and systems can be developed to determine the optimal approach to achieving desired performance. Overby et al. (2001), observed that a range of IT to support the complete range of business activities and help revolutionise ways of working has been rapidly developing. Matipa and Zulu (2000), explained that technological uptake on Zambian projects has been slow despite the documented benefits of this resource. Kashweka (2001), argued that industry operations have largely remained traditional, with low technology applications used to run construction business.

Shakantu (2000) stated that the shift in government policy is another driver of change

in the construction industry. Economic regulation was drastically reduced in favour of privatisation and liberalisation. The reform agenda has extended beyond issues of stabilisation and prudent economic management to regarding the private sector activity as the main engine for growth. The government is concerned about fiscal and monetary policy discipline. Chola (2002) notes that client organisations' construction budgets decrease and economics is winning over tradition. Clients are demanding real improvement in key areas of interest to them. Among the major effects of these economic changes has been the adjustment of procurement strategies to those emphasizing value for money. He explains that there has been a reduction in expenditure on capital projects save for donor funded infrastructure projects such as rural road networks and water reticulation.

## 2.8.2 Methods in Minimizing Construction Project Delays

Several researchers have recommended the methods of minimizing delay in construction project. Abdul-Rahman H. *et al.* (2006) suggested that the minimization of time overrun would require: strong management teams; thorough investigation of site conditions, together with the design of groundwork and foundations. They added that developing communication systems linking all project teams was the significant way to mitigate this matter.

Aibinu and Jagboro (2002) conducted a study on the effect of delays on project delivery in Nigeria. They identified two methods to minimize or if possible, eliminate time overrun. There were acceleration of site activities and contingency allowance.

Odeh and Battaineh (2002), recommended the following to improve the delays situation in Jordan: enforcing liquidated damage clauses; offering incentives for early completion; developing human resources through proper training and classifying of craftsmen; adopting a new approach to contract award procedure by giving less weight to prices and more weight to the capabilities and past performance of contractors; and adopting new approaches to contracting, such as design-build and construction management types of contracts.

Ahmed S.M. *et al.* (2002), in their study of delays in Florida have recommended streamlining the Buildings Permit Approval Process as much as possible. The issues such as changes in drawings, incomplete and faulty specifications and change orders must be controlled with proper design process management and timely decision making.

Abdul-Rahman H. *et al.* (2006) identified the procedures taken by contractor as to recover delays. From their survey, recommended procedures were increasing the productivity by working overtime hours or working by shifts, followed by asking for extension of time. If the problem was shortage of resources, they suggested rescheduling the activities within the available resources, using skilled labour and by using subcontractors. The respondent also agreed that site meetings are essential in solving the problems with the condition that it should not be too frequent.

Kaliba, Muya and Mumba (2009), studied the schedule delays in road construction projects in Zambia. They suggest the following recommendation to minimize the causes and effect of schedule delays: project timing and scheduling; well defined scope; accurate cost estimate; availability fund for project;



effective communication; deliberate scheme to build capacity building; and legislation and good corporate government.

### 2.8.3 Strategy Implementation

Strategy implementation involves organization of the firm's resources and motivation of the staff to achieve objectives. Strategic implementation is about working together and sharing information with each other (Galpin, 1998). The value of any strategy and its potential contributions include increasing productivity, reducing costs, growing profits, and improving service or product quality (Alavi, 1994). Woolridge and Floyd (1990) noted that it can be much easier to think of a good strategy than it is to implement it as much of the shortcomings in the strategy area is attributable to failures in the implementation process rather than in the formulation of strategy itself.

The implementation process involves the collective wisdom, knowledge, and even subconscious minds of the collaborators. This powerful phenomenon is becoming a requirement to effectively compete in today's global marketplace (Alavi, 1994; Hills, 1997). Implementing strategies successfully is vital for any organization, either public or

private. Without implementation, even the most superior strategy is useless. The notion of strategy implementation might at first seem quite straightforward: the strategy is formulated and then it is implemented. Implementing would thus be perceived as being about allocating resources and changing organizational structure (Beer and Eisenstat, 2000). However, transforming strategies into action is a far more complex and difficult task. There is currently considerable interest in strategy implementation. Management interest

