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FACTORS CONTRIBUTING TO DELAYS OF SELECTED GOVERNMENT CONSTRUCTION PROJECTS IN LUSAKA, ZAMBIA

A Research Report Presented to the Faculty of the School of Postgraduate Studies In partial fulfilment of the Requirements for the Degree of Master of Science in Project Management

BY

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DECLARATION

I, the undersigned, declare that this is my original work, and it has not been submitted to any other college, institution, or university for academic purposes.

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DEDICATION

This work is dedicated to all academicians, policymakers, and other stakeholders in the construction and project management literature world. I also dedicate this work to my lovely wife for her support, encouragement, and patience during my studies.

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I owe much to the various authors of literature on construction and various dimensions of project management. My special thanks go to my research supervisor Professor Chanda Sichinsambwe for his assistance, patience and suggestions which smoothly guided this dissertation to its completion.

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ABSTRACT

In Zambia, most government projects are finished beyond the original time frames that were established. Project delays hinder growth, have enormous financial consequences for society, and damage the reputations of those involved in carrying out the initiatives. The country's backlog of projects has seen a rise in funding in recent years, but the people who stand to gain from these projects don't care that the infrastructure gets completed. This study set out to investigate the causes of the delays in government construction projects in Lusaka, Zambia.

The research design used in the study was descriptive, and it combined quantitative and qualitative approaches. All stakeholders in the construction industry based in Lusaka made up the study population. Using a census, the researcher selected all the potential participants from the study population, from which 71 successfully completed the closed-ended questions. Stakeholder involvement, project budgeting and fiscal management, and project management practices comprised the three primary categories into which the study divided the causes of delay. Regression and theme analysis were utilised in the study to analyse the quantitative and qualitative data, respectively.

Delays in government construction projects can stem from various factors such as inadequate project planning and management, leading to budget overruns, design errors, procurement issues and bureaucratic red tape and administrative inefficiencies. The World Bank's research highlights the above challenges, which can impact project timelines and delivery schedules. Regarding the hypotheses tested, it was found that there was no significant relationship between project management practices and delays in government construction projects, nor between stakeholder involvement and project delays. However, there was a notable correlation between project budgeting and fiscal management and delays, indicating that effective management of financial resources could mitigate project delays in government construction endeavours.

Government construction projects in Zambia often face delays due to weak project planning, bureaucratic procedures, and external factors like weather, limited resources, and labor conflicts. The World Bank's research highlights these challenges, which can impact project timelines and delivery schedules. The study found that project management practices, including planning, initiation, execution, monitoring, control, and closure, are crucial for project success, with prepared plans being a foundational element. Rigorously prepared plans are foundations for project success according to several studies.

It was discovered that stakeholders' such as clients' payments for the contractor's labour caused delays which have a negative impact on the project timeframe. Studies found that contractor's lack of experience, inadequate administration and oversight of the project site, and insufficient funding to begin the job are stakeholder related causes of project delays. Prior research indicates that financial management and project budgeting play a role in the delays that occur in building projects.

All initiatives in the public sector should utilise efficient project planning and commencement procedures. Adopting and consistently implementing best practices for project management throughout the organisation will help achieve this. Additionally, this study suggests emphasizing implementation efforts to guarantee that plans are carried out successfully to completely achieve goals. According to the terms of the building contract, the customer must honour payments made to contractors in a timely manner.

At the implementation stage, the client and users must make sure there are enough financial resources for the project to prevent work from stopping on-site owing to cash flow issues. To reduce unnecessary bureaucracy, the government should give employees greater authority and reduce the hierarchy of the organizational structure. This would ensure that decisions are made by people other than those at the top.

Key words: Construction Delays, Project management practices, budgeting and fiscal management, stakeholder involvement

CHAPTER ONE
BACKGROUND TO THE STUDY

1.0 Introduction

Construction projects serve as the cornerstone of economic, social, and environmental progress in nations across the globe. These ambitious initiatives drive infrastructure development, shaping the modern world as we know it today. From the construction of vital transportation networks like roads and bridges to the establishment of critical facilities such as hospitals and schools, these projects are the bedrock of advancement (Chen et al., 2019). It is important to recognise that the challenge of project delays transcends geographical boundaries. Delays have been identified as a pervasive issue in construction projects worldwide. Consequently, extensive research has been conducted within the field of construction project delays, both on a global scale and, notably, from a local perspective in Lusaka, Zambia. These studies have illuminated the intricate web of challenges that beset even the most meticulously planned initiatives. This chapter commenced with the orientation of the study, along with the statement of the problem that necessitated the carrying out of the research. The chapter also presented the research objectives and the significance of the study. Lastly, the chapter gave the limitations and delimitations of the study, before concluding with a summary of the chapter.

1.1 Background of the Study

The construction industry is a conglomeration of diverse fields and participants that have been loosely lumped together as a sector of the economy (Hendrickson and Au, 2003). The industry plays a central role in national welfare, including the development of housing, office buildings, educational, health and transport infrastructure and industrial plants, and the restoration of the nation's infrastructure and other public facilities. The importance of the industry lies in the function of its products, which provide the foundation for industrial production, and its impacts on the national economy cannot be measured by the value of its output or the number of persons employed in its activities alone (Hendrickson and Au, 2003). Construction refers to all types of activities usually associated with the erection and repair of immobile facilities. Contract construction consists of many firms that perform construction work for others and is estimated to be approximately 85 percent of all

construction activities. The remaining 15 percent is performed by owners of the facilities and is referred to as force-account construction (Hendrickson & Au, 2003).

This study considers contract construction only. Several factors, however, are particularly noteworthy because of their significant impacts on the quality, cost and time of construction. It is axiomatic of construction management that a project may be regarded as successful if it is completed on time, within budget, and is of the desired quality (Falqi, 2004). Cost escalation, schedule overruns and quality shortfalls can occur due to a wide range of causes on various types of projects. If project costs or schedules exceed their planned targets, client satisfaction would be compromised. The funding profile would no longer match the budget requirement and further slippage in schedule could result. On the other hand, if the project quality does not meet design standards, the client's satisfaction would be compromised, thus cost escalation and schedule overruns would result in an effort to improve the situation. The resulting effects would be detrimental, especially in the case of developing countries, whose wealth measure is greatly dependant on their performance in infrastructure provision through the construction industry. According to Ahmed et al. (2002), delays on construction projects are a universal phenomenon. They are usually accompanied by cost and time overruns. These have a debilitating effect on parties to a contract such as owners, contractors and consultants in terms of growth in adversarial relationships, mistrust, litigation, arbitration, cash-flow problems and a general feeling of trepidation towards each other (Ahmed et al., 2002).

Many, if not most, construction projects in Zambia have experienced cost escalation, time overruns as well as quality shortfalls. The public and various stakeholders have bemoaned the delayed handover of projects and prevalent quality shortfalls on construction projects. Time and again, the blame has been apportioned to contractors (The Post, 10/01/2008). The study reported in this dissertation endeavoured to establish the causes and effects of cost escalation, schedule overruns and quality shortfalls on construction projects and proposes mitigation mechanisms. Government projects often encounter challenges related to resource scarcity, which can result in significant delays. The agency theory explores the principal-agent relationship in government projects.

Delays can occur when there is a misalignment of incentives and objectives between the government (the principal) and contractors (the agents), leading to suboptimal project performance (Ayman, 2000). In line with Risk Management Theory, delays in government construction projects can be seen as a consequence of poor risk management practices. Government entities must effectively identify, assess, and mitigate project-related risks to prevent and address delays (Frimpong et al., 2003).

In the present context, delays in government construction projects continue to pose significant challenges in various regions, including Zambia. Despite infrastructure development being a priority for governments, delays persist, resulting in budget overruns and postponed project completion dates. Zambia's construction sector has witnessed significant growth and expansion (Chileshe & Dzawanda, 2017; Mwenya & Bwalya, 2019). The government has made substantial investments in infrastructure development to stimulate economic development and prosperity (Phiri & Mumba, 2018). However, a major concern plaguing the sector is the recurring problem of delays in government construction projects, leading to budget overruns and project completion postponements (Mwanza & Ndola, 2015). The causes of delays in government construction projects are multifaceted and have been studied in various regions, shedding light on the complexities of these issues. These studies collectively emphasise that the causes of delays in government construction projects are context-specific and can vary from one region to another.

While inadequate budgeting, bureaucratic challenges, and contractor-related issues are common themes, the specific factors at play may differ based on the local environment and project characteristics. Understanding these diverse causes is essential for developing targeted solutions to address delays in government construction projects. As noted above, different studies looking into causes of delays in projects have been carried out around the world. Each of these studies looked into different groups, different numbers and different locations. The researcher deemed this study vital to establish empirical evidence on capital project delay factors in Namibia.

1.2 Statement of the Problem

The construction industry in Zambia has been one of the fastest growing industries in the recent past and has been estimated to have a contribution of about 10.4% of the GDP at constant 1994 prices as of the year 2007 (CSO, 2008). The success of a construction project is critically affected by the capacity of the implementing firms, design variations, nature of the contract and stability of the economic environment. However, there seems to be no agreement among scholars and practitioners as to the nature of the causes of delays in construction projects. There also seems to be lack of consensus as to the principal causes of delays in public construction projects (Kwatsima, 2016). The increase in project delays in the construction industry impair the economy because it results in wastage of resources, enhanced costs of projects and frustration among the end-users, yet construction is one of the principal sectors that can revitalize economic growth. Delays in large construction projects particularly roads and buildings, will continue to plague the construction industry in the foreseeable future unless strategic measures are taken by the industry (IPPR, 2011). An increase in the number of delayed government projects in Zambia has raised concerns as to where the root-cause of delays in the construction of capital projects is (Cloete, 2019).

There is evidence pointing to the problem that most of the projects that the government implements are not completed and delivered according to the planned time frame. Banda and Pretorius (2016) alluded to the fact that the Construction Sector Transparency Initiative (CosT) study undertaken in 2010 revealed that most projects had delayed up to 197% time overrun. It further demonstrated that most projects that the government agencies implemented, whether through in-house or outsourcing, failed to be completed on time, within budget and with the required quality. Further investigations into the trends in some sectors of the construction industry indicate that there has been a consistent pattern of projects costing more than planned, taking longer than planned or even being terminated before commencement or during implementation (Kaliba, 2010). According to the Projects Progress Report (Roads Department, 2002) and Projects Progress Report (RDA, 2005), a total of 12 government road projects were behind schedule from 1994 to 2005 in eight (8) provinces in more than 20 districts. Not much is known to have been

investigated and reported on the real causes of such delays in the public sector. Filling this literature gap is crucial to inform policy and decision-making, ultimately facilitating the successful implementation of government construction projects in Lusaka and contributing to the broader development objectives of the district.

1.3 Objectives of the Study

1.3.1 General Objective

The study aimed to investigate the causes of delays in selected government construction projects in Lusaka, Zambia.

1.3.2 Specific Objectives

The specific objectives of the study were:

i. To identify the most common causes of delays in government construction projects in Lusaka, Zambia.
ii. To determine the effect of project management practices on delays in government construction projects in Lusaka, Zambia.
iii. To explore the influence of stakeholder involvement on the occurrence of delays in government construction projects in Lusaka, Zambia.
iv. To investigate the role of project budgeting and fiscal management in delays in government construction projects in Lusaka, Zambia.

1.4 Study Hypotheses

The following hypotheses served as a guide for the study:

i. H_{01}: There is no significant relationship between project management practices and delays in government construction projects in Lusaka, Zambia.
   H_{a1}: There is a significant relationship between project management practices and delays in government construction projects in Lusaka, Zambia.

ii. H_{02}: There is no significant relationship between stakeholder involvement and the occurrence of delays in government construction projects in Lusaka, Zambia.
H_{a2}: There is a significant relationship between stakeholder involvement and the occurrence of delays in government construction projects in Lusaka, Zambia.

iii. H_{03}: There is no significant relationship between project budgeting and financial management and delays in government construction projects in Lusaka, Zambia.
H_{a3}: There is a significant relationship between project budgeting and financial management and delays in government construction projects in Lusaka, Zambia.

1.5 Significance of the Study

The importance of this research rests in its potential to advance project management within the framework of government construction projects in Lusaka, Zambia. By investigating the causes of delays in these projects, the study will offer valuable insights into the underlying factors and complexities that impede timely project completion. This understanding will advance our knowledge of project delays and enable the development of effective mitigation strategies. The study's findings will directly benefit the government and other stakeholders involved in Lusaka construction projects by providing evidence-based data that can be utilised to enhance stakeholder participation, optimise project planning and fiscal management, and inform the formulation or revision of relevant government regulations and policies. Additionally, the research outcomes will provide a valuable resource for academics and researchers interested in further exploration and investigation of building project management, contributing to the broader body of knowledge in the field.

1.6 Scope of the Study

The study focused on selected government construction projects in Lusaka, Zambia, from the year 2017 to 2022. These projects were limited to those that had encountered delays during this five-year period. The respondents for this study primarily consisted of key stakeholders involved in the selected government construction projects. This included project managers, government officials, contractors, architects, engineers, and other

relevant professionals who had direct insights into the factors contributing to delays in these projects. Their expertise and experiences provided valuable data for the research. Additionally, relevant government policies and regulations pertaining to construction projects in Lusaka were analysed as part of the study's scope.

1.7 Study Limitations

While conducting this research, certain limitations were encountered. These limitations may have influenced the study's findings and should be considered when interpreting the results. Firstly, the study focused solely on government construction projects in Lusaka, Zambia, and its findings may not be generalizable to other regions or types of construction projects. Secondly, data collection was dependent on the cooperation and willingness of the respondents, which could introduce response bias. Lastly, the study's time frame was limited to projects from 2017 to 2022, and therefore, the long-term effects of delays beyond this period were not explored.

1.8 Report Outline

This report is structured into six chapters, each addressing specific aspects of the research.

Chapter Two - Explores into a comprehensive review of the existing literature related to government construction project delays, including global perspectives and unique challenges faced in Lusaka, Zambia.

Chapter Three - Outlines the research methodology employed in this study, including data collection methods, data analysis techniques, and the research design.

Chapter Four - Presents the research findings and their analysis in line with the study's objectives and research questions.

Chapter Five - Discusses the implications of the research findings, aligning them with the existing literature and offering recommendations for addressing delays in government construction projects in Lusaka.

Chapter Six - Serves as a conclusion, summarising the key findings, highlighting their significance, and suggesting avenues for future research.

1.9 Chapter Summary

Chapter One introduced the research, setting the stage for the study of delays in government construction projects in Lusaka, Zambia. It highlighted the importance of construction projects for economic, social, and environmental development. The chapter identified the recurring issue of delays in government construction projects in Lusaka, outlining various factors contributing to these delays. It emphasised the need for localised research to address this problem effectively. The chapter also presented the research objectives, research questions, hypotheses, and the significance of the study. The scope of the study was defined, focusing on the time frame from 2017 to 2022 and key stakeholders in government construction projects. Additionally, the chapter acknowledged study limitations, outlined the report's structure, and summarized the key points discussed.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This chapter examines the body of research on the reasons behind construction project delays worldwide and in Zambia, with a focus on government projects. It provides the background information required for this investigation by providing an overview of previous research on similar subjects. It further divides the task into several smaller subjects that are determined by the study's objectives. The keywords in this literature review will revolve around themes from the aims such as Project management practices, stakeholder involvement, budgeting and fiscal management and government and regulatory policies. The review will endeavour to present recent literature emanating from the past two decades, but empirical studies which are 10-15 years old.

Numerous investigations into the reasons behind project delays have been carried out globally. These studies all investigated distinct groups, varied numbers, and different locales. The study, according to the researcher, was essential to establishing factual data on Zambian government project delay reasons. The related studies were retrieved from published ResearchGate and academia websites using Google and Google scholar. The chapter holds related literature on the four themes from the aims arranged in global, regional, and local contexts.