can be gauged from the high levels of attendance at the large number of industrial conferences on the subject. Academic interest is manifest through the considerable number of papers on the topic (Neely, 1999). But this interest is not new. In the late 1970s and 1980s, authors expressed a general dissatisfaction with traditional backward-looking accounting based on strategy implementation, identifying their shortcomings and arguing for change. In the late 1980s and early 1990s, this dissatisfaction led to the development of "balanced" or "multi-dimensional" strategy implementation frameworks which placed emphasis on non-financial, external and future looking strategy implementation (Galpin, 1998). They were then quickly followed by the development of management processes specifically designed to give practicing managers the tools to develop or redesign their strategy implementation system. The result has been the publication of alternative balanced strategy implementation frameworks and suggested management processes for the design of performance measurement systems (Beer and Eisenstat, 2000).

Starting in the early 1980s, several frameworks have been developed which are largely conceptual and/or descriptive. The overriding assumption among all these frameworks is that there must be a "fit" among the variables if the implementation process is to be successful. While proposing their frameworks, all scholars emphasize that there are continuous interactions among these variables and it is these ongoing interactions which make implementation possible. Based on a critical review of previous frameworks, ten key variables were identified. These are strategy formulation, environmental uncertainty, organisational structure, culture,

operational planning, communication, resource allocation, people, control and outcome. Previous researchers have grouped implementation variables into a number of categories such as “content”, “context”, “process” and “outcome”. Critical analysis reveals that the previous researchers have adopted these groupings mainly from Pettigrew’s works on managing strategic change (Pettigrew et al., 1992). There is no consensus as to which variable should be included in which grouping but there are suggestions made by previous researchers. Previous researchers appear to view strategic content as the overall strategic direction of the company and the need to design new initiatives. Whereas it is argued that strategies are initiated and implemented in a strategic context and the variables in this grouping support and influence the implementation process; however, they are less controllable than the process variables (Bryson and Bromiley, 1993; Schmelzer, 1992). The operational process variables are seen as those which are primarily used and directly involved in the implementation process. It is assumed that companies have substantial control over these variables, at least in the short-term. The main difference between the context and process variables is that the latter are primarily used and employed in implementing decisions, while context variables are not primarily used but they are taken account of due to obstacles and problems in the implementation process. The outcome variables are seen as the expected results of the initiated strategy. Based on these classifications and the review of the characteristics of the individual variables, the key variables were further grouped and a framework was developed which formed the basis of the fieldwork investigation. Strategy implementation has attracted much less attention in strategic and

organizational research than strategy formulation or strategic planning. Alexander (1991) suggests several reasons for this including the fact that strategy implementation is less glamorous than strategy formulation which makes people overlook it because of a belief that anyone can do it and people are not exactly sure what it includes and where it begins and ends. Furthermore, there are only a limited number of conceptual models of strategy implementation (Beer and Eisenstat, 2000).

Organizations seem to have difficulties in implementing their strategies. Researchers have revealed a number of problems in strategy implementation: e.g. weak management roles in implementation, a lack of communication, lacking a commitment to the strategy, unawareness or misunderstanding of the strategy, unaligned organizational systems and resources, poor coordination and sharing of responsibilities, inadequate capabilities, competing activities, and uncontrollable environmental factors (Alexander, 1991; Lares-Mankki, 1994). Pettigrew’s (1987) framework for strategic change also sheds some light on the analysis of strategy implementation. Pettigrew distinguishes the content of the strategy, the outer and inner contexts of an organization, and the process in which strategic change is carried out. Pettigrew contends that the content, the context and the process are intertwined and affect one another. This has an important impact on strategy implementation research. In order to understand implementation, which is close to the process in Pettigrew’s model, also the content of strategy and the context in which it takes place must be understood. Another issue influencing the study of strategy implementation is the perspective one has on strategy (Mintzberg, 1978). Implementation

means carrying out the pre-determined strategic plans. Strategy emerges and evolves without interventions by the strategic planners, or in spite of them (Mintzberg, 1978). It is believed that in reality some strategies are planned and some strategies just emerge from the actions and decisions of organizational members. Planned strategy and realized or emergent strategy evolve hand-in-hand and affect each other in the process of strategy implementation, where strategies are communicated, interpreted, adopted and enacted (Noble, 1999). From this perspective it is interesting to study how the strategies and the reality interact with each other through communication, interpretation, adoption and action. If this interaction is successful, the organizational vision may be achieved. When doing research from this view, the scope needs to be broad to grasp both the planning of the strategies and the real work practices through which the strategies come true.

## **2.8.4 Changing Measures of Construction Project Performance**

Trauner (2009) explained that in the early 1990s, project success was considered to be tied to performance measures, which in turn were tied to project objectives. At the project level, success was measured by the project duration, monetary cost, and project performance. Trauner called the time, cost, and quality criteria the “Iron Triangle.” However, he argued that using the Iron Triangle of project management, time, cost, and quality as the criteria of success may have resulted in biased measurement of project management success. He proposed to shift the focus of measurement for project management from the exclusive process driven criteria to four major categories for success which are: The Iron Triangle, the Information System,

Stakeholder Community Benefits, and Organisational Benefits. A significant number of literatures emphasized more the time aspect as an indicator for project success. Mahdavinejad and Molaei (2011), regarded completing projects on time as a symbol of an efficient construction industry. Duran (2006), suggested that ensuring timely delivery of projects is one of the important needs of clients of the construction industry.

The Project Management Book of Knowledge (2007), states that project management knowledge areas are project integration management, scope management, time management, cost management, quality management, human resource management, communication management, risk management, procurement management, safety management, environmental management, financial management and claim management on which success measures ought to be based. Sustainable development concepts, namely, environmental respect, social integration and social economy, are factors with growing importance as indicators of successful performance of infrastructure projects.

## **2.8.5 Study Performance Indicators**

Tahir and Darton (2010), confessed that measuring the performance of any construction project in terms of success or failure, despite looking simple, is in fact a very complex process. Modern construction projects even moderate in size are generally multidisciplinary in nature and they involve participation of designers, contractors, subcontractors, specialists, construction managers, and consultants. The objectives or goals of all participants need not be the same even in a given project. Tahir and Darton that to define the success or failure of a project

without specifying the participant and without specifying the criteria for judging the performance holds no meaning to measuring the performance of any construction project. The present study has identified quality of work, timely completion, tender estimation, and tender preparation as measures of performance.

## 2.8.6 Quality of Work

Soanes and Steven (2008) noted that in construction projects, quality of work is associated with adherence to conditions of the contract and specifications stipulated in the contract documents in their entirety during the execution of the project. The Concise Oxford English Dictionary defines quality as the standard of something as measured against other things of a similar kind. However, Soanes and Steven showed that there are two distinct areas in which quality of work achieved is measured for success. The first one is by measuring and testing of construction materials forming the elements of the work product in situ or in the materials laboratory against a standard measure or specification. These materials must fulfill the prescribed characteristics in the contract documents for them to be incorporated into the construction process. Similarly, the work product must be within prescribed standard characteristics to be considered successful. This is generally fulfilled through the testing of the product at different stages during or after each job process. The second aspect of quality of work concerns what beneficiaries see and feel when making use of the construction product. This is a product of workmanship.

Soanes and Steven (2008) noted that workmanship has been defined in the Concise Oxford English Dictionary as the degree of

skill with which a product is made or job is done. Some aspects of workmanship are fulfilled automatically when project specifications are adhered to. For example, when the surfacing stone sizes are within tolerance, the road will be nice and smooth to drive on. Similarly, when the final layer of a road base is within the stipulated level tolerance, the road will be comfortable to ride on. However, the degree of riding comfort of a road, all other things being equal, will depend on how the level tolerance has been controlled within the lower and upper limits. The road will be more comfortable to ride on where the upper and lower tolerance limits have been maintained to the minimum than where they have been allowed to fluctuate from the uppermost to the lowermost limits.

Tahir and Darton (2010) described the organization and management of quality control for small works, combined the phrases “quality of work” and “workmanship.” He labelled quality of work (workmanship) as involving, ensuring that the attributes of the work satisfy the specified needs. They further described quality of work as measuring the ongoing and finished works against recognized standards and implementing quality control and quality assurance procedures. Quality is meeting the customer requirements.