2.1 Empirical Literature on Causes of Delays in Government Construction Projects

The project is delayed when the time overrun either behind fulfilment date determined in the contract, or after the time that the parties concurrent upon for submission of a project. Assaf and Al-Hejji (2006), and Zack (2003) defined project delay as the overrun of time past the date of completion determined in the contract agreement or beyond the date agreed by the parties for the delivery of project. Majid (2006) pointed out that the delay of projects happens when their stipulated completion durations have not been achieved. Project delay can be defined as an action or event that extends the time needed to perform the works specified in the contract. This usually results in added working days or delays in starting the project (Sweis, Sweis, Abu Hammad & Shboul 2008). Culfik et al. (2014) defined the project’s delay as a slipping over its planned schedule, and they

concluded that the delay causes loss of revenue for the owner because of shortage of production facilities and rentable space. On the other hand, to the contractor, a delay means higher overhead costs due to the extended working period.

Msafiri (2015) affirms that in the construction industry, the term delay is used to describe the time overrun of a project beyond the time agreed to contractually. This can be because of the parties concerned in the contract, who are the client, contractor, and the consultants. Marzouk and El-Rasas (2014) agrees with Msafiri (2015) by defining a construction delay as a time overrun beyond the agreed contract date for the delivery of the project, the authors went further to clarify that a construction delay is an act that extends the required time for the completion of works manifested as additional days as defined by the scope in the contract. Project delays have an immense cost to society, and they adversely affect the parties to the agreement (Ondari & Gakera, 2013). Previous studies that have been conducted regarding delays in construction projects yield different typical causes of delays. In Morocco, Bajjou and Chafi (2018) identified Forty-nine (49) different causes of delays from the literature review, and they were later classified into Nine (9) dissimilar categories.

Similarly, Kamanga and Steyn (2013) found seventy-two causes of delays in Malawi, and these were studied individually without being categorized into groups. It categorised delays in distinct groups of up to Eleven (11) in some instances. However, this study re-clustered these factors into three (3) main categories. These categories are Project management practices, stakeholder involvement and project budgeting and fiscal management.

2.1.1 Project management practices and delays in government construction projects

Project management is the application of processes, methods, skills, knowledge, and experience to achieve specific project objectives according to the project acceptance criteria within agreed parameters. Various scholars have differently defined project management. Kerzner (2006) sees project management as the process of planning,

defining work requirements, and specifying the levels of quality of deliverables, as well as the resources needed, project monitoring, evaluating, and making corrections where necessary. According to Kerzner (2006), there has been an increased use of project management over the years by organizations to achieve organisational goals. Qureshi, Warraich and Hijazi (2009) recommended that project management knowledge and practices can be modelled based on individual processes. An analysis of project management research in the allied disciplines reveals an explosion of popularity and a strong interest in project management research (Kwak & Anbari, 2009). This has been widely recognised in the design, planning, control, cost, and quality of projects across the globe (Ika, 2012; Ika, Diallo & Thuillier, 2010; Moyo, 2009). The strategic management of every organisation depends on projects and how they have been managed and each project is unique and requires a tailored project management approach (Shenhar & Dvir, 2007).

2.1.1.1 Global literature

Hussain et al. (2018) conducted a study in Pakistan, looking into the critical delaying factors in public sector building projects and the study decided that Project management practices were among the top critical delaying factors relating to the client. Hussain and Omran (2012) assert that 70% of the construction projects that were abandoned in the transport construction industry of Malaysia were because of financial problems of funders and the local and national governments.

In a related study by Piper (2011) in Malaysia, it was found that in the period 1999 to 2007, up to 71 percent of the roads and other construction projects that failed or took longer than planned or extended the dates of commencement than the planned dates were due to constrained financial allocation and the contractual time agreements that were never feasible, pointing to poor project management practices.

Project failure is a common feature in state construction industry. The problem of delays in the housing construction sector is a major feature in developing countries as in other emerging countries and in 2005, 17.3 percent of 417 government contract projects in

Malaysia were either delayed more than three months or completely abandoned (Sambasivan and Soon, 2007). Further, there are regulatory, statutory, and legislative requirements to be strictly followed in implementing projects in the public sector. As a result, the project management process in the state sector takes an exceptionally long time. Many technology-sensitive or demand-driven facilities fail to meet timely market needs and become functionally obsolescence as soon as they open. The US Army has begun to use design-build methods to decrease time it takes to complete a project (McWhirt, Ahn, Shane & Strong, 2011).

According to Alnuaimi and Al Mohsin (2013), the factor that leads to delayed completion of projects related to administration is the lack of experience and competence required for the team management. The National Partnership Policy (2012) referred to the inability of the Yemeni government to attract and hire highly qualified and skilled staff to manage the donor funded projects, which affects the planning and execution of project processes and results in poor implementation of projects. According to the Yemeni Tenders Law No. 23 of 2007 and the agreements between donors and government variation orders in specific thresholds, it is required to get approval from government agencies and donors.

Odeyinka and Yusif (1997) found out that variation in orders is one of the major causes of projects delay. Assaf and Al-Hejji (2006), Al-Momani (2000), and Chan and Kumaraswamy (2002) argued that the change of orders is a major reason for delay in construction projects. Boyce and Haddad (2001) found out that locating PIUs outside the government structure results in a lack of learning, coordination across agencies and eroding performance. Zainal et al. (2017) stated that the poor coordination among parties is one of factors that cause projects delay.

Aydin and Mihlayanlar (2018) studied the causes and effects of project delays in Turkey and the three most prevalent causes of delay were identified as: changes in the legal regulations, delays in getting municipality permits for the construction works to begin and difficulties in financing the project. The absence of detailed surveys before the design and

extreme weather conditions were found to be critical delaying factors in public sector building project in Pakistan (Hussain, 2018).

In another study of causes and effects of project delays in South Africa by Oluwaseun and Kruger (2017) strikes were ranked as the number one cause of delays in construction projects. Amongst the top five (5) delays featured was rework due to errors during construction, shortage of materials in the market, suspension of work by the client and poor communication between the parties. The authors found that the creation of stress on contractors and mediocre quality of work were the two (2) major effects of delays that were limited to South African projects only.

Other studies (Frimpong et al., 2003, Schexnayder et al., 2003; NAP, 2002; Datta, 2002; Mansfield et al., 1994) identified cost escalation to be a result of problems such as poor contract management, poor technical performances, delay in land acquisition, unexpected problems in supply of raw materials, illegal encroachment on land even during project implementation, or due to internal problems in government organisations. It has further been noted that delays between the planning stage and actual implementation, of especially large infrastructure projects, is a ubiquitous problem resulting in cost escalation and failure to meet the demands as the construction completion horizon is reached even before the completion of the project (Datta, 2002).

2.1.1.2 Sub-Sahara Africa literature

Owolabi et al. (2014) confirm that there are many factors that prompt delays of construction projects. In their study conducted in Nigeria, the authors looked at distinct factors, which included the lack of funds to finance the project to completion; the changes in drawings; the lack of effective communication among the parties involved and the lack of adequate information from consultants. Also, the slow decision-making and contractor insolvency; the variations, the project management problem, the mistakes and discrepancies in contract documents, the equipment availability and failure and the mistakes during construction amongst others also contributed to project delays.

Nyoni and Bonga (2017) found that delays in project payments by the owner, difficulties in financing the project and the change in specifications are amongst the highest-ranking factors found in a study looking into factors affecting delays in construction projects conducted in Zimbabwe.

According to Akinsiku and Akinsulire (2012), Talukhaba (1999), Al Khalil and Ghafly (1999), Enshassi, Al-Najjar and Kumaraswamy (2009), Assaf et al. (1995), Mezher and Mezher (1998) and Zainal et al. (2017), the executive bureaucracy in clients' organization and delay in payments for the contractor are identified as significant factors that cause the projects delay. Al Fakhri et al. (2017) stated that the delay in getting permits from different government offices and the change in the government regulations and rules are causes of delay in the construction industry of Libya.

Aziz (2013) considered the bureaucracy in the bidding/tendering method as one of the factors that cause projects delay in Egypt. Ayoki (2008) stated that few project managers fully understand the donor procurement system. Ayoki (2008) also pointed out that the good working relationship between project management team and the donor team is considered very crucial for the success of any project. Political insecurity and instability were found to be amongst the top five causes of delays in Uganda's public sector construction projects (Alinaitwe, Aplot & Tindiwensi 2013).

2.1.1.3 Zambian literature

Kaliba (2010) indicated that Zambian construction companies face several challenges, as both international and major local companies compete, as well as political intervention and the difficult market climate. In its report, Ahmed et al. (2007) identified that an association exists regarding the project approach to procurement and economic situation. Gunderman and Applegate (2005) have similar studies that recommend that businesses build their capacity to balance the opportunities they are facing with potentially negative risk consequences and that they can do this and put themselves on an even higher footprint, drawing appropriate assumptions.

2.1.2 Stakeholder involvement and delays in government construction projects

Stakeholder involvement is a process of planned, supported, and checked interactions that run parallel to and are fully integrated with the development of the "technical" deliverables (the physical outputs from the project). It runs the length of the project, from project definition and initiation through implementation, and is carried forward to post-implementation – into the operational and maintenance phases of the product life cycle. It is integral to creation of the "correct" technical products (definition, execution, acceptance), then the implementation and use of those products – to gain full business benefits (PMI, 2004). Many stakeholders, individuals and groups take part in the provision and delivery of construction projects, and each has their own role, requirements, and objectives. So, because stakeholders of construction projects are many and different, this introduces a level of complexity to the concept of stakeholder involvement (SI) within the industry (Bal et al., 2013). However, depending on the type of project being undertaken and its specific requirements, only certain groups may need to get fully involved in all phases of a project.

To meet the differing demands of different stakeholder groups, and to increase the effectiveness and efficiency of the decisions that are made during the construction project lifecycle, project managers need to develop comprehensive stakeholder involvement plans (Saghatforoush et al., 2010). Earlier research studies in the construction sector (Bal et al., 2013, Bosher et al., 2007, Olander and Landin, 2005) highlight that stakeholder involvement is important in improving the effectiveness of project outcomes (Yang, 2010). The quality of a construction project is also largely dependent on the proper performance management of diverse stakeholders, especially contractors and consultants (Low Sui and Ke-Wei, 1996). This means that if major parties to a contract are not committed to properly fulfilling their responsibilities, it is likely to adversely affect the final project quality level.

2.1.2.1 Global literature

Chai and Yusof, (2013) find poor site management and supervision as ranking high in the order of causes of construction project delays in Malaysia. The ability of the principal

agent during the period of project implementation also influences the timely completion of a project. The cheerful outlook of principal agents and the rest of the project team surfaces as the most crucial success attributes for quality compliance at project sites (Kenig et al, 2012). Furthermore, the authors discerned that some of the attributes that are with high significance are all principal agent related. These are attributes such as the effective monitoring and feedback by the principal agent, technical capability of the principal agent, leadership quality of the principal agent, proper monitoring, and feedback by the consultants.

According to Mohammed (2012) construction projects move through several stages. Commencing with project initiation as the first stage, this is the stage where project identification takes place, and the feasibility of the project is gauged to establish project viability. The second stage is the planning stage, which encompasses project design and the allocation of resources and necessary financing. The execution of the project is the third phase, and it involves implementation of designs within the resources distributed. This execution must follow the three constraints of time, scope, and quality.

Another delaying factor found by Hamzah et al. (2012) following a study on the effects of delayed housing construction in India and Indonesia, with regards to planning is: inadequate planning methods and ineffective coordination of resources. Omran, Abdalrahman and Pakir (2012) emphasized that the need for adequate advanced planning of construction project and project development paid off and it is a route worth exploring.

Van, Viet, and Nicholas Taylor (2016) found that the lack of information exchange between the parties and incompetent supervision consultant are amongst the greatest contributors to project delays. This is, following a study done in Vietnam looking into delay factors affecting government construction projects.

Hussain et al. (2018) finds difficulty in financing the project by the contractor and inadequate contractor experience amongst the top eight (8) factors causing delays in

building projects in Pakistan. A study by Khoshgoftar, Bakar and Osman (2010) conclude that poor site management, poor contract administration, finance, payment for completed works, improper planning and lack of communication between the different parties to a project are the key reasons for delays in construction projects in Iran.

According to Alaghbari et al. (2018) in a study conducted in Yemen, three (3) of the Five (5) factors changing construction projects are attributed to the contractor. These factors were identified as poor management and supervision of the project site by the contractor, inadequate experience of the contractor and lack of sufficient finances to start off the project.

In a case study conducted in the Amazon by Maues et al. (2017) the authors found that the ability of the construction company, the time that it operates, and the start-up conditions have less influence in delaying construction projects. This is as opposed to the findings in Yemen by Alaghbari et al. (2018).

Tabishl and Jha (2011) conducted a study in Singapore, it was concluded that thorough and detailed site investigation aids in proper planning which results in easier clarification of the scope and development of a clear understanding. This also aids in having minimal changes to the scope during construction. Omran, Abdulrahman and Pakir (2012: 23) state that, “accurate planning in construction is a key determinant in ascertaining the delivery of the project within budget and on time.”

2.1.2.2 Sub-Sahara Africa literature

According to Muhwezi, Acai, and Otim (2014), there are a number of client, contractor, and consultant-related factors that contribute to construction project delays. The primary source of delays cited by customers and contractors for construction projects was found to be consultant-related factors, which the researchers confirmed had a significant impact on building construction projects in Uganda.The authors observed that the main causes of delays in building construction projects in Uganda were unclear designs, poor environmental impact assessments, delays in preparing valuations and payment

certificates for contractors, and delays in assessing design variations. The impact of delay factors connected to clients on construction projects was placed second, while the impact of delays related to contractors was ranked third. Wambugu (2013) carried out a study in Nairobi to determine the successful completion of rural electrification projects in Kenya. The study concluded that the consultants' failure to supervise and inspect the construction work in a project resulted in reconstruction in cases of subpar workmanship and delayed the projects' completion.

Omran, Abdalrahman, and Pakir (2012) examined 211 road projects in Southern Sudan, Kenya, and Malawi in 2012. They found that incompetent supervisors who lack experience and provide inadequate oversight, or incompetent labourers who lack the requisite skills and drawing knowledge, are the reasons why jobs need to be redone.

2.1.2.3 Zambian literature

According to Chilongo and Mbetwa (2017), the risks associated with the construction industry, the extraordinarily high interest rates that banks impose, the lack of collateral, and the lack of financial and business management skills all have an impact on project performance. In addition, clients who have not paid for finished work on time and who lack the necessary abilities to correctly program the project's resources. Other factors included the contractor's incapacity to provide paperwork for prompt payment and bidding on projects that exceed their technical and financial capabilities. These conclusions came from an analysis of the variables influencing contractors' performance on projects in Lusaka, Zambia.

2.1.3 Project budgeting and fiscal management and delays in government construction projects

Budgeting and fiscal management involve managing revenue increases and cost savings; and final accounting is the process of passing on the experience and lessons learned in a project. Project budgets must be dependable, clear, and executable. Project accounting must be correct, complete, and measurable (PMI, 2004). Budgeting and accounting are critical components that must interact to achieve the goals and aims of an organisation.

Budget acts as fiscal management tool used to measure the actual and forecast against the budget throughout the planning process, it also aids in monitoring and controlling of current performance by providing early warning of deviations from the plans and analyses the anticipated versus actual results. Budgets supply a basis for directing and evaluating the performance of projects (Hussein and Omran, 2012).

2.1.3.1 Global literature

According to Hussain and Omran (2012), financiers' and governments' financial difficulties accounted for 70% of the building projects that were shelved in Malaysia's transport construction sector. In a related study conducted in Malaysia, Piper (2011) discovered that between 1999 and 2007, up to 71% of the road and other construction projects that failed, took longer than anticipated, or started later than anticipated did so because of limited funding and unfeasible contractual time agreements.

Construction projects frequently experience schedule overruns. Several factors affect completion periods of projects. It has been argued that it is necessary to create awareness of causes of project delays, their frequency, and the extent to which they can adversely affect project delivery (Falqi, 2004). Mansfield et al. (1994) showed that the most significant factors affecting construction schedules were financing and payment for completed works, poor contract management, changes in site conditions, shortage of materials, and improper planning.

Ahmed et al. (2002), Al-Moumani (2000), Chan and Kumaraswami (1997) and Assaf et al. (1995) agreed on most of the causes of schedule overruns in the construction industry. They concluded that the most significant causes of overruns included approval of working drawings, delays in payments to contractors and the resulting cash-flow problems during construction, design changes, conflicts in work schedules of subcontractors, slow decision making and executive bureaucracy in the clients' organisations, design errors, labour shortage and inadequate labour skills.

2.1.3.2 Sub-Sahara Africa literature

A 2011 study that looked at projects delayed in East Africa focused on major road projects connecting Uganda, Kenya, Tanzania, and consequently Burundi. Poor financial management, corruption, and a lack of financial resources because of project funding diversions were among the causes mentioned. Hussain et al. (2018) and Gaba (2013) concur that most government projects have payments that take longer than the contractually agreed upon period. This delays the project's timely completion and results in a delayed handover of the project. Hussein and Omran (2012) maintain that a project must ultimately maintain its financial viability to be successful. The authors demonstrated how serious issues can arise from either a general lack of funding for a project's completion or from clients' or project owners' delays in paying for services rendered.

According to Alinaitwe et al. (2013), among the main reasons why public sector construction projects in Uganda are delayed include modifications to the scope of work, payments that are made later than expected, and inadequate oversight and control.

Building projects may be delayed for a number of reasons, according to Owolabi et al. (2014). The study's authors, who conducted their research in Nigeria, looked at a variety of factors, such as the inability to obtain the funds required to complete the project, changes made to the original plans, poor communication between the parties, and insufficient information supplied by consultants. In addition, there are deviations, project management issues, inaccuracies and inconsistencies in contract agreements, equipment availability and failures, construction errors, slow decision-making, and contractor insolvency.

In research examining variables influencing delays in construction projects conducted in Zimbabwe, Nyoni and Bonga (2017) discovered that changes in specifications, challenges in financing the project, and owner delays in project payments rank among the highest-ranking causes.

2.1.3.3 Zambian literature

Aigbavboa, Thwala and Mukuka (2014) assessed the construction professionals' perception on the major causes of construction project delays and their consequential effects of on the Lusaka – Zambia, construction industry. Data used in this study were derived from both primary and secondary sources. The secondary data was collected through a detailed review of related literature. The primary data was collected through a structured questionnaire survey, distributed to construction professionals, who included: architects, quantity surveyors, builders, civil engineers, land surveyors and project managers. The primary data from the questionnaires was analysed using descriptive statistics procedures. Findings from the study revealed that delay in progress payments, difficulties in financing projects by the contractor, delay in approving major changes in the scope of work amongst others, were the major causes of construction delays. The study also revealed that extension of project time and cost over runs are the two major effects of construction project delays in Lusaka, Zambia.

2.1.4 Government policies and regulations and delays in government construction projects

Given that both government policies and how they are conducted may strengthen a democracy, there is a need to define government policy more broadly and the ingredients of government policy execution (GPE) (Adeniran, 2016; Delamaza and Palma, 2022; Matuku-Mphahlele & Zandamela, 2022). These terminologies are essential due to the elements involved in the execution of government policy. Hence, the word government policy execution is a subset of the primary term government policy. Government policy can be described as a cycle or process with several steps to be taken before achieving a policy's goals. According to Galli (2015), government policy should be viewed as both a declaration of goals and a negotiated outcome resulting from the execution process. One of government policy's most distinguishing features is how unstable and changeable it is (Deygers & Vanbuel, 2022). The assertion that proposed or envisioned government policies lack any clear beginning or end is maintained in the study of Ashmore et al. (2020), which noted that they should be understood as analogous to seashells or jelly. It

flows circularly at times. Myrczik et al. (2022) assert that when the policy is discussed, it implies addressing pertinent issues germane to human existence.

2.1.4.1 Global literature

According to research by Aydin and Mihlayanlar (2018) on the causes and consequences of project delays in Turkey, the three most common reasons for delays are modifications to laws and regulations, hold-ups in obtaining municipal permits before construction can start, and financial challenges. According to Alinaitwe, Aplot, and Tindiwensi (2013), political instability and insecurity ranked among the top five reasons for delays in most public sector building projects.

2.1.4.2 Sub-Sahara Africa literature

Politicians are the main reason behind road project delays in Tanzania, according to Simon (2017). This conclusion was established via a study investigating the variables contributing to Tanzanian road development delays. The research findings validated that delays in road building projects were not significantly caused by environmental factors or the performance and involvement of other stakeholders in the construction project.

2.1.4.3 Zambian literature

Road projects are politically driven in development countries like Zambia and are perceived by many as substitutes to meet public demand. Many roads are left to politicians and Kaliba (2010) states that the government's aim is to lead the company's rapid track structural project and to review its construction projects in developing countries. This puts undue pressure on the government to start something that will stop because the government budget does not change it. De la Cruz et al. (2006) argued that achieving political results resulted in unplanned construction of infrastructure that lacked the requisite funding and coordination resulting in project delays.

2.1.5 Critique of the literature reviewed

Falqi (2004) identified the principal causes of delay in construction projects in Saudi Arabia and the United Kingdom. The study emphasised the need to create awareness of

causes of project delays, their frequency, and the extent to which they could adversely affect project delivery. Contractors, consultants, and owners in each country were shown to be statistically agreed on the relative importance ranking of delay causes. However, the extent of suffering delay causes differed between Saudi Arabia and the United Kingdom. The performance of contractors was recognized as the most important delay category, followed by owner-related factors, while the consultants' delay factors were assigned as the least important. This is a well elaborated research work. However, lack of data on cost and quality in relation to construction projects made the research somehow incomplete.

Frimpong et al. (2003) illustrated that ground water construction projects suffered cost and time overruns. Ranked results indicated that clients, consultants, and contractors all felt that the major factors that could cause excessive groundwater project cost or schedule overruns in developing countries were poor contractor management, monthly payment difficulties from agencies, material procurement, poor technical performance (quality shortfalls), and escalation of material prices according to their degree of influence. Other factors that emerged clearly as not especially important, but of interest, were harsh weather and unexpected natural events. The results showed also that many of the problems in the groundwater construction projects originated from inadequate resources management (human, technical and material). The study was limited to water projects only. Also, there was no data on causes and effects of quality shortfalls on construction projects.

Ahmed et al.'s (2002) study was to identify the perceptions of the different parties regarding causes of delays, the allocation of responsibilities and the types of delays. The paper concluded that building permits approval; change orders; changes in drawings; incomplete documents; inadequate inspections; changes in specifications; design development; and changes in laws and regulations as the most critical causes of delays in Florida construction projects. The study was limited to building projects only in a developed region such as Florida. The study also just looked at only one factor of the project triangle and did not refer to the effects of cost and quality on a project.

Datta (2002) highlighted the factors that were crucial to Kanpur Development Authority (KDA) emerging as an efficient and economic provider of infrastructure services in Kanpur. The paper did not consider schedule and quality issues on construction projects. Al-Moumani (2000) concluded that the main causes of delay in construction projects relate to designers, user changes, weather, site conditions, late deliveries, economic conditions, and increase in quantities. The study ably quantified the amount of construction delays but did not correlate any effects of cost and quality on construction projects. Assaf et al. (1995) identified fifty-six causes of delay in Saudi Arabian construction projects and concluded that contractors, consultants, and owners agree on the importance ranking of delay factors. The study was limited to building construction and only focused on construction delays. There were, however, no tangible solutions that were proposed to systematically deal with construction delays.

A review of literature above shows that there have been few studies on causes of delays in construction projects in sub-Saharan Africa and in Zambia. This has created a research gap which needs to be filled and narrow the knowledge gap.

2.2 The Theoretical Framework

The agency theory, prospect theory, and theory of constraints—all of which are covered below—form the foundation of this investigation.

2.2.1 Agency Theory

Since agency is defined as a universal principle rather than only a theory of a firm, agency theory has its roots in the development of economic theory of agency (Gitahi & Tumuti, 2019). The agency theory describes a partnership in which the principle, or project owner, hires an agent, or contractor, to work on his behalf and has full authority to carry out the terms of the agreement (Bendickson, Liquori & Davis, 2016). The simplicity with which agency theory defines the connection between the principal and the agent makes it relevant to construction projects. The risks associated with having an agent under contract with the project owner are higher. This can be attributed to the growing complexity of project work execution (Jager, 2011).

The difficulties the project owner described as a client/user-client experience when there is an uneven information flow from the agent to the principal were shown using agency theory (Panda & Leepsa, 2017). The principal contractor and the client are exposed to moral risk due to the principal agent's and project manager's concealed information while supervising the project's real implementation. The agent runs the risk of harming the principle by attempting to maximize his profits from a development project. According to Emmitt and Gorse (2014), in order for a project in an agency relationship to succeed, each participant must provide all pertinent information about the project. Additionally, according to Winch (2010), the contract may be opportunistic and divert funds allocated for project execution before the project owner is aware of it. It may be difficult for the project owner to terminate the contract when the phony negotiations are discovered, which could be harmful to the project.

Using agency theory, Bowen et al. (2013) demonstrated how team leaders coordinated corruption, dishonesty, and unfair acts that had an impact on project performance in construction projects. From the time the contract is signed until the project is turned over when it is finished, the contractor holds the client hostage. This idea is pertinent because it anticipates all hazards associated with the agency connection during the contract period and helps the customer and principal contractor make advance plans to guarantee the project is completed on schedule. The study suggested using the agency theory to demonstrate how the contractor affects the project's performance when issues between the contractor and the client emerge. This theory led to the study's findings that the study demonstrated the impact of the contractor on the construction project based on this notion. Agency theory was employed in the study as a risk management technique to reduce principal exposure and provide improved contractor management to guarantee needed standards are met.

2.2.2 Prospect Theory

Prospect theory was used by Chen, Zhang, Liu, and Hu (2015) to determine the degree of risk involved in the bidding process during the tendering stage to choose the best

contractor. They pointed out that significant sums of money were involved in building projects and that prospect theory—more specifically, behavioural economics—was crucial to understanding how assessors decide which bidder is the best fit for a given project.

To establish how the project owner or clients choose the contractor following the bid process and how the selection criteria lower the anticipated risks associated with the contract, the prospect theory was therefore essential to this study. Ahn, Lee, and Steel (2014) demonstrate how the prospect theory may be used to building projects by determining societal norms for common issues like absenteeism and other minor choices. The seemingly little choices made while choosing contractors to complete minor tasks can add up to a significant sum in relation to project budgets, perhaps resulting in project failure.

By analysing the project in the two risk scenarios, the theory was applied in this study to demonstrate that the primary contractor is responsible for making day-to-day decisions regarding construction projects. These choices will significantly impact a project's budget and timeline. The common judgments made during the selection and supervision of contractors are the basis for this study's use of prospect theory. By doing this, the project owner will be able to stop losses caused by the project team's irrational behaviour patterns. To prevent insignificant delays in building projects, the project owner will also make use of prospect theory to spot contracting issues early and make necessary corrections.

2.2.3 Theory of Constraints

The idea was created to support organizations facing a variety of performance-affecting restrictions. By concentrating on all the weak areas, or organizational constraints, the theory connects all the processes that affect how well an organization performs. According to Naor, Bernardes, and Coman (2012), the theory is composed of three interrelated concepts: logical reasoning, coordination, and the performance measuring process. The theory of constraints has been applied by the construction industry to set

project priorities that enhance project performance in terms of higher profit, enhanced capacity, shorter lead times, and quick project improvement (Al-Fadhali & Zainal, 2017). The theory of limitations focuses efforts on obtaining needed performance through a series of consecutive actions. The process of ongoing improvements incorporating the constraints of the identifying system is the initial phase. Deciding on how to take advantage of the system constraint is the second phase, and supporting every other option in the aforementioned decision is the third.

To achieve the project's objective, increasing a constraint's productivity is the fourth phase, according to Trojanowska and Dostatni (2017). The procedure restarts if the limitation is eliminated through ongoing improvement. The performance evaluation procedure, as proposed by this theory, was used to analyse the effects of resource constraints and project information on project length, project cost, and client satisfaction. The concept aided in the analysis and management of construction project delays in this study.

2.3 Conceptual Framework

Kariungi (2014) defines conceptual framework as a detailed mental formulation of ideas that give direction to a study. It enables the interaction between and independent variables to be portrayed (Kothari, 2004). According to Mugenda (2008), conceptual framework is concise description of the phenomena under study accompanied by a graphical or visual depiction of the major variables of the study. Macharia and Ngugi (2014) defines conceptual framework as diagrammatical representation that shows the relationship between dependent variables and independent variables. Various typical reasons of delays have been found in previous studies regarding building project delays. Using a review of the literature, Bajjou and Chafi (2018) found 49 distinct causes of delays in Morocco, which were then divided into 9 separate groups. In a similar vein, Kamanga and Steyn (2013) discovered 72 reasons for delays in Malawi, although they only examined each one separately and did not combine the findings. In many cases, it categorised delays into discrete groups of up to eleven (11).

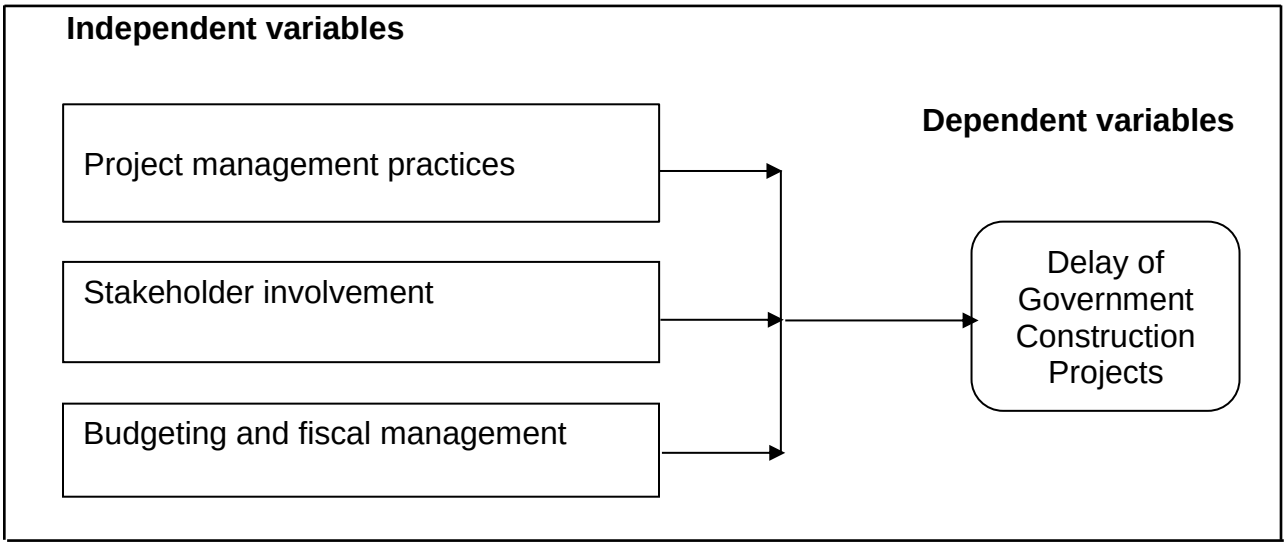

Figure 2.0: Conceptual Framework

Source: Researcher (2023)

The conceptual framework above is used to test the hypotheses that were introduced in Chapter One:

"H_{01}: There is no significant relationship between project management practices and delays in government construction projects in Lusaka, Zambia.

Ha1: There is a significant relationship between project management practices and delays in government construction projects in Lusaka, Zambia.

H_{02}: There is no significant relationship between stakeholder involvement and the occurrence of delays in government construction projects in Lusaka, Zambia.

Ha2: There is a significant relationship between stakeholder involvement and the occurrence of delays in government construction projects in Lusaka, Zambia.

H_{03}: There is no significant relationship between project budgeting and financial management and delays in government construction projects in Lusaka, Zambia.

Ha3: There is a significant relationship between project budgeting and financial management and delays in government construction projects in Lusaka, Zambia."

This study, however, recategorised these characteristics into four primary groups. These classifications are Project management practices, stakeholder involvement, budgeting and fiscal management and government policies and regulations which form the independent variables in the conceptual framework. The adopted conceptual framework is illustrated in the following diagram, which shows the relationship between the variables in Figure 2.0.