## 2.8.7 Timely Completion of Construction Projects

According to Elinwa and Joshua (2001), Time on construction projects is concerned with

planning of the work over the anticipated duration (programme) in relation to its requirements with full appreciation of the resources needed and resources available; planning for utilization sets the basis or

yardstick (plan) against which progress can be monitored and assessed;

Progressing which follows the programming of the work and compares the work undertaken against the plan allowing for the redistribution of resources, if necessary, to speed up the work if it is falling behind the plan. Tahir and Darton (2010), defined time overrun as the delay beyond planned completion dates traceable to the contractors. The construction industry plays a major role in the development of many countries. At the macro level, delay will lead to a negative rate of national economic growth and monetary loss. They noted that at the micro level, a delayed project can lead to time and cost overruns, disputes, arbitration, and even total abandonment.

Elinwa and Joshua (2001), confess that delays in construction projects are global phenomena and the sub-Saharan region is no exception. This trend has become the norm rather than the exception, especially in developing countries. This scenario, thus, constitutes a major risk and debilitating effect on relationships and cash flow among employers, consultants, and contractors, which can lead to exhaustive disputes, arbitrations, and expensive litigations. The significance of this impact, therefore, clearly justifies the concern over such a chronic problem facing the industry.

## 2.8.8 Tender Preparation

Laryea (2010) defined a tender or bid as a formal offer to supply goods or services for an agreed price. Tendering is the process used by many construction clients to obtain the programme and price for building a project. Laryea explained that tendering consists of three parts: deciding on the type of contract

and the terms and conditions that would form the basis of the contractual relationship and under which the work will be done; selecting the most suitable contractor given the budget and time available; and establishing the contract price.

Chilipunde (2010) said that important elements at tender preparation stage include the following:

Establishment of a realistic contract period on which the tender may be based.

Identification of construction methods.

Assessment of method related items which affect the bid price.

Making provisions to aid the build-up of contract preliminaries and plant expenditures.

Making provisions to aid the tendering/estimating process. Chilipunde further stated that to arrive at the project tender price, the costs arising from elements including overheads and mark-up, compiled by the estimator, have to be adjudicated by senior management or the owner of the organization. The purpose of the adjudication is to assess the risk inherent in the tender and decide upon a competitive bid price.

## 2.8.9 Tender Estimation

Laryea (2010) explained that if the contract price is correct, both the supply chain and construction project will function efficiently and effectively and the whole project will be a success. Laryea added that the engineer's estimate is crucial because it will affect the successful implementation of the supply chain management during the construction project. Only if the engineer's estimate is correct will it be possible to attain the level of service

required to produce the right quality of products, at the correct time and budget.

Rogerson (2000) observed that when the number of bidders is large, as is the case in a slow economy, an owner runs a significant risk of selecting a contractor that has either accidentally or deliberately submitted an unrealistically low price. Tenders for local contractors in developing countries should not be rejected on the basis of tender price but rather to find the suitable ways of making sure that the engineer's estimates are correct and relevant for each individual project.

Elinwa and Joshua (2001) noted that cost estimation is an experience-based process. The realisation and understanding of cost determinants enrich the competence of cost estimators and hence, along with decent cost forecasting techniques, deliver more reliable and accurate cost estimates. Cooke and Williams further noted that smaller contractors who often deliver the work packages have to compute their estimates from first principles to be able to furnish accurate quotes to the larger contractors. They emphasized the need for computing estimates from first principles for local contractors in developing countries. They observed that the use of bidding theories by senior managers in adjudicating tenders is only relevant in a stable market place.

### **2.8.10 Contractors' Performance Constraints and Inhibiting Factors**

Kululanga (2012) defined Constraint as a constraining condition, agency, or force that limits the systems' performance in a given context/environment. Kululanga said that removing constraints from bottleneck(s) is the most effective means of improving overall system performance. He observed that once the existing constraints are removed, new ones

emerge. This calls for continued research in order to establish emerging constraints with a view to reduce or minimize their impact on construction projects and sustain successful performance. The terms "performance constraints" and "performance inhibiting factors" have the same meaning in this study and have been used interchangeably.

### **2.9.0 Chapter Summary**

The performance of Government construction projects has not been as impressive, fundamentally because of the Zambian Authorities' failure to establish a coherent institutional and policy framework. Performance is related to many topics and factors such as time, cost, quality, client satisfaction; productivity and safety. Construction industry in Zambia suffers from many problems and complex issues in performance. There are many realistic reasons such as closures, amendment of drawings and amendment of the design. In addition, there are other different reasons affecting government construction projects performance in Zambia such as poor management and leadership; inappropriate participants; poor relations and coordination; absence of motivation, control, monitor or decision-making systems; inadequate infrastructure, political problems; cultural problems and economic conditions.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.0 Overview**

This chapter sets out various stages and phases that were followed in carrying out the study. Research methodology is an approach and a set of supporting methods and guidelines to be

used as a framework for doing design research (Russell, 2000). It describes the Research Design, Population, Sample size, Sampling procedure/techniques, Data collection methods and Data analysis, also the ethical issues arising from the research. The chapter ends with a statement on the challenge from the field.

### 3.1 Research Design

According to Ghauri and Grønhaug (2005), a research design is the overall plan for relating the conceptual research problem to relevant and practicable empirical research. In other words, the research design provides a plan or framework for data collection and its analysis. Different approaches exist and the approach most suitable for the research depends on the desired starting point of the researcher in relation to present theories.

This academic study adopted a descriptive cross-sectional survey design. In descriptive cross-sectional research, data is collected from the research participants by interviews or administering a questionnaire to a sample of individuals. According to Orodho (2003). The cross-sectional design supports the use of different methods to collect data from selected respondents in a single study (Mann, 2003). In view of this, the mixed method technique (triangulation) was used in this study. This method involved triangulating both quantitative and qualitative methods to collect data at the same time. Mikkelsen (1995) identified two forms of mixed method which are “within method” triangulation and “between method” triangulation. Within method triangulation involves using the same method on different occasions whilst the “between methods” triangulation is where different methods are used in the same study. This study used the “between methods”

triangulation. In this study, both interview schedule (quantitative method), and in-depth interview and observation (qualitative methods) were used to collect data from the field. Neuman (2003) recommends the use of the mixed method when he said that combining different approaches in a study is the best method to be adopted, because it is better to look at a situation from several angles than to look at it from one direction.

Some criticisms have been levelled against the use of mixed method approach. For example, Creswell (2003), described the use of mixed method is time consuming, while Sarantakos (2005), observed that mixed method is difficult to replicate, and therefore advised that it is not more valuable than the single-method procedure, which can be more suitable, useful and meaningful to answer certain questions.

Despite the criticisms levelled against the use of mixed method approach such as time consuming by Creswell (2003), several authors support the use of the mixed method because it offers many advantages which far outweigh the disadvantages. Researchers observed that the mixed method opens the way for richer and potentially more valid interpretations; it helps the researcher to gain better understanding of the phenomenon being studied, and it also helps to complement the strength of the qualitative and quantitative methods (Depoy & Gitlin, 2005).

### 3.2 Study Population

The population of interest in this study consisted of the project contractor in study, project manager, sub-contractor, general workers, and senior council officers Pemba council, and the stake holders to the project in study.

### 3.3 Sample size and sampling techniques

Sampling is the act, process or technique of selecting a suitable sample or a representative part of a population for the determining parameters or characteristics of the whole population. A sampling frame is a list, directory or index of cases, that enables realization of a representative sample (Donald, 2006; Mugenda & Mugenda, 2003).

This academic study adopted the non-probability sampling technique to select the 50 respondents. Specifically, the purposive sampling techniques were employed with a view of getting samples that are as representative as possible.

### 3.4 Sources of data and research instruments

This case study utilised both primary and secondary data. The Primary data was collected using questionnaires, in-depth interviews and observation, which were collected from project contractor, council engineers, stakeholders and senior officers from Pemba district administration office. Whilst Secondary data was obtained from past books, journals, newspapers, articles, reports, the internet, as well as conference and working papers that concern themselves with the topic under investigation. These instruments were chosen because they are the most appropriate. The interview schedule was used because of its known advantages of building good rapport, creating a relaxed and healthy atmosphere in which respondents easily cooperate, answer questions, and clear misapprehension about any aspect of a study (Kumekpor, 2002). The interview schedule was semi-structured and comprised of many close ended questions. This helped to facilitate easy administration of the interview schedules.