2.4 Chapter Summary

This chapter presented a review literature about cost escalation schedule overruns and quality shortfalls on construction projects. The reviewed showed that there has been high interest in the subject of causes and effects of cost escalation and schedule overruns but little on quality shortfalls with regards to the construction industry world-wide. A Similar study conducted in Zambia was limited to road construction industry only (Kaliba et al., 2009). That study examined cost and time aspects holding quality constant. It was from that perspective that the motivation to undertake this study on the causes, effects, and solutions to cost escalation, schedule overruns and quality shortfalls in construction projects in Zambia was drawn from. The next chapter discusses the research methods used in this study. The merits and demerits of the various research methods are also discussed and presented.

CHAPTER THREE
RESEARCH METHODOLOGY

3.0 Introduction

The focus of this study was to investigate factors contributing to delays of construction projects among selected government projects in Lusaka, Zambia. The study considered the following research aims: To identify the most common causes of delays in government construction projects in Lusaka, Zambia; To determine the effect of project management practices on delays in government construction projects; To explore the influence of stakeholder involvement on the occurrence of delays in government construction projects; and to investigate the role of project budgeting and fiscal management in delays in government construction projects. Saunders (2013) also defines “research methodology as the theory of how research should be undertaken rather than specific techniques used to obtain and analyse data”. To conduct research, Saunders et al. (2000) developed a term for research methodology called a “research onion” to describe the different stages that need to be considered when planning an effective research philosophy. There are six multiple layers of the research onion that display the overall strategies of research methodology: research philosophy, approaches to the research, strategies to be used, the time horizon, and the data collection methods involved. These aspects of research methodology are considered in detail in this chapter.

This chapter discusses the framework of the selected methodology and the design that the research adopted in reaching the research objectives presented in chapter one. The section provides details of the study methodology that has been employed. It covers the research design, data source, sampling technique procedures, data collection instruments, study variables and their measurements, data cleaning, analysis, and ethical considerations**.**

3.1 Research Design

Research design, as defined by Saunders et al. (2012), is a process for determining how to react to a specific research question. It is the framework in which research takes place. It is a method for collecting, measuring, and analysing information. For this study, a

correlational research design was used. A correlational research design investigates relationships between variables without the researcher controlling or manipulating any of them. A correlation reflects the strength and/or direction of the relationship between two (or more) variables. The research hypothesis is the starting point of designing the framework and therefore a combination of descriptive and quantitative approaches are chosen to test the research hypothesis.

To ensure important elements of the research are not missed, Saunders et al. (2012) propose that the researcher should use the research onion as per the subsections below.

3.1.1 Research philosophy

A research philosophy is a framework that guides how research should be conducted based on ideas about reality and the nature of knowledge. According to Saunders et al. (2009), research philosophy enables the researcher to decide which research approach should be adopted and why. The two main research philosophies are positivism and interpretivism. These philosophies represent two fundamentally different ways that humans make sense of the world around them: in positivism, reality is independent of us and researchers can therefore observe reality objectively. In interpretivism, reality is seen as highly subjective because it is shaped by our perceptions (Collis and Hussey, 2014).

This study selected the positivist approach because after going into the prior research the researcher believed that there was a relationship between factors contributing to the delay of government construction projects and their outcomes, which are, therefore, aligned with the positivism paradigm. The researcher used the earlier presented theories and models to generate hypotheses. These hypotheses were then deployed to verify and approve the direct or indirect relationships between the variables that could be useful for testing of the theories. The researcher analysed the collected data with the support of statistical tools. The results of this study were more reliable with fewer possibilities of error because of the positivist view, and the interpretation was based on real facts rather than the researcher's thoughts. This approach focuses on a single concept by verifying theories and explanations.

3.1.2 Research type

One of the crucial parts of academic writing is the use of theory. Before starting to write, it is important to have a clear image of the theory that will be utilised in the research. The research design fundamentally depends on the researcher's understanding and clarity of the theory. Two approaches adopted in research are deductive and inductive approach. If the researcher uses a deductive approach, it means that the hypothesis is generated first and therefore, a research strategy is made to test that hypothesis. On the other hand, if the researcher uses an inductive research approach, it means that the researcher will develop a theory from data analysis (Saunders et al., 2009). In this study, the researcher went through the method of a deductive approach. A deductive approach is concerned with "developing a hypothesis (or hypotheses) based on existing theory, and then designing a research strategy to test the hypothesis" (Saunders et al., 2009:34). It has been stated that "deductive means reasoning from the particular to the general. If a causal relationship or link seems to be implied by a particular theory or case example, it might be true in many cases. A deductive design might test to see if this relationship or link did obtain on more general circumstances" (Gulati, 2009:67),

The deductive approach can be explained using hypotheses, which can be derived from the propositions of the theory. The deductive approach is concerned with deducting conclusions from premises or propositions. Deduction begins with an expected pattern "that is tested against observations, whereas induction begins with observations and seeks to find a pattern within them" (Babbie, 2010: 22). The viewpoint of the deductive approach is to change from a broader view to a specific view. The deductive approach does not formulate a theory, but the theories are used from the existing literature. Before the collection of data, the earlier presented theories are utilised following the existing requirements (Blaikie, 2000). The need for this strategic approach in this study is that the researcher presented project performance-related theories in the theoretical frame of reference.

In this research, the author developed different hypotheses to test the relationships between different variables. The data was collected from a large spectrum of construction stakeholders to get their views on the reasons that influence the delay of government construction projects to know their perception of the effects of the independent variables on the outcome of the projects. These factors were analysed to give results about the basis of the theory used in the literature review. In the end, the results of this study were presented by the acceptance or rejection of significant or insignificant relationships between variables presented in the hypotheses.

3.1.3 Research approach

In most cases, each type of study is followed by different levels of measurements for data collection and its analysis such as nominal scale, ordinal scale, interval scale and ratio scale. This study used two levels of measurement of data that are: Nominal scale and Ordinal scale. These measurements can be used for both qualitative and quantitative research strategies (David & Sutton, 2011), nevertheless, nominal, and ordinal measurements are more suitable for qualitative research strategy while the interval and ratio measurements are appropriate for quantitative research strategy. The quantitative research strategy is undertaken by the use of statistical tools for measuring chances or possibilities of relationships between different variables while qualitative research does not involve much of the use of statistical tools. This study follows quantitative research which is more suitable per research philosophies that are the ontological view of objectivism and epistemological view of positivism (Bryman & Bell 2011). The collection of data identified the factors causing delays of government construction projects. The reason for using quantitative research instead of qualitative is that the study tends to analyse a relationship between different variables as quantitative study deals with measuring changes between different variables by using statistical tools and measurements to analyse and interpret results. This study also is expected to analyse the variables presented in theory, rather than to develop a new theory.

3.1.4 Research strategy

This study used a correlational research design. According to Creswell (2012), a correlation is a statistical test to determine the tendency or pattern for two (or more)

variables or two sets of data to vary consistently. The purpose of correlational research is to determine the relationship among two or more variables. Saunders et al. (2009:45) state that, “correlational research is a type of non-experimental research in which the researcher measures two variables and assesses the statistical relationship (i.e., the correlation) between them with little or no effort to control extraneous variables.” There are essentially two reasons that researchers interested in statistical relationships between variables would choose to conduct a correlational study rather than an experiment. The first is that they do not believe that the statistical relationship is a causal one. In this study, the researcher wanted to evaluate the relationship between factors associated with the delay of government construction projects and the project outcomes. The researcher then checked to see whether participants’ scores on the 5-point Likert scale on the questionnaire items on factors associated with project delays are strongly correlated with their scores on the project outcomes. Neither test score is thought to cause the other, so there is no independent variable to manipulate.

The terms independent variable and dependent variable do not apply to this kind of research. The other reason that researchers would choose to use a correlational study rather than an experiment is that the statistical relationship of interest is thought to be causal, but the researcher cannot manipulate the independent variable because it is impossible, impractical, or unethical. A common misconception among novice researchers is that correlational research must involve two quantitative variables, such as scores on two extroversion tests and the number of symptoms people have experienced. However, the defining feature of correlational research is that the two variables are measured - neither one is manipulated - nor this is true regardless of whether the variables are quantitative or categorical.

3.1.5 Time horizon

Time horizon is defined as the time frame for the research – cross-sectional or short-term study, involving collection of data at a specific point of time; longitudinal – collection of data repeatedly over a long period to compare information (Creswell, 2012). In terms of time horizon, the research design can be longitudinal or cross-sectional. A cross-sectional

study examines a particular phenomenon at a specific period (Saunders et al., 2009). According to Malhotra and Birks (2007), one sample of a population can be taken and studied at a particular time as in a single cross-sectional study or two or more samples of a target population could be studied once as in multiple cross-sectional study. Conversely, in terms of time horizon, a study may be longitudinal where a particular phenomenon is studied at different periods. Longitudinal study can take the form of a single longitudinal study where only one sample is studied at different periods or a multi-longitudinal where two or more samples are studied at different periods (Malhotra & Birks, 2007). This study is typically a cross-sectional study because the data was collected from a cross-section of stakeholders/respondents from the construction industry at a particular point in time.

3.1.6 Census

In consideration of the limited size of the target population, the research methodology has been structured to employ a census approach rather than a sampling strategy. This decision stems from the understanding that the entirety of the population under investigation is both accessible and manageable for a comprehensive examination. Thus, the research encompassed every individual or element within the defined population, eliminating the necessity for a sampling strategy. This approach ensures a thorough analysis, providing a detailed understanding of the entire population under scrutiny.

3.1.7 Data collection methods

Data collection is the process of gathering information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes.

The analysis used primary data sources. Primary data are a type of data collected by researchers directly from main sources through surveys. Primary data are usually collected from the source - where the data originally originates from and are regarded as the best kind of data in research. The sources of primary data are usually chosen and tailored specifically to meet the demands or requirements of particular research. Also, before choosing a data collection source, things like the aim of the research and target

population need to be identified. Primary data were collected in Lusaka District from contractors in the construction industry, consultants, and regulators. The primary data were collected through questionnaires provided to respondents to help this survey to achieve its objectives. The questionnaires were meant to provide accurate details about the control of the construction risks by the contractors. The questionnaires were structured based on a combination of theories on construction efficiency in the middle of inherent risks. The research tools were intended to foster dialogue and to check more knowledge to understand the factors influencing contractors' handling of construction projects.

It has been established from the previous sections in this chapter that the researcher adopted the positivist paradigm which further determined the use of a quantitative research approach. Therefore, the research instrument utilised for data collection was the questionnaire, which is widely used in large survey research (Quinlan et al., 2019), to capture the experiences, behaviours and beliefs of the research participants. According to Rowley (2014) and Creswell (2012), questionnaires may be distributed by post, face-to-face, by email, via an online platform such as Checkbox, SurveyMonkey, or by telephone. Therefore, for this study, the researcher collected data from the respondents through a combination of Email/online-based questionnaires. However, there are other reliable platforms which are less expensive and easy to access such as Google Form, which the researcher adopted to host the questionnaires before it was sent via email as an embedded link to the respondents that were already selected via convenience sampling technique.

The rationale for selecting the questionnaire as a research instrument over structured interviews was due to the researcher's desire to maintain strict adherence to the epistemological underpinnings of the positivist paradigm, which allows researchers to remain detached and independent from their study without imposing personal biases or influences over the results of the research at hand (Tuli, 2010). By adopting the online email questionnaire distribution approach, the researcher was able to administer and collect data without direct contact with the potential respondents.

The generation of the questionnaire item scale was carried out through careful reflection on the research questions and objectives as well as on the different gaps identified in the literature review chapter. The questionnaire contained 47 items (See Appendix II) and had five sections namely, Section A to Section E. Section A was designed to capture demographic information of the respondents such as their age, gender, educational qualifications, management level, department or unit and several working experiences in the organisation. Section B contained items that addressed the variables of Project Management Practices, Stakeholder Involvement, Project Budgeting and Fiscal Management and Causes of Delays in Selected Government Projects. In addition, the Five-point Likert scale as recommended by Rahi (2017) was adopted to measure and capture the precise experiences and feelings of the respondents. More importantly, the Five-point Likert scale has been deemed as the most appropriate for electronic surveys as the data generated is more accurate and reliable than other Likert-type scales (Rahi, Alnaser & Ghani, 2019). The Five-point Likert scale used in this research was as follows; Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A) and Strongly Agree (SA).

3.1.8 Data analysis

The primary data underwent a meticulous analysis involving both descriptive and inferential statistics. To facilitate this, the researcher leveraged the Statistical Package for Social Sciences (SPSS), version 20, a widely acclaimed and powerful statistical software package renowned for its versatility in handling a diverse array of statistical procedures. As advocated by Saunders (2013), SPSS facilitates tasks such as summarising data (e.g., computing frequencies and percentages), discerning significant differences between groups, examining relationships among variables, and presenting results in tabular formats.

Following the collection of data deemed sufficient for the research report, a critical data processing step ensued through the practice of editing. Editing serves as a means of scrutinizing collected data for errors and omissions, offering an opportunity for necessary corrections. As stipulated by Patton (2002), editing is particularly advantageous when

dealing with discrepancies or ambiguities in questionnaire responses. The researcher diligently edited responses, rectifying errors and ensuring the correctness, authenticity, and validity of the obtained information.

Moreover, the editing phase allowed the researcher to evaluate the uniformity and consistency of explanations or interpretations across all responses, ensuring coherence with the intended inquiries. Post-editing, the process advanced to the crucial coding stage, where the researcher formulated coding frames based on predefined code categories aligned with the research questions and corresponding responses. A comprehensive code sheet was then prepared, clustering similar or closely related responses under distinct codes. For pre-coded questions, pertinent code categories were meticulously considered.

Quantitative data analysis, executed with the assistance of SPSS, constituted the subsequent phase. The researcher applied descriptive statistics, specifically frequencies and percentages, to elucidate the characteristics of the dataset. Additionally, inferential statistics were employed to probe the relationships between factors contributing to delays in government construction projects and their project outcomes. The researcher utilised multiple regression analysis to rigorously test the formulated hypotheses, delving into the intricate dynamics of these relationships. Furthermore, Analysis of Variance (ANOVA) was deployed to assess the degree of relationship between various variables, shedding light on the extent of their interdependence. This comprehensive approach to data preparation and statistical analysis ensured a robust exploration of the complexities inherent in the factors influencing government construction project delays and their subsequent outcomes.

3.2 Study Population

The study population, encompassing the entities from which conclusions will be drawn, comprises key industry stakeholders. These stakeholders include local road contractors, all of whom are members of the National Council for Construction (NCC), and main contractors, both local and foreign, affiliated with the Construction and Civil Engineering

Association. Additionally, the study involves consultants associated with the Engineering Institute of Zambia (EIZ) and the NCC. Clear delineation of characteristics within the target population and its subgroups is imperative for an effective cost-effectiveness analysis.

A departure from traditional sampling methodologies is warranted in this study, given its emphasis on comprehensiveness. Rather than employing stratified random sampling, which involves selecting a subset for investigation, the study opts for a census approach. A census, in this context, entails including the entire population of 102 corporate members as identified by the Association for Medium and Small-Scale Contractors, Association of Building and Civil Engineering Contractors, RDA, NCC, and EIZ. This decision is grounded in the recognition that quantitative studies benefit from the inclusion of a larger sample size to enhance reliability and validity.

The rationale for bypassing the traditional 20 percent sample (46 respondents) lies in the unique nature of the study's focus. The census approach aligns with the principles articulated by Alvi (2016), Marshall and Rossman (2016), and Taherdoost (2016), acknowledging the necessity of including the entire population due to factors such as the cost-effective nature of the study, the physical impossibility of checking all items in the population, and the high cost and time constraints associated with studying all items individually. By adopting a census strategy, the study ensures a comprehensive and in-depth examination of the diverse industry players, providing a robust foundation for the cost-effectiveness analysis in the realm of construction and civil engineering.

3.3 Limitations of Methodology

Over the years, the number of studies on project delays has increased rapidly and using survey methodologies, scholars have reached conclusions that assert the presence of a positive relationship between the two constructs either directly or indirectly (Tjitemisa, 2022). However, as with every other research work, these studies were characterised by limitations, of which this current study was no exception. Firstly, this research work was a cross-sectional study since it was carried out over a short period without the consideration of any subsequent string of events or occurrences. However, it has been

argued that cross-sectional measurements of project delays and outcomes are not as robust as that of longitudinal assessments, as the former cannot indicate the exact nature of the relationship between the two constructs (Van Den Berg & Wilderom, 2004).

Secondly, the questionnaire design was another form of limitation as the researcher assumed it was very likely that the items may not have been structured properly to precisely capture the desired responses to investigate the research problem at hand in an effective manner. This may have affected the richness of the results as more responses could have been collected and analysed, to make the findings more robust and accurate. While undertaking the study, the researcher encountered challenges in ascertaining the number of registered contractors in the country thus limiting the ability to be able to draw a representative sample from the side of contractors to sample from. Additionally, only government construction projects were the subject of the investigation, and only those delays were examined. The survey did not include reasons for delays in private sector construction projects. As a result, the findings can only be applied to public sector initiatives.

3.4 Ethical Considerations

According to Hammersley and Traianou (2012), the main ethical principles amongst others include “minimising harm, respecting autonomy, protecting privacy, offering reciprocity and treating people equitably”. To this study, the researcher decided that commercial confidentiality and informed consent would constitute the key ethical principles that would be considered. Concerning issues on confidentiality, the use of the collected data was limited only to the purpose of the present study only. The respondents were also informed of the purpose of the study and how the data will be handled. Although this need may never arise, the participants were informed that, in a case where the provided information would be required for other research purposes; their approval will be sought. The researcher also took measures to ensure that the participants’ identities were protected. The data collected were securely stored within the SPSS software. Coupled with that, the respondents were also protected through Google Form’s privacy policy that only allowed the analysis of the collected data after the identities of the

respondents have been anonymised. Concerning informed consent, the action of an individual who clicked on the questionnaire link, after reading the requirements of the survey, indicated the acceptance and willingness of that respondent in participating in the exercise.

3.5 Chapter Summary

This chapter gave an outline to the overall approach evident in the research process from the theoretical foundation to the strategies used in the collection and analysis of the data. By understanding the research methodology, informed choices about the research were easily made. A questionnaire was used as the instrument of research. Research objectives and questions were competently answered accordingly. The following chapter presents the research findings and interpretations of the findings in line with the research objectives. The next chapter provides an analysis of the data collected with the questionnaire research instrument, which would then lead to a presentation of the research findings.

CHAPTER FOUR
PRESENTATION AND ANALYSIS OF RESULTS

4.0 Introduction

This chapter covers data analysis, which is the process of bringing order, structure, and interpretation to the mass of collected data. Data analysis uses descriptive and inferential statistics. Descriptive statistics involve computation of frequencies, percentages, and standard deviation. Inferential statistics involve both correlation and regression analyses. Descriptive analysis is justified for this study, as it is used to evaluate the received responses and gain a general overview of the respondents' opinions. The inferential analysis was used to assess both the nature and strength of the associations between the independent and dependent variables. The main objective of the study is to determine the factors causing the delay in the implementation of government construction projects in Zambia. Preparing, coding and editing were among the steps taken to analyse the collected data. After that, the data was processed using the Statistical Package for Social Sciences (SPSS) version 23. To make the discussions simple, the researcher provides tables that summarise and display the collective answers and opinions of the respondents.

4.1 Response Rate

The targeted population in this study was 100 respondents; 71 responded and returned the questionnaires, so the response rate was to 71%. This response rate is agreeable to make conclusions of the study. According to Mugenda and Mugenda (2003), a response ratio of 50% is adequate for the analysis; a ratio of 60% is good; and a ratio of 70% and more is excellent. According to this statement, the response ratio obtained in this study was good.

4.2 Profile of the data collected

The respondents' personal background such as the category of their current organisation is summarised as in the table below, which shows the frequencies and ratios of the respondents' information.

Table 4.0: Category of organization

Category of organisation	Frequency	Percentage
Contractor	22	31.0
Consultant/Designer	16	22.5
Government Agency	23	34.2
Donor	3	4.2
Other	7	9.9
Total	**71**	**100**

Source: Field data (2023)

4.2.2 Respondents' designation

Table 4.2 shows the respondents' levels of designations in the respective organisations. It breaks the level of engagement into five categories. The respondents were required to classify their level of responsibility at their current organisation.

Table 4.1 Designation

Designation	Frequency	Percentage
Manager	14	19.7
Senior Engineer/ Engineer	16	22.5
Specialist	19	26.8
Supervisor	16	22.5
Other	6	8.5
Total	**71**	**100**

Source: Field data (2023)

4.2.3 Experience in construction projects

Table 4.3 shows the years of experience for respondents in construction projects. A total of 52% of the respondents were below 5 years of experience while 38% had 6 to 10 years of experience; 8.5% of them had 11 to 16 years of experience; and 1.4% had more than 16 years of experience.

Table 4.2 Years of experience in general construction projects

Experience (Years)	Frequency	Percentage
5 years and below	37	52.1
6-10 years	27	38.0
11-15 years	6	8.5
More than 15 years	1	1.4
Total	**71**	**100**

Source: Field data (2023)

4.2.5 Area of specialisation

Table 4.5 gives the areas of specialisation as per the professional backgrounds of the respondents working in the various agencies involved in the implementation projects. Table 4.3 shows that the largest percentage (68.8%) of respondents was in the field of buildings.

Table 4.3 Type of project(s) of specialisation

Experience (Years)	Frequency	Percentage
Buildings	46	68.8
Roads	8	11.3
Utilities	11	15.5
Underpass / Bridges	3	4.2
Others	3	4.2
Total	**71**	**100**

Source: Field data (2023)

4.3 Preliminary Statistical Analysis

The data was subjected to preliminary statistical analysis before the hypotheses were put to the test. The data for the dependent variable and the independent variables were the main emphasis of this section. Descriptive statistics were presented in the analysis's initial section. After that, factor and reliability analyses were carried out, and lastly, hierarchical regression.

4.3.1 Descriptive statistics

Descriptive statistics were used to describe and summarise the data regarding the variables. The primary goal of descriptive statistics analysis was to calculate frequencies, mean, standard deviation, skewness, and kurtosis. Skewness shows a symmetrical distribution of data, while kurtosis provides information about the flatness of the data distribution (Pallant, 2016). In addition, skewness and kurtosis were used to assess the data for violations of normality. According to George and Mallery (2010), skewness and kurtosis values between +2/-2 provide evidence that there is no significant deviation from the normal univariate distribution of the data.

Table 4.4 Descriptive statistics of study variables (Skewness/Kurtosis)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std Deviation	Skewness	Kurtosis
PMP1	0	9	10	42	10	3.750	0.857	-0.740	0.087
PMP2	1	7	13	31	19	3.850	0.980	-0.709	0.018
PMP3	0	2	19	39	11	3.830	0.717	-0.216	-0.061
PMP4	0	10	18	35	8	3.580	0.873	-0.377	-0.510
PMP5	2	6	16	35	12	3.690	0.950	-0.774	0.554
PMP6	2	11	20	22	16	3.550	1.093	-0.299	-0.715
PMP7	3	5	26	28	9	3.490	0.954	-0.538	0.443
PMP8	2	10	23	25	11	3.460	1.012	-0.285	-0.399
PMP9	0	9	20	32	10	3.610	0.886	-0.267	-0.581
PMP10	2	8	19	35	7	3.520	0.924	-0.679	0.296
SM1	3	2	9	33	24	4.030	0.985	-1.349	2.113
SM2	2	3	7	34	25	4.080	0.937	-1.350	2.210
SM3	4	9	14	33	11	3.540	1.080	-0.723	-0.062
SM4	3	6	10	33	19	3.830	1.055	-1.002	0.636
SM5	3	4	13	37	14	3.770	0.974	-1.055	1.258
SM6	4	3	9	33	22	3.930	1.060	-1.263	1.452
SM7	3	7	20	36	5	3.460	0.923	-0.847	0.608
SM8	3	4	11	32	21	3.900	1.030	-1.088	1.048
SM9	3	4	13	38	13	3.760	0.963	-1.076	1.350
SM10	4	1	6	35	25	4.070	1.005	-1.623	2.986
PBFM1	3	4	24	31	9	3.550	0.938	-0.681	0.751
PBFM2	2	6	13	40	10	3.700	0.916	-0.974	1.043
PBFM3	1	4	8	37	21	4.030	0.878	-1.099	1.570
PBFM4	1	2	18	32	18	3.900	0.864	-0.625	0.633
PBFM5	2	5	11	35	18	3.870	0.970	-0.996	0.969
PBFM6	1	4	8	25	33	4.200	0.950	-1.232	1.213
PBFM7	1	3	16	35	16	3.870	0.861	-0.718	0.843
PBFM8	2	3	11	27	28	4.070	0.990	-1.143	1.208
PBFM9	1	2	14	29	25	4.060	0.893	-0.856	0.796
PBFM10	2	2	9	39	19	4.000	0.878	-1.302	2.673
DELAYS1	1	6	14	26	24	3.930	1.005	-0.726	-0.095
DELAYS2	1	7	15	30	18	3.800	0.980	-0.620	-0.115
DELAYS3	6	6	15	30	14	3.560	1.156	-0.788	-0.015
DELAYS4	1	2	14	32	22	4.010	0.870	-0.831	0.970
DELAYS5	3	5	15	27	21	3.820	1.073	-0.836	0.284
DELAYS6	1	3	19	32	16	3.830	0.878	-0.571	0.452
DELAYS7	2	5	18	33	13	3.700	0.947	-0.717	0.551
DELAYS8	2	7	20	35	7	3.540	0.908	-0.697	0.468
DELAYS9	9	16	14	21	11	3.130	1.287	-0.160	-1.101
DELAYS10	1	11	18	30	11	3.550	0.983	-0.374	-0.508

Data were collected using a 1-5 Likert scale with 1-Strongly disagree, 2-Disagree, 3-Neither agree nor disagree, 4-Agree, and 5-Strongly agree. Thus, mean values significantly greater than 3.5 mean that, on average, respondents agreed/strongly agreed with the factor statement, while mean values significantly less than 2.5 means that, on average, respondents disagreed/strongly disagreed with the factor statement. Mean values between 2.5 and 3.5 indicate that, on average, respondents neither agreed nor disagreed with the statement about the factor.

Table 4.4 below shows the descriptive statistics of the variables. The mean ranged from 3.13 to 4.08, while the standard deviation ranged from 0.717 to 1.287. The skewness of all variables ranged from -1.623 to -.160, which was within the range from -2 to +2. The skewness and kurtosis values within +2 and -2 indicate normality for all variables except PBFM10, SM10, SM2 and SM1 according to the normality thumb rule proposed by George and Mallery (2019). To be clear: there was no significant deviation from normalcy in the variable's skewness value (which was close to the cut-off limit). The kurtosis of all variables ranged from -1.101 to 2.986.

4.3.2 Principal Component Analysis

A Principal Components Analysis (PCA) was used to reduce the indicators to components that are easy to interpret. To conduct a principal components analysis, the following assumptions were evaluated:

Assumption 1*:* there are multiple variables measured at the continuous level (ordinal data is also considered). The questionnaire had 40 statements that measured four constructs at the ordinal level of measurement (strongly disagree, disagree, neutral, agree and strongly agree).

Assumption 2: there should be a linear relationship between all variables. This was tested using the correlation matrix. The level of correlation considered worthy of a variable’s inclusion is usually r ≥ 0.3 (Laerd Statistics, 2015). In this data set, all the variables had correlations greater than 0.3.

Assumption 3: there should be a large sample size - 10 cases per variable was a rule of thumb used to determine this assumption (Tabachnick and Fidell, 2014). There were 29 variables that met the minimum factor loading of 0.6; this translates into a minimum of 290 cases.

4.3.3 Sampling adequacy

To test for the sampling adequacy, the data set was tested using the Kaiser-Meyer-Olkin (KMO) index. For this data, the KMO is 0.735 (Table 5.3), which is satisfactory Kaiser's (1974). For the individual items KMO measures, all were above 0.6 (see Table 4.5 below).

Table 4.5 KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.735
Bartlett's Test of Sphericity	Approx. Chi-Square	700.280
	df	276
	Sig.	0.000

Table 4.6 KMO measures for individual variables

Variable	KMO Measure	Variable	KMO Measure
PMP4	.706	SM3	.681
PMP6	.779	SM5	.687
PMP7	.729	SM6	.826
PMP8	.719	SM7	.715
PMP9	.613	SM8	.594
PMP10	.707	DELAYS1	.703
PBFM2	.789	DELAYS2	.774
PBFM3	.818	DELAYS3	.762
PBFM4	.736	DELAYS4	.817
PBFM5	.801	DELAYS6	.742
PBFM7	.699	DELAYS7	.761
PBFM8	.730	DELAYS8	.682

4.3.4 Bartlett's test of sphericity

Bartlett's test of sphericity tests the null hypothesis that the correlation matrix is an identity matrix. Bartlett's test of sphericity is statistically significant (i.e., $p < 0.05$). Thus, the

correlation matrix is not an identity matrix (see Table 4.6 above). This indicates that the data is suitable for principal components analysis.

4.3.5 The result of the PCA

A principal component analysis (PCA) was run on a 40-question questionnaire that measured causes of delays in selected government construction projects.

Table 4.7 Rotated Structure Matrix PCA with Varimax Rotation

	Component				
	1	2	3	4	Communalities
DELAYS3	**.776**	.093	.133	.061	0.632
DELAYS4	**.721**	.080	-.009	.155	0.551
DELAYS1	**.709**	.192	-.177	.137	0.590
DELAYS8	**.669**	-.034	-.021	.141	0.470
DELAYS2	**.663**	.164	-.008	.157	0.491
DELAYS7	**.649**	.221	.117	.007	0.483
DELAYS6	**.614**	.304	.116	.041	0.485
PBFM8	.028	**.784**	-.132	.125	0.648
PBFM2	.245	**.725**	.199	-.012	0.625
PBFM4	.212	**.687**	-.151	.143	0.561
PBFM7	.012	**.668**	.178	.160	0.504
PBFM5	.163	**.660**	.106	.072	0.479
PBFM3	.374	**.660**	.101	-.027	0.587
PMP9	-.023	-.066	**.736**	.134	0.564
PMP4	-.097	-.016	**.721**	-.027	0.530
PMP7	-.123	.172	**.716**	.176	0.588
PMP10	.184	.061	**.703**	.003	0.532
PMP8	.200	-.044	**.674**	.046	0.498
PMP6	.012	.333	**.649**	.169	0.561
SM7	-.064	.022	.108	**.773**	0.614
SM6	.220	.029	.080	**.758**	0.630
SM5	.297	.076	.147	**.737**	0.658
SM3	.175	.071	.023	**.625**	0.427
SM8	.034	.282	.073	**.601**	0.447

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

The suitability of PCA was assessed prior to analysis. Inspection of the correlation matrix showed that all 40 variables had at least one correlation coefficient greater than 0.3. The

overall Kaiser-Meyer-Olkin (KMO) measure was 0.735, with individual KMO measures all greater than the minimum acceptable cut-off of 0.6, according to Kaiser (1974). Bartlett's test of sphericity was statistically significant ($p < .0005$), indicating that the data was likely factorisable. The PCA revealed four components that had eigenvalues greater than one (see appendix 2 for outputs). Visual inspection of the scree plot indicated that four components should be retained (Cattell, 1966). In addition, a four-component solution met the interpretability criterion. As such, four components were retained. The four components that were retained are project management practices, stakeholder involvement, project budgeting and fiscal management and delays in government construction projects.

4.4 Reliability analysis

A questionnaire was engaged to compute dissimilar, basic constructs. Reliability analysis was carried out using SPSS v23. Table 4.8 shows the Cronbach alphas of the variable constructs. Appendix 4 shows the outputs from the reliability analysis procedure in SPSS.

Table 4.8 Cronbach's Alpha's

Construct	No. of Items	Cronbach's Alpha
Project management practices	7	**0.821**
Project budgeting and fiscal management	6	**0.827**
Delays of construction projects among selected government projects in Lusaka.	8	**0.840**
Stakeholder involvement	5	**0.776**

George and Mallery (2019) provide a rule of thumb for Cronbach alpha, as shown in Table 4.8. Table 4.8 shows all the constructs had good to excellent Cronbach's alpha value.