It also helped to avoid irrelevant answers from respondents, and this made entering data into the computer fairly easy. In-depth interviews were used to collect information from the key informants. In other words, In-depth-interviews provided some scope for asking for more relevant information through additional questions often noted when it prompted the interviewer. Observation checklist was another instrument that was used in my study.

### 3.5 Data processing and analysis

The data which was collected from the field was cross-checked first and edited to ensure that there were no mistakes in the responses and the information given was relevant. The data was then coded and fed into the computer using SPSS version 20.

The in-depth interviews were analysed manually. The data from the in-depth interviews was transcribed, categorised under specific themes and was used for analysis. Frequencies, percentages, averages, proportions and diagrams were used to present the results. Inferential statistical technique in the form of factor analysis also was used to analyse the factors inhibiting public construction contractors to complete projects on time.

### 3.6 Ethical consideration

The researcher made sure proper permission from the relevant authorities was obtained. During the administration of the interview schedule, the researcher unveiled himself to the respondents to avoid impersonation. The purpose of the study and the nature of the interview schedule were also made known to the respondents. Participation in the study was not by force but on the willingness of respondents to participate. Anonymity of respondents was also respected. During the



field work all forms of identification including names, addresses and telephone numbers of respondents were avoided.

### 3.7 Limitation of the study

Participants not giving in the relevant information required.

Inadequate time, the period was very short in which to conduct and conclude the study effectively because the organisations are far apart where the information was to be collected from and the researcher was also required to do other academic works.

Since it was a case study of Pemba district of Zambia only, the findings may not be generalised to other parts of the country

Financial limits were another issue as the study was not funded but self-sponsored.

## **CHAPTER FOUR:** **PRESENTATION OF THE** **FINDINGS**

### 4.0 Overview

The previous chapter presented the research methodology for the study; therefore, this chapter presents the findings of the study. Chapter four is a presentation of analysis of data obtained from the fielded items in the study questionnaire. From the findings, analysis and presentation was done through frequency tables, numerical values and percentages produced through SPSS (Version 20) computer software. Thereafter there is presentation and then a brief description which is guided by the objectives of the research and a discussion on the research findings from the analysis of the data.

### 4.1 RESPONSE RATE OF THE STUDY

The questionnaires were distributed to 50 purposively selected respondents and 46 were completed and returned.

**Table; 1 Study Response Rate**

	FREQUENCY	PERCENTAGE
RESPONDENTS	46	92%
NOT RESPONDED	04	08%
TOTAL	50	100%

## **CHAPTER FIVE: DISCUSION OF** **FINDINGS, CONCLUSION AND** **RECOMMENDATIONS**

### 5.0 Findings

The study found project funding levels factor influences effectiveness of projects implementation. Funding facilitates operations of the project and mode of financing the construction project influences effectiveness of implementation. Inadequate funding, funding in phases or intermittent funding negatively impacts on the implementation of the project since no operations can continue which in most cases leads to extended contract periods and escalation of contract sums, claims on interest on delayed payments, fluctuation of materials and labour prices, claims on loss of profit and idle plants and equipment.

These findings are in agreement with Rahman (2013) who observed financial stability of contractors and adequate cash flow is critical in keeping construction progress as planned. Ameh (2011) says that inadequate funds lead to time overrun and adequate funding guarantees reasonable cash flow. There should, therefore, be effective funding of project by project owners to avoid unnecessary time overrun with its attendant effect on cost.

## 5.1 Solutions to the Problems

The most effective method of minimizing cost of construction in Zambia as perceived by the contractors, clients and consultants is ensuring efficient time management through proper resource planning, duration estimation and schedule development and control. This is similar to recommendations of Ashworth (2000), where he observed that profitable firms may be generating their revenues from the elimination of waste at both professional and trade practice levels.

He recommended cost reduction measures including: establishing firmly the requirements and features of the project at the onset before getting started, preparing the project team to do its best by getting members to sign off on capabilities and responsibilities, staying diligent about keeping the project on the right path through contract clauses that disallow significant changes once the project is underway, effective human resource management through effective motivation, and project tracking involving discerning early what area or paths are leading to dead ends and applying early corrective actions.