Table 4.9 Cronbach alpha classifications

Range of value	Status
Less than 0.5	Unacceptable
Greater than 0.5	Poor
Greater than 0.6	Questionable
Greater than 0.7	Acceptable
Greater than 0.8	Good
Greater than 0.9 but not greater than 0.95	Excellent

4.5 Component-based Scores

A component-based score is a composite score that is simply an average of the scores on all the items that loaded strongly on a particular component. For example, Delays1, Delays2, Delays3, Delays4, Delays6, Delays7 and Delays8 all loaded strongly on Component 1, which are associated causes of delays of selected government construction projects. Each score for each of these items was averaged to generate a component-based score for causes of delays in selected government construction projects. The component-based scores for the four components (which will now be known as variables) were used in the hierarchical multiple regression below. The means, standard deviations and correction coefficients for the three variables, the control variables and the dependent variable (project success) are shown in Table 4.10

Table 4.10 Correlation Matrix and descriptive statistics of Study Variables

	Mean	Std. Deviation	Delays	Budgeting	Practices	Stakeholders	Position	Experience	Projects
Delays	3.768	.691	1						
Budgeting	3.9085	.66951	.421**	1					
Practices	3.5352	.68424	.110	.187	1				
Stakeholders	3.7211	.73716	.335**	.277*	.245*	1			
Position	2.770	1.244	.278*	.172	-.172	.117	1		
Experience	1.59	.709	-.062	-.015	-.196	.069	-.009	1	
Projects	1.72	1.136	-.133	-.025	-.128	-.143	-.076	.068	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

From Table 4.10 none of the control variables (position, experience and projects) was significantly related to the dependent variable delays of construction projects at the .05 level of significance. All the three independent variables project management practices (PMP), stakeholder involvement (SM), and project budgeting and fiscal management significantly related to the dependent variable (DELAYS). The correlation matrix in Table 4.8 above helps us to determine if multicollinearity would be a problem if we conduct OLS multiple regression. All the correlations for the continuous independent variables are less than 0.7 hence multicollinearity is not an issue**.**

4.6 Hierarchical Multiple Regression Analysis

To conduct a hierarchical multiple regression analysis, assumptions were evaluated then the procedure was run to obtain the results. To run hierarchical multiple regressions, eight key assumptions need to be considered.

Assumption #1: There is **one** dependent variable that is measured at a continuous level (i.e., the interval or ratio level). In this study, the dependent variable, delays of government construction projects, was considered a continuous variable after the component-based scores were computed.

Assumption #2*:* There is one or more independent variables that are measured on either a **continuous** or **nominal** scale. In this study, the following dependent variables were continuous variables after the component-based scores were computed: Project management practices (PMP), stakeholder involvement (SM), and project budgeting and fiscal management (PBFM). The control variables used were Position (nominal), Experience (ordinal), and Projects (ordinal).

Assumption #3*:* There should be independence of errors (residuals)

The Durbin-Watson was 2.158, which is between 1.5 and 2.5, and therefore, the data is not auto-correlated. There was the independence of residuals as assessed by a Durbin –Watson statistic of 2.158.

Assumption#4: There should be a linear relationship between the predictor variables and the dependent variable.

To establish if a linear relationship exists between the dependent and independent variables collectively, a scatter plot of the standardised residuals against the unstandardised predicted values was plotted using the chat builder in SPSS (see appendix 4) The residuals form a horizontal band as shown in the scatter plot in Appendix 4. Therefore, the relationship between the dependent variable and independent variables is linear.

Assumption #5: There should be homoscedasticity of residuals (equal error variances)
The assumption of homoscedasticity was checked using the plot for standardized residuals against the unstandardised predicted values (see appendix 4). The residuals appear randomly scattered. On this basis, it appears that the assumption of homoscedasticity has been made.

Assumption#6: There should be no multicollinearity
To check for multicollinearity, correlation coefficient and tolerance/ VIF values were inspected. None of the independent variables in Table 4.10 had correlations greater than 4.7. In the coefficient output in appendix 4 none of the variance VIF is greater than 5, so multicollinearity should not be a problem with this data set.

Assumption#7: There should be no significant outliers, high-leverage points, or highly influential points.
To check for outliers, standardised residuals, and standardised deleted residuals were inspected from the SPSS output residual statistics. Values greater than ±3 are an indication of the presence of an outlier. From the residual statistics table, none of the standardised residuals and standardised deleted residuals were outside the ±3 cut-off criteria for outliers therefore, there was no evidence of outliers in the data set.

To check whether any cases exhibit high leverage, one general rule of thumb is to consider leverage values less than 0.2 as safe, 0.2 to less than 0.5 as risky, and values of 0.5 and above as dangerous (Huber, 1981). From the residual statistics table in Appendix 4 the maximum leverage point is 0.017 and the minimum leverage point is .357. In this data, there are no leverage values above the safe value of .2. Therefore, there is no residual with a high leverage point.

To check for influential points Cook's distance values for each case were inspected. As a rule of thumb, if there are Cook's distance values above 1, they should be investigated. From the residual statistics in appendix 4, the maximum Cook's value is .000 and the

minimum value is .0459. There were no Cook's distance values above 1, therefore no evidence of an influential case (Cook and Weisberg, 1982).

Assumption #8: Errors (residuals) should be approximately normally distributed.
Two methods were used to check for the assumptions of normality of the residuals: A histogram with a superimposed normal curve and a P- P Plot produced by SPSS. From the histogram in appendix 4, the standardised residuals appear to be approximately normally distributed. To confirm this finding, the P-P Plot was examined. From the P-P Plot in appendix 4 although the points are not aligned perfectly along the diagonal line, there are close enough to indicate that residuals are close enough to normal for the analysis to proceed.

4.7 Common Causes of Delays in Government Construction Projects

Delays in government construction projects can stem from various factors. According to the respondents, one primary cause is inadequate project planning and management, leading to budget overruns, design errors, and procurement issues. Additionally, bureaucratic red tape and administrative inefficiencies within government agencies may slow down approval processes and hinder project progress (Hussain, Mir, Durrani and Zaidi, 2007). Furthermore, external factors such as adverse weather conditions, resource shortages, and labour disputes can contribute to delays. According to a report by the World Bank (2013), infrastructure projects in Zambia often face challenges related to institutional capacity, procurement processes, and project management, which can significantly impact timelines and delivery schedules. Addressing these issues through improved planning, streamlined processes, and capacity building initiatives could help mitigate delays and enhance the efficiency of government construction projects in Lusaka, Zambia.

4.8 Project Management Practices as Causes of Government Construction Delays

To establish if a linear relationship exists between the dependent variable and Project Management Practices**,** partial regression plots from SPSS were used. A partial

regression plot in Appendix 4 shows a linear relationship between Project Management Practices and Delays in Government Construction Projects.

4.9 Stakeholder Involvement as Causes of Delay of Government Construction

To establish if a linear relationship exists between the dependent variable and Stakeholder Involvement**,** partial regression plots from SPSS were used. A partial regression plot in Appendix 4 shows a linear relationship between Stakeholder Involvement and Delays in Government Construction Projects.

4.10 Project Budgeting and Fiscal Management as Causes of Delay of Government Construction

To establish if a linear relationship exists between the dependent variable and Project Budgeting and Fiscal Management**,** partial regression plots from SPSS were used. A partial regression plot in Appendix 4 shows a linear relationship between Project Budgeting and Fiscal Management and Delays in Government Construction Projects.

4.11 Interpretation of the Findings

A hierarchical multiple regression was run to determine if the addition of community participation in planning, community participation in implementation, and community participation in monitoring and evaluation improved the prediction of project success over and above the control variables of Position, Experience and Projects. See Table 4.11 for full details on each regression model. There was linearity as assessed by partial regression plots and a plot of standardised residuals against the predicted values. There was the independence of residuals, as assessed by a Durbin-Watson statistic of 2.158. There was homoscedasticity, as assessed by visual inspection of a plot of standardised residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by correlations and VIFs. There were no standardised deleted residuals greater than ±3 standard deviations, no leverage values greater than 0.2, and values for Cook's distance above 1. The assumption of normality was met, as assessed by the histogram of residuals and the P-P Plot.

Table 4.11 Hierarchical Multiple Regression with delays as a dependable variable

Delay of Projects				
	Model 1		Model 2	
Variables	**B**	**β**	**B**	**β**
Constant	3.550		1.565	
Position	.149	.269	.107	.192
Experience	-.051	-.053	-.063	-.064
Projects	-.067	-.110	-.046	-.075
Budgeting			0.335**	.324
Practices			.008	.008
Stakeholders			.202	.215
R^2	0.093		.276	
F	2.278		4.075**	
ΔR^2	0.093		.184	
ΔF	2.278		5.422	
(Note: n = 71; * p < .05; ** p < .01				

The full model of position, experience, projects, project management practices, stakeholder involvement, project budgeting and fiscal management to delays in government construction projects (Model 2) was statistically significant, R^2 = .276, F(3, 281) = 4.075, p < .05; adjusted R^2 = .184. The addition of the control variables of Position, Experience, and Projects to the prediction of delays in construction projects (Model 1) did not lead to a statistically significant increase in R^2 of .093, F(3, 284) = 2.278, p > . 05.

4.12 Hypothesis Testing

The hypotheses testing results are as presented in Table 4.12.

Table 4.12 Hypothesis Testing Results

Hypothesis	t value	p value	Comment
H_1: There is a significant relationship between Project Management Practices and delays in Government Construction Projects	.065	0.948	Not Supported
H_2: There is a significant relationship between Stakeholder Involvement and delays in Government Construction Projects	1.854	0.068	Not Supported
H_3: There is a significant relationship between Project Budgeting and Fiscal Management and delays in Government Construction Projects	2.856	0.006	Supported

Table 4.12 above reveals the following:

H_1 – There was a significant relationship between the variable Project Management Practices and Delays in Government Management Projects ($t = .065$, $p>0.05$). Hence, this hypothesis was not supported.

H_2 – There was a significant relationship between the variable Stakeholder Involvement and Delays in Government Construction Projects. ($t =3.061$, $p>0.05$). Hence, this hypothesis was not supported.

H_3 – There was a significant relationship between the variable Project Budgeting and Fiscal Management and Delays in Government Construction Projects. ($t =2.856$, $p< 0.05$). Hence, this hypothesis was supported.

4.13 Chapter Summary

This chapter has highlighted the results and findings. The first section provided an analysis of the profile of the respondents, the second section dealt with data on project management practices, stakeholder involvement and project budgeting and fiscal management analyses and the third and last section examined the actual project delays as the dependent variable. The results are discussed in the following chapter five by linking primary findings with literature review on the contributing factors of project delays in government construction projects in Lusaka, Zambia.

CHAPTER FIVE
DISCUSSION OF FINDINGS

5.0 Introduction

This section discusses the primary findings in relation to the literature review. The discussion is presented in accordance with the flow of the objectives and draws on comparisons with other studies carried out in various parts of the world. The research findings are thoroughly discussed in chapter five, which also presents the findings from the data that was presented and examined in chapter four.

5.1 Discussion of Findings

5.1.1 Common causes of government construction project delays

Government construction projects might experience delays due to a variety of issues. The respondents attribute weak project planning and management as the primary culprit, resulting in budget overruns, design flaws, and procurement concerns. In addition, the presence of bureaucratic procedures and administrative inefficiencies within government agencies might potentially impede the progress of projects by causing delays in the approval processes (Hussain, Mir, Durrani, & Zaidi, 2007). Moreover, external variables such as inclement weather, limited resources, and labour conflicts might contribute to the occurrence of delays. The World Bank (2013) research highlights that infrastructure projects in Zambia frequently encounter difficulties associated with institutional capacity, procurement processes, and project management. These obstacles can have a substantial influence on the timetables and delivery schedules of the projects. To alleviate delays and increase the efficiency of government construction projects in Lusaka, Zambia, it is recommended to address these challenges by implementing better planning, streamlining processes, and initiating capacity building efforts.

5.1.2 Project management practices as causes of government project delays

Project management practices are made up of four stages, thus planning and initiation, execution, monitoring and control and closure. The respondents indicated that deliverables and milestones were reasonable but unattained most of the times. On whether project management practices are identified and committed, the respondents

agreed. However, hypothesis testing showed that project management practices had no significant effect on construction project delays. Rigorously prepared plans are foundations for project success, as argued by Divr and Lechler (2004). The results of this study thus show that formal planning has no direct impact on project outcome though even with the clear definition of all stages.

With respect to the influence of project execution on project outcome, the respondents indicated that project activities are not carried out in accordance with project plans. The literature review contradicts and states that these activities are iterative and continuous throughout the life of the project (Perminova et al., 2008), and may delay a project if not well handled. The findings showed that responsibilities for each task, supervision roles and reporting structures are well defined. The findings also showed that project progress is not monitored and compared with the project plan to ensure full compliance. One of the key dimensions of project success is efficiency during execution as postulated by Shenhar et al. (1997). The timely completion, on budget and on agreed quality should define the execution process as they greatly influence the outcome of a project. More precisely, desired project outcome is influenced by meeting the business objectives of an organisation and the same time meeting customer expectation within the triple constraints (Bloch, et al, 2012; Gwaya, et al, 2014; Kamau, 2013). The results from the study largely realised that the key activities during execution have an impact on the project outcome.

The respondents were asked whether individual assessment on performance is regularly conducted, the respondents generally disagreed with a varied level. On whether progress is review and status reports are shared with stakeholders, the respondents disagreed. Indeed, Monitoring and provision of feedback, dissemination of project progress reports, solving addressing arising issues and mitigation of emerging risks greatly impacts project outcome (Pinto & Slevin, 1988). The findings also indicated that change control procedures, authority and responsibility are outlined well in advance, though not strictly followed. The results of the study also established that risk and impact analysis of changes is conducted; that it is procedural and not all decisions are documented. This agrees with Larson and Gray (2011) who asserted that project control involves tracking

the project progress towards achieving the stated objectives within project constraints; identifies deviations; evaluates alternative courses of action and takes remedial actions.

The study sought to gauge the criteria used to determine project outcome at closure. The respondents moderately disagreed that project completion on time and on budget is always attained in government projects. The findings show that respondents strongly disagreed that projects signed off and accepted by clients as well as those closed successfully and billed were indictors of outcomes in government construction projections. Mantel et al. (2006) indeed pointed out the important closeout activities such as closeout meetings, resource reallocation reports, compliance documents, supplier notification and collection of receivables form part of a successful project closure. Indeed, the respondents strongly disagreed that project closure was supported. When clients sign project completion documents, it is an indication of project well executed and perceived value delivered (Steinfort & Walker, 2007). This is usually made possible if the criteria for measuring desired outcome are agreed upon in advance.

The results were aligned to the theory of constraints, which connects all the activities that affect how well an organization performs by concentrating on all the weak areas that act as organizational constrictions. The results demonstrate that when appropriate project management procedures are not followed, projects are limited, which causes delays.

5.1.3 Stakeholder involvement as causes of government project delays

The goal of the study was to find out why government projects in Zambia had construction delays. Following a review of the research results and pertinent data obtained, hypothesis testing showed that stakeholder involvement had no significant effect on construction project delays. In a Yemeni study, on the contrary, Alaghbari et al. (2018) found that the contractor was responsible for three (3) of the Five (5) elements that have an impact on building projects. These factors included the contractor's lack of experience, inadequate administration and oversight of the project site, and insufficient funding to begin the job. Maues et al. (2017) discovered in a case study conducted in the Amazon that the construction company's experience, operating hours, and startup conditions have no

bearing on how long a project takes to complete. This contrasts with what Alaghbari et al. (2018) found in Yemen.

It was discovered that the reasons for delays in Zambian building projects had less of an effect on external factors and consultants. An investigation into the reasons behind delays in publicly funded projects is necessary to help the government reduce the burden of cost overruns by preventing needless delays, as the Zambian government, through the RDA, annually allots substantial financial resources to the construction of government projects. Given that the primary causes of delays fall into the categories of clients and contractors, the study verified that these parties play significant roles in the construction sector, but that they had no significant impact in terms of project delays.