The study discovered that there are perceptions of inadequate capacity among the Zambian local contractors and as such even the most basic of projects had been floated to foreign companies. The finding agrees with Mashamba (2001), who noted that international players have entered the Zambian construction market and is a serious threat to the local contractors. According to Shachinda (2002), the number of international firms winning multimillion projects especially donor funded as well as projects attracting international financial investment is on the increase. Suddenly, local contractors require an international credibility beyond the profile and reputation that they enjoy in Zambia. They need to adapt to meet the requirements

of clients from different cultures and with disparate values.

Local contractors have limited funds as compared to foreign contractors. This is due to lack of collateral and high interest rates charged by the banks. The solution to the financial problem faced by local contractors is the Government to facilitate a construction bank that will enable contractors to access loans at reduced interest rates. The government which is the major client of most of the local contractors must pay the contractors according to the contractual obligations.

Foreign contractors possess practical experience thus they are familiar with the working and intricacies of the industry. They are familiar with various tools and techniques for planning, scheduling and controlling construction operations and have the personality and insight that enabled them to work harmoniously with others, often under very strenuous circumstances. Many local contractors do not possess practical experience hence they need to acquire an array of skills such as business and expertise as they are expected to deal with people at strategic, technical and operational levels. The following organisations Road Development Agency, Association of Building and Civil Engineering Contractors, Zambia Development Agency, Engineering Institution of Zambia, National Association for Medium and Small-Scale Contractors and National Council for Construction should design capacity building programmes to help local contractors.

Local contractors lack access to plant and equipment. This makes it difficult for local contractors to compete favourably with foreign contractors. The Government should ensure that cooperatives schemes among local contractors, especially small and medium

contractors are encouraged so that it is easier for them to access equipment and other requirements.

## 5.2 Conclusion

Many respondents who were interviewed stated that the projects sometimes were delayed due to late payment from the government. In Zambia, contractors usually suffer from this problem. Delay in payment from owner to contractor lead to delay of contractors' performance and cause problem in time performance. This may also lead to disputes and claims between owner and contractor of project. These factors affect the overall performance of project implementation.

Most owners, consultants and contractors agreed that actual cost of executed projects was more than the estimated cost because of harsh economic conditions. Continuous closures in Zambia lead to rapid shortage of construction materials and escalation of construction material prices. This escalation of material prices affects the liquidity and cost performance of projects.

Generally, it is obtained that some consultants and contractors' projects are highly satisfied by the owners in Zambia. In addition, other contractors and consultants' projects are medium satisfied by the owner because of many reasons such as: poor quality, non-conformance to specification, problems in cost and time performance, weak coordination or relationship between projects participants, occurrence of accidents through implementation stage, claims and disputes. In addition, consultants and contractors' projects usually have few defects with high impact on the owner satisfaction.

In most cases, an overall project safety factors have been moderately implemented in

construction organizations. This is because of absence of safety control or its application through project implementation stage. In Zambia many contractors do not care about applying health and safety factors during construction of projects. In addition, consultants do not have sufficient control or continuous supervision for safety application. This leads to occurrence of accidents and problems in construction projects.

The Client is, by far, the single most important member of the construction team. He is the initiator and financier of all the projects. The major contribution the client can make to the successful operations of the construction industry lies in his skill in specifying his needs prior to the preparation of the design. It is also important for the client to set cost limits of the project at the briefing. He should also ensure that adequate financial provisions are made prior to the commencement of any project.

Cost factors are among the most important and basic considerations that Consultants must deal with. It is essential to see that projects are contained within the client's budget and cost forecasts. Cost has the final control over virtually every project. Accurate cost analysis and control is one of the necessary services the client requires from the consultants.

The major task of Contractors is to assemble and allocate the resources of labour, equipment and materials to the project in order to achieve completion at maximum efficiency in terms of time, quality and cost.

A healthy economy usually experiences an increase in construction projects and construction activities, but in a depressed economy, the incidence of project delay and construction failure tends to be more prevalent. The construction industry is a key sector in the development and economic growth of Zambia according to the National Council for Construction report (2004). This

study aimed at assessing the factors causing delays in constructing government offices at the newly created district of Pemba. The most common causes of delays discovered are changes in scope, delayed payment to contractor, poor monitoring and control and high inflation and interest rates.