Contrary to the Agency theory, it was found that there was no relationship between stakeholder involved in government construction projects and delays in government construction projects. When there is an uneven information flow from the agent to the principal, Agency Theory was put to the test and revealed the difficulties the project owner described as a client/user-client experience (Panda & Leepsa, 2017).

5.1.4 Project budgeting and fiscal management as causes of government project delays

The hypothesis stating showed that project budgeting and fiscal management had significant effects on government project delays. According to the findings, the respondents neither agreed nor disagreed that there were no frequent delays or non-payment of IPCs; adequate budget allocation for environmental protection and mitigation is crucial for successful construction project outcomes; and efficient initial analysis of costs in project planning enhances financial stability. With the statements that well-structured financial processes by clients do play a vital role in ensuring the timely execution of projects; smooth project execution depends on the fiscal management capabilities of the consultants involved; and financial challenges on the part of clients pose a significant risk to the overall success of projects. Research indicates that financial management and project budgeting play a role in the delays that occur in building

projects. According to Hussain and Omran (2012), financiers' and governments' financial difficulties accounted for 70% of the building projects that were shelved in Malaysia's transport construction sector.

Piper (2011) found in a related study carried out in Malaysia that limited funding and unfeasible contractual time agreements were the reasons behind up to 71% of road and other construction projects that failed, took longer than expected, or started later than expected between 1999 and 2007. Construction projects frequently experience schedule overruns. Several factors affect completion periods of projects. It has been argued that it is necessary to create awareness of causes of project delays, their frequency, and the extent to which they can adversely affect project delivery (Falqi, 2004). Mansfield et al. (1994) showed that the most significant factors affecting construction schedules were financing and payment for completed works, poor contract management, changes in site conditions, shortage of materials, and improper planning. These results were consistent with the prospect theory used by Chen, Zhang, Liu, and Hu (2015) to determine the degree of risk involved in the bidding process in order to choose the best contractor at the tendering stage. Government projects are delayed by risks including inadequate planning and financial management by a contractor.

5.2 Chapter Summary

This chapter summarises the findings of the study and how they compare to those found in the existing body of literature. The chapter discusses and interprets the significance of the findings considering what is already known about the research problem and explains the new understanding and insights about the contributing factors to construction project delays after taking the results into consideration. Chapter Six which follows presents the conclusion and recommendations of the study while suggesting areas of future research.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

The conclusion and recommendations are presented in this chapter, which summarises the findings of the entire study and identifies topics that should be investigated in more depth in the future. The conclusion has been presented in the order in which the specific objectives have been addressed and achieved.

6.1 Conclusion

The study found that to avoid schedule overruns in construction projects in Zambia, several causative elements must be effectively addressed. Schedule overruns are a problem on building projects even though they have been discussed for years. Three primary categories were used to identify and classify factors that contribute to project delays: those linked to project management methods, stakeholder involvement, and budget and fiscal management. The findings show no strong correlation between project management practices and stakeholder involvement, while showing a strong correlation between budget and fiscal management, and project outcome. Effective and efficient project processes are necessary for public sector initiatives with high end user satisfaction levels. As a result, project planning and initiation affect project results. It was determined that the project plan is followed when carrying out execution tasks. The results showed that, out of the four phases, execution had the least impact on the project's conclusion. According to the study findings, the research results demonstrated that monitoring and control had a major impact on project outcome.

In construction projects, construction delays play a crucial role. The projects this study investigated show delays in the building phase. If management does not take action to control these factors from the design stages onward, this phenomenon is predicted to persist in practice. Furthermore, a delay's influence will be lessened by competent and experienced personnel overseeing and coordinating the building projects with sufficient planning, coordination, and monitoring. The numerous issues that arose from the

discussions, conclusions, and findings supported the assertion that the majority of the issues raised in the literature review—which pertained to the major issues that frequently lead to delays in the implementation and completion of construction projects—had an impact on the delivery of government-funded construction projects. Therefore, it is safe to say that the primary goal of this study—to identify the primary factors that lead to construction project delays and offer solutions for minimising them—has been accomplished.

6.3 Recommendations

Considering the findings in this study, the following recommendations are made.

i. Effective project planning and initiation activities should be applied to all public sector projects by all stakeholders. This can be achieved by adopting and continuously enforcing project management best practices across the organisation.
ii. Effective monitoring tools; training of staff on use of monitoring tools; use of effective communication and improved reporting and documentation to improve the monitoring and control process.
iii. Project outcome should be evaluated from the customer acceptance and satisfaction perspective as well as that of the business objectives of the organisation.
iv. To prevent work from stopping on the project site due to cash flow issues, the client and users must make sure there are enough financial resources for the project at the implementation stage.
v. Relevant regulatory institutions such as National Council for Construction (NCC), should consider having ‘Construction Management’ as formal qualification required for anyone to hold the position of ‘Project Manager’ on a construction project.
vi. The government should work to eliminate some excessive bureaucracy by limiting the hierarchy of the organisational structure, and giving more powers to employees, so that decisions are not issued only from the highest levels.

6.4 Suggestions for Further Research

This study, which was restricted to a small number of project coordinators and consultants, investigated the causes of construction delays in government projects. Subsequent research ought to concentrate on a variety of demographic groups working in the construction sector. Such research may produce some intriguing results as well as significantly uncover further delays that this study was unable to identify. The scope of this study was limited to construction delays in government projects. Even while there is some overlap in the fundamental reasons of construction project delays, it would be ideal for future research to focus on non-government projects rather than simply government projects and examine construction project delays overall. In order to cover more territory in the study, the researcher recommends that additional research be done with a larger population and sample. The nature of this study was cross-sectional. Future research might take a longitudinal approach.

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APPENDICES

APPENDIX I: INTRODUCTORY LETTER

C/o University of Lusaka

Lusaka

……/……. /2023

Dear Respondent,

Re: Student Research

I am a student at the University of Lusaka, School of Postgraduate Studies. To fulfil the degree requirements, I am undertaking a student research project on:

“Factors Contributing to Delays of Selected Government Construction Projects in Lusaka, Zambia.”

You have been selected to form part of this study. This is to kindly request you assist me in collecting the data by filling out the accompanying questionnaire. The information you provide will be used exclusively for academic purposes only. My supervisor and I assure you that the information you give will be treated with utmost confidence. At no time will your name appear in my report. A copy of the final paper will be availed to you upon request. Your co-operation will be highly appreciated and thank you in advance.

Yours faithfully,

William Makubalo

Cell: +260 974752561

APPENDIX II: QUESTIONNAIRE

FACTORS CONTRIBUTING TO DELAYS OF SELECTED GOVERNMENT CONSTRUCTION PROJECTS IN LUSAKA, ZAMBIA

This questionnaire is divided into four sections, i.e., background information and three contributions to delay of government construction projects. The information obtained will be strictly treated in confidence. Your assistance in completing this questionnaire will be highly appreciated. Kindly respond to the following questions by ticking on the appropriate box [√] or filling in the answer in the blank spaces.

SECTION A: BACKGROUND INFORMATION

1. Name of Respondent…….....(Optional)
2. Name of Organisation…….....

Please mark with a tick **(✓)** in the box with the appropriate response. Mark one box only.

3. How do you describe the category of your current organization?
   a) Contractor [ ]
   b) Consultant/ Designer [ ]
   c) Government Agency [ ]
   d) Donor [ ]
   e) Other [ ]

4. How do you classify your level at your current organization?
   a) Manager [ ]
   b) Senior Engineer/ Engineer [ ]
   c) Specialist [ ]
   d) Supervisor [ ]
   e) Other [ ]

5. Please select the appropriate band of your years of experience in construction Projects.

a) Less than 5 years [ ]

b) 6-10 years [ ]

c) 11-16 years [ ]

d) More than 16 years [ ]

6. How much experience do you have in dealing with government construction projects?

a) Less than 5 years [ ]

b) 6-10 years [ ]

c) 11-16 years [ ]

d) More than 16 years [ ]

7. Please select the type of project(s) you are experienced in

Buildings	
Roads	
Utilities	
Underpass /Bridges	
Others	

SECTION B: COMMON CAUSES OF DELAYS IN GOVERNMENT CONSTRUCTION PROJECTS

8. What are the most common causes of delays in government construction projects in Lusaka, Zambia?

i. .....

ii. .....

iii. .....

iv. .....

v. .....

SECTION C: PROJECT MANAGEMENT PRACTICES

9. The following are statements related to **PROJECT MANAGEMENT PRACTICES**. Kindly indicate your level of agreement using the scale: Strongly disagree (1); Disagree (2); Neutral (3); Agree (4) and Strongly agree (5)

	PROJECT MANAGEMENT PRACTICES	1	2	3	4	5
i.	A project charter outlining the entire project is ready and approved.					
ii.	A pre-sales meeting with the client is held to scope the client's specifications.					
iii.	Required project resources are identified and committed.					
iv.	Activities are conducted following an execution plan					
v.	Project progress is monitored and compared with the project plan					
vi.	Regular meetings are held to review project progress and address issues					
vii.	Effective project monitoring processes exist					
viii.	Changes in scope include risk and impact analysis					
ix.	Project closure is guided using a pre-determined procedure					
x.	Changes are identified to improve the delivery of future projects					

SECTION D: STAKEHOLDER INVOLVEMENT

10. The following are statements related to **STAKEHOLDER INVOLVEMENT**. Kindly indicate your level of agreement using the scale: Strongly disagree (1); Disagree (2); Neutral (3); Agree (4) and Strongly agree (5)

	STAKEHOLDER INVOLVEMENT	1	2	3	4	5
i.	Stakeholder involvement during the initial project planning phase contributes to a better understanding of project requirements.					
ii.	Regular communication and collaboration with stakeholders can help identify potential project challenges at an early stage.					
iii.	The involvement of multiple stakeholders often leads to increased project timelines.					
iv.	Effective stakeholder engagement enhances the chances of securing timely approvals and permits for construction projects.					
v.	Involving stakeholders in the project design phase results in more accurate and realistic timelines for construction projects.					

vi.	Ensuring transparent communication channels with stakeholders is crucial for managing expectations and reducing misunderstandings during construction.					
vii.	Government projects that prioritize stakeholder education on project goals and benefits experience smoother implementation.					
viii.	Involving local artisans and businesses in construction projects enhances economic development and provides a sense of inclusivity.					
ix.	Stakeholders' awareness of project timelines and milestones is crucial for timely decision-making and problem-solving.					
x.	Clear communication of roles and responsibilities among stakeholders is essential to avoid confusion and streamline decision-making.					

SECTION E: PROJECT BUDGETING AND FISCAL MANAGEMENT

11. The following are statements related to **PROJECT BUDGETING AND FISCAL MANAGEMENT**. Kindly indicate your level of agreement using the scale: Strongly disagree (1); Disagree (2); Neutral (3); Agree (4) and Strongly agree (5)

	PROJECT BUDGETING AND FISCAL MANAGEMENT	1	2	3	4	5
i.	There are frequent delays or non-payment of IPCs					
ii.	Adequate budget allocation for environmental protection and mitigation is crucial for successful construction project outcomes					
iii.	Efficient initial analysis of costs in project planning enhances financial stability.					
iv.	Well-structured financial processes by clients play a vital role in ensuring the timely execution of projects.					
v.	Smooth project execution depends on the fiscal management capabilities of the consultants involved.					
vi.	Financial challenges on the part of clients pose a significant risk to the overall success of projects					
vii.	Financial stability is reinforced by meticulous budgeting aligned with project requirements.					
viii.	Projects where contractors exhibit poor fiscal management are more prone to challenges.					
ix.	Projects without sufficient budgetary provisions for unforeseen challenges are more likely to experience schedule changes.					
x.	Strategic budgeting, aligned with project intricacies, minimizes financial uncertainties during construction.					

SECTION F: DELAYS OF CONSTRUCTION PROJECTS AMONG SELECTED GOVERNMENT PROJECTS IN LUSAKA

12. The following are statements related to **DELAYS OF CONSTRUCTION PROJECTS AMONG SELECTED GOVERNMENT PROJECTS IN LUSAKA**. Kindly indicate your level of agreement using the scale: Strongly disagree (1); Disagree (2); Neutral (3); Agree (4) and Strongly agree (5)

	DELAYS OF CONSTRUCTION PROJECTS AMONG SELECTED GOVERNMENT PROJECTS IN LUSAKA	1	2	3	4	5
i.	There are frequent delays in government projects.					
ii.	Government projects are rarely completed on time.					
iii.	Timely completion of government construction projects is a rare occurrence.					
iv.	It is common for government projects to exceed their initially planned timelines.					
v.	There is a noticeable pattern of extensions in the timelines of government construction projects.					
vi.	Most government projects experience setbacks that contribute to delays.					
vii.	The occurrence of delays is a notable characteristic of government infrastructure development.					
viii.	The completion of government construction projects within the stipulated timeframe is an exception rather than the norm.					
ix.	The complexity of government projects leads to delays.					
x.	Government projects frequently face challenges that hinder their progress and contribute to delays.					

The End!

Thank you for taking time to participate in this research!

APPENDIX III: ETHICAL APPROVAL

UNIVERSITY OF LUSAKA

SCHOOL OF POSTGRADUATE STUDIES

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Phone: +260211258505, 258409 Fax +260211233409; Cell +260976075850,961917862,
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UNILUS-RESEARCH ETHICS COMMITTEE

Ref no: FWA00033228-11712/23

Date: 28th December 2023

STUDENT NAME: WILLIAM MAKUBALO

FACTORS CONTRIBUTING TO DELAYS OF CONSTRUCTION PROJECTS AMONG SELECTED GOVERNMENT PROJECTS IN LUSAKA, ZAMBIA

The above research was submitted to the research ethics committee for review. The study has no major ethical problems and is approved subject to the following:

1. The study cannot be changed without express permission of the UNILUS research ethics committee.

2. Approval from the necessary authority should be sought.

Congratulations and the committee wishes you success in your work.