### 5.3 Recommendation

Performance problem is costly and often result in disputes, claims and affect the development of the construction industry. The construction organizations must have a clear mission and vision to formulate, implement and evaluate performance. The environment of construction organizations should be proper to implement projects with success performance. It is important for construction organizations to identify the weaknesses of performance in order to solve and overcome. The following issues are recommendations related to obtained results.

#### 5.3.1 Training programs

It is recommended to develop human resources in the construction industry through proper and continuous training programs about construction projects performance. These programs can update their knowledge and can assist them to be more familiar with project management techniques and processes. In addition, it is preferred to develop and improve the managerial skills of engineers in order to improve performance of construction projects. All of that can be implemented by offering effective and efficient training courses in scheduling, time, cost, quality and management of human resources. These courses will lead to success performance through construction projects such as availability of resources as planned through project duration, availability of personals with high experience and qualification, proper

quality of equipment and raw materials used in project. In addition, training system will assist for improvement of construction time performance.

#### 5.3.2 Recommendations for construction organizations

It is necessary for construction organizations in Zambia to evaluate both of market share and liquidity before implementation of any construction project because of difficult economic situation in Zambia. That will assist organizations to perform projects successfully and strongly. In addition, it is recommended that a new approach to contract award procedure by giving less weight to prices and more weight to the capabilities and past performance of contractors. It is necessary to establish proper industry regulations and appropriate mechanism for contractors' enforcement. A structured methodology and technique should be identified to overcome the effect of political interference and economic situation on the performance of construction projects in Zambia.

In addition, construction organizations are recommended to evaluate project overtime through project construction in order to enhance and improve time and cost performance of projects. Planned time for project implementation should be more suitable for practice because of difficult in economic situation in Zambia. Time needed to implement variation orders and to rectify defects should be estimated and scheduled without affecting project time completion. Having regular meeting among project participants can also enhance performance. Construction organizations should have different incentive systems in order to improve overall performance. In addition, they should have continuous safety training and meeting in order to apply safety factors and achieve better performance.

### 5.3.3 Recommendations for Clients

Clients are recommended to facilitate payment to contractors in order to overcome delay, disputes and claims. All managerial levels should be participated with sensitive and important decision-making. Continuous coordination and relationship between project participants are required through project life cycle in order to solve problems and develop project performance. It is recommended to minimize disputes between owner and project parties. Employees in construction industries should be more interested with belonging to work to productivity and time performance of project.

### 5.3.4 Recommendations for consultants

Consultants should be more interested with design cost by using multi criteria analysis and choosing the most economic criteria in order to improve their performance and to increase clients' satisfaction. In addition, consultants are recommended to facilitate and quicken orders delivered to contractors to obtain better time performance and to minimize disputes and claims.

### 5.3.5 Recommendations for contractors

Contractors should not increase the number of projects that cannot be performed successfully. In addition, contractors should consider political and business environment risk in their cost estimation in order to overcome delay because of closures and materials shortage. There should be adequate contingency allowance in order to cover increase in material cost. A proper motivation and safety systems should be established for improvement productivity performance of construction projects in Zambia.

Contractors are recommended to minimize waste rate through project implementation in order to improve cost performance. They

should be more interested with conformance to project specification to overcome disputes, time and cost performance problems. Quality materials should be more interested with contractors to improve cost, time and quality performance. This can be done by applying quality trainings and meetings which are necessary for performance improvement. Contractors are recommended to be more interested with sequencing of work according to schedule. In addition, contractors should have a cost engineer in their projects to control cost successfully.

### 5.3.6 Recommendations for future research

It is recommended to develop performance measurement framework and modelling system in order to measure performance of construction organizations and projects. In addition, it is recommended to study and evaluate the most important factors as a case study of construction projects in Zambia.

It is recommended that the government of Zambia should develop effective and efficient monitoring and evaluation public construction policy system that will mitigate on the projects delays.

It is recommended that there should be improvement in project management; change from the traditional contract type to the design-build type; and improved cash flow on the part of the client so as to reduce payment delays. The results of this research should help construction practitioners, policy makers and researchers in the field of construction management.

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