Professor Kasonde Bowa
MSc(Glasgow),M.Med(UNZA),FRCS(Glasgow),FACS,FCS,DPH(LSTMH),MPH(UCL)
Chairman- UNILUS REC
Professor of Urology and Consultant Urologist
Deputy Vice-Chancellor – Research and Innovation
Executive Dean - School of Medicine and Health Sciences

APPENDIX IV: ANTI-IMAGE MATRICES

Anti-image Matrices

		PMP4	PMP6	PMP7	PMP8	PMP9	PMP10	SM3	SM5	SM6	SM7	SM8	PBFM2	PBFM3	PBFM4	PBFM5	PBFM7	PBFM8	DELAYS1	DELAYS2	DELAYS3	DELAYS4	DELAYS6	DELAYS7	DELAYS8
Anti-image Covariance	PMP4	.521	-.045	-.143	-.050	-.093	-.060	.077	.035	.034	.075	-.133	.061	.054	.063	-.016	-.032	-.031	-.042	.023	-.005	.021	-.058	.057	-.022
	PMP6	-.045	.422	-.175	.033	-.079	-.074	-.015	-.021	.032	-.034	-.020	-.069	-.116	-.038	.060	.070	-.028	.016	-.052	.051	-.013	.038	-.007	-.008
	PMP7	-.143	-.175	.442	-.138	.046	-.019	-.010	.014	-.013	-.012	-.045	-.019	.090	.008	-.041	-.094	.036	-.024	.014	-.023	.000	.029	.037	.041
	PMP8	-.050	.033	-.138	.523	-.099	-.016	-.041	.046	-.028	-.095	.073	-.096	-.021	.102	-.015	.047	-.035	.021	.027	-.092	-.034	.053	-.055	-.048
	PMP9	-.093	-.079	.046	-.099	.375	-.147	-.049	-.072	-.010	-.027	.107	.099	-.035	.002	.010	-.129	.068	.083	-.028	.034	-.035	-.079	.013	.064
	PMP10	-.060	-.074	-.019	-.016	-.147	.438	-.043	-.014	.004	.025	.012	-.121	-.003	-.063	-.044	.134	.085	.028	-.016	-.057	.051	.033	-.092	.026
	SM3	.077	-.015	-.010	-.041	-.049	-.043	.581	-.076	-.047	-.062	-.033	.052	.025	-.010	.076	.013	-.125	-.063	-.005	.158	.054	-.056	-.027	-.173
	SM5	.035	-.021	.014	.046	-.072	-.014	-.076	.336	-.158	-.074	-.096	-.028	.062	.023	-.053	-.070	.043	-.091	.121	-.109	-.117	.085	.008	.034
	SM6	.034	.032	-.013	-.028	-.010	.004	-.047	-.158	.481	-.057	-.071	-.003	.015	.048	-.051	-.023	-.008	.018	-.094	-.025	-.020	.044	.044	-.014
	SM7	.075	-.034	-.012	-.095	-.027	.025	-.062	-.074	-.057	.542	-.156	.019	.075	.008	.017	-.006	-.041	-.003	-.038	.009	.066	-.073	.133	-.027
	SM8	-.133	-.020	-.045	.073	.107	.012	-.033	-.096	-.071	-.156	.431	.052	-.126	-.098	.034	.061	.005	.105	-.051	.046	.074	-.068	-.136	.014
	PBFM2	.061	-.069	-.019	-.096	.099	-.121	.052	-.028	-.003	.019	.052	.398	-.026	-.116	.009	-.115	-.056	.003	-.022	.047	.020	-.106	-.012	.016
	PBFM3	.054	-.116	.090	-.021	-.035	-.003	.025	.062	.015	.075	-.126	-.026	.434	-.001	-.082	-.097	-.058	-.040	.025	-.068	.007	-.066	.022	-.047
	PBFM4	.063	-.038	.008	.102	.002	-.063	-.010	.023	.048	.008	-.098	-.116	-.001	.404	-.097	-.052	-.083	-.106	.006	-.019	-.007	.107	.094	-.107
	PBFM5	-.016	.060	-.041	-.015	.010	-.044	.076	-.053	-.051	.017	.034	.009	-.082	-.097	.557	-.009	-.137	.094	-.066	.048	.037	-.101	-.061	-.022
	PBFM7	-.032	.070	-.094	.047	-.129	.134	.013	-.070	-.023	-.006	.061	-.115	-.097	-.052	-.009	.430	-.096	.050	-.012	.053	.025	-.026	-.102	.017
	PBFM8	-.031	-.028	.036	-.035	.068	.085	-.125	.043	-.008	-.041	.005	-.056	-.058	-.083	-.137	-.096	.439	.009	.045	-.062	-.066	.025	-.024	.156
	DELAYS1	-.042	.016	-.024	.021	.083	.028	-.063	-.091	.018	-.003	.105	.003	-.040	-.106	.094	.050	.009	.318	-.180	-.019	-.041	-.106	-.083	.075
	DELAYS2	.023	-.052	.014	.027	-.028	-.016	-.005	.121	-.094	-.038	-.051	-.022	.025	.006	-.066	-.012	.045	-.180	.442	-.067	-.090	.015	.025	-.012
	DELAYS3	-.005	.051	-.023	-.092	.034	-.057	.158	-.109	-.025	.009	.046	.047	-.068	-.019	.048	.053	-.062	-.019	-.067	.386	.033	-.111	-.090	-.118
	DELAYS4	.021	-.013	.000	-.034	-.035	.051	.054	-.117	-.020	.066	.074	.020	.007	-.007	.037	.025	-.066	-.041	-.090	.033	.470	-.122	-.032	-.117
	DELAYS6	-.058	.038	.029	.053	-.079	.033	-.056	.085	.044	-.073	-.068	-.106	-.066	.107	-.101	-.026	.025	-.106	.015	-.111	-.122	.417	.035	.000
	DELAYS7	.057	-.007	.037	-.055	.013	-.092	-.027	.008	.044	.133	-.136	-.012	.022	.094	-.061	-.102	-.024	-.083	.025	-.090	-.032	.035	.473	-.128
	DELAYS8	-.022	-.008	.041	-.048	.064	.026	-.173	.034	-.014	-.027	.014	.016	-.047	-.107	-.022	.017	.156	.075	-.012	-.118	-.117	.000	-.128	.470
Anti-image Correlation	PMP4	.706[a]	-.095	-.299	-.095	-.210	-.125	.140	.083	.068	.141	-.280	.134	.114	.136	-.029	-.068	-.064	-.102	.047	-.011	.042	-.124	.115	-.045
	PMP6	-.095	.779[a]	-.405	.071	-.198	-.172	-.031	-.054	.072	-.071	-.047	-.169	-.271	-.093	.124	.165	-.065	.044	-.121	.127	-.029	.090	-.016	-.017
	PMP7	-.299	-.405	.729[a]	-.288	.113	-.042	-.020	.038	-.028	-.024	-.104	-.044	.206	.019	-.082	-.217	.081	-.063	.031	-.057	.000	.068	.081	.090
	PMP8	-.095	.071	-.288	.719[a]	-.222	-.033	-.075	.111	-.056	-.178	.153	-.210	-.045	.221	-.028	.099	-.072	.051	.056	-.204	-.069	.114	-.111	-.097
	PMP9	-.210	-.198	.113	-.222	.613[a]	-.362	-.104	-.204	-.023	-.059	.266	.256	-.087	.006	.023	-.321	.169	.242	-.068	.089	-.083	-.199	.031	.153
	PMP10	-.125	-.172	-.042	-.033	-.362	.707[a]	-.086	-.036	.009	.052	.027	-.289	-.006	-.148	-.089	.308	.193	.075	-.037	-.138	.112	.076	-.202	.058
	SM3	.140	-.031	-.020	-.075	-.104	-.086	.681[a]	-.171	-.089	-.110	-.066	.107	.049	-.020	.133	.027	-.247	-.147	-.009	.333	.104	-.113	-.052	-.331
	SM5	.083	-.054	.038	.111	-.204	-.036	-.171	.687[a]	-.392	-.174	-.251	-.076	.162	.062	-.122	-.186	.113	-.277	.315	-.303	-.294	.228	.020	.086
	SM6	.068	.072	-.028	-.056	-.023	.009	-.089	-.392	.826[a]	-.112	-.156	-.006	.033	.109	-.099	-.051	-.018	.047	-.203	-.058	-.042	.098	.093	-.029
	SM7	.141	-.071	-.024	-.178	-.059	.052	-.110	-.174	-.112	.715[a]	-.322	.040	.155	.018	.031	-.013	-.083	-.007	-.078	.020	.130	-.154	.263	-.053
	SM8	-.280	-.047	-.104	.153	.266	.027	-.066	-.251	-.156	-.322	.594[a]	.124	-.291	-.234	.069	.142	.011	.283	-.117	.112	.165	-.161	-.300	.032
	PBFM2	.134	-.169	-.044	-.210	.256	-.289	.107	-.076	-.006	.040	.124	.789[a]	-.061	-.288	.018	-.277	-.133	.008	-.053	.120	.047	-.260	-.027	.038
	PBFM3	.114	-.271	.206	-.045	-.087	-.006	.049	.162	.033	.155	-.291	-.061	.818[a]	-.002	-.167	-.225	-.133	-.108	.057	-.167	.015	-.154	.049	-.105
	PBFM4	.136	-.093	.019	.221	.006	-.148	-.020	.062	.109	.018	-.234	-.288	-.002	.736[a]	-.204	-.125	-.197	-.296	.015	-.047	-.016	.260	.215	-.247
	PBFM5	-.029	.124	-.082	-.028	.023	-.089	.133	-.122	-.099	.031	.069	.018	-.167	-.204	.801[a]	-.019	-.278	.224	-.133	.104	.073	-.209	-.120	-.044
	PBFM7	-.068	.165	-.217	.099	-.321	.308	.027	-.186	-.051	-.013	.142	-.277	-.225	-.125	-.019	.699[a]	-.222	.135	-.027	.130	.057	-.060	-.225	.039
	PBFM8	-.064	-.065	.081	-.072	.169	.193	-.247	.113	-.018	-.083	.011	-.133	-.133	-.197	-.278	-.222	.730[a]	.024	.101	-.151	-.146	.059	-.053	.344
	DELAYS1	-.102	.044	-.063	.051	.242	.075	-.147	-.277	.047	-.007	.283	.008	-.108	-.296	.224	.135	.024	.703[a]	-.480	-.054	-.107	-.291	-.215	.193
	DELAYS2	.047	-.121	.031	.056	-.068	-.037	-.009	.315	-.203	-.078	-.117	-.053	.057	.015	-.133	-.027	.101	-.480	.774[a]	-.162	-.198	.035	.054	-.027
	DELAYS3	-.011	.127	-.057	-.204	.089	-.138	.333	-.303	-.058	.020	.112	.120	-.167	-.047	.104	.130	-.151	-.054	-.162	.762[a]	.077	-.278	-.211	-.276
	DELAYS4	.042	-.029	.000	-.069	-.083	.112	.104	-.294	-.042	.130	.165	.047	.015	-.016	.073	.057	-.146	-.107	-.198	.077	.817[a]	-.275	-.069	-.250
	DELAYS6	-.124	.090	.068	.114	-.199	.076	-.113	.228	.098	-.154	-.161	-.260	-.154	.260	-.209	-.060	.059	-.291	.035	-.278	-.275	.742[a]	.078	-.001
	DELAYS7	.115	-.016	.081	-.111	.031	-.202	-.052	.020	.093	.263	-.300	-.027	.049	.215	-.120	-.225	-.053	-.215	.054	-.211	-.069	.078	.761[a]	-.272
	DELAYS8	-.045	-.017	.090	-.097	.153	.058	-.331	.086	-.029	-.053	.032	.038	-.105	-.247	-.044	.039	.344	.193	-.027	-.276	-.250	-.001	-.272	.682[a]

a. Measures of Sampling Adequacy(MSA)

APPENDIX V: CORRELATION MATRIX

Correlation Matrix[a]

		PMP4	PMP6	PMP7	PMP8	PMP9	PMP10	SM3	SM5	SM6	SM7	SM8	PBFM2	PBFM3	PBFM4	PBFM5	PBFM7	PBFM8	DELAYS1	DELAYS2	DELAYS3	DELAYS4	DELAYS6	DELAYS7	DELAYS8
Correlation	PMP4	1.000	.382	.528	.339	.428	.348	-.060	.021	-.002	.052	.175	.002	.016	-.151	.054	.099	-.064	-.116	-.032	.027	-.067	.111	-.015	-.089
	PMP6	.382	1.000	.572	.283	.389	.505	.183	.199	.120	.196	.277	.379	.311	.255	.161	.197	.135	.062	.183	.068	.067	.113	.118	.045
	PMP7	.528	.572	1.000	.440	.335	.369	.087	.167	.148	.206	.210	.234	.034	.042	.130	.234	.053	-.038	.044	.043	-.026	.033	.021	-.078
	PMP8	.339	.283	.440	1.000	.430	.364	.109	.151	.164	.163	-.024	.197	.098	-.143	.119	.134	.024	-.038	.051	.274	.139	.138	.205	.145
	PMP9	.428	.389	.335	.430	1.000	.482	.134	.260	.168	.157	-.043	.030	.070	-.163	.074	.271	-.114	-.176	-.025	.025	.081	.133	.012	-.071
	PMP10	.348	.505	.369	.364	.482	1.000	.117	.180	.096	.047	.115	.303	.158	.137	.155	.012	-.103	.009	.131	.216	.026	.093	.244	.123
	SM3	-.060	.183	.087	.109	.134	.117	1.000	.401	.358	.363	.292	.104	.104	.195	.066	.135	.178	.233	.182	.041	.189	.157	.185	.301
	SM5	.021	.199	.167	.151	.260	.180	.401	1.000	.649	.436	.376	.180	.124	.177	.196	.289	.135	.305	.192	.356	.392	.189	.252	.203
	SM6	-.002	.120	.148	.164	.168	.096	.358	.649	1.000	.443	.373	.111	.094	.101	.200	.209	.127	.197	.275	.266	.280	.141	.150	.188
	SM7	.052	.196	.206	.163	.157	.047	.363	.436	.443	1.000	.439	.047	.001	.076	.067	.111	.104	.067	.134	.059	.045	.134	-.086	.057
	SM8	.175	.277	.210	-.024	-.043	.115	.292	.376	.373	.439	1.000	.135	.303	.294	.216	.131	.189	.076	.164	.143	.018	.171	.233	.179
	PBFM2	.002	.379	.234	.197	.030	.303	.104	.180	.111	.047	.135	1.000	.472	.540	.407	.477	.464	.303	.284	.241	.220	.363	.293	.124
	PBFM3	.016	.311	.034	.098	.070	.158	.104	.124	.094	.001	.303	.472	1.000	.418	.457	.421	.441	.294	.289	.378	.261	.470	.371	.268
	PBFM4	-.151	.255	.042	-.143	-.163	.137	.195	.177	.101	.076	.294	.540	.418	1.000	.394	.309	.459	.387	.314	.199	.192	.166	.208	.250
	PBFM5	.054	.161	.130	.119	.074	.155	.066	.196	.200	.067	.216	.407	.457	.394	1.000	.408	.485	.108	.199	.230	.171	.327	.285	.143
	PBFM7	.099	.197	.234	.134	.271	.012	.135	.289	.209	.111	.131	.477	.421	.309	.408	1.000	.497	.089	.088	.102	.174	.274	.234	-.003
	PBFM8	-.064	.135	.053	.024	-.114	-.103	.178	.135	.127	.104	.189	.464	.441	.459	.485	.497	1.000	.206	.132	.152	.181	.244	.190	-.043
	DELAYS1	-.116	.062	-.038	-.038	-.176	.009	.233	.305	.197	.067	.076	.303	.294	.387	.108	.089	.206	1.000	.653	.465	.524	.488	.368	.277
	DELAYS2	-.032	.183	.044	.051	-.025	.131	.182	.192	.275	.134	.164	.284	.289	.314	.199	.088	.132	.653	1.000	.440	.472	.426	.306	.313
	DELAYS3	.027	.068	.043	.274	.025	.216	.041	.356	.266	.059	.143	.241	.378	.199	.230	.102	.152	.465	.440	1.000	.447	.489	.520	.485
	DELAYS4	-.067	.067	-.026	.139	.081	.026	.189	.392	.280	.045	.018	.220	.261	.192	.171	.174	.181	.524	.472	.447	1.000	.489	.369	.406
	DELAYS6	.111	.113	.033	.138	.133	.093	.157	.189	.141	.134	.171	.363	.470	.166	.327	.274	.244	.488	.426	.489	.489	1.000	.334	.276
	DELAYS7	-.015	.118	.021	.205	.012	.244	.185	.252	.150	-.086	.233	.293	.371	.208	.285	.234	.190	.368	.306	.520	.369	.334	1.000	.486
	DELAYS8	-.089	.045	-.078	.145	-.071	.123	.301	.203	.188	.057	.179	.124	.268	.250	.143	-.003	-.043	.277	.313	.485	.406	.276	.486	1.000

a. Determinant = 1.07E-005

APPENDIX VI : TOTAL VARIANCE

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.863	24.431	24.431	5.863	24.431	24.431	3.856	16.067	16.067
2	3.106	12.941	37.372	3.106	12.941	37.372	3.392	14.135	30.202
3	2.200	9.168	46.540	2.200	9.168	46.540	3.199	13.330	43.532
4	1.986	8.275	54.815	1.986	8.275	54.815	2.708	11.283	54.815
5	1.292	5.384	60.199						
6	1.136	4.732	64.931						
7	1.000	4.166	69.097						
8	.821	3.420	72.517						
9	.791	3.297	75.814						
10	.707	2.947	78.761						
11	.603	2.513	81.274						
12	.572	2.383	83.657						
13	.509	2.122	85.779						
14	.499	2.081	87.861						
15	.451	1.881	89.741						
16	.421	1.753	91.495						
17	.389	1.619	93.114						
18	.337	1.403	94.517						
19	.296	1.231	95.749						
20	.258	1.076	96.824						
21	.256	1.066	97.890						
22	.185	.771	98.661						
23	.185	.770	99.431						
24	.137	.569	100.000						

Extraction Method: Principal Component Analysis.

APPENDIX VII: MULTIPLE REGRESSION OUTPUTS

Correlations

		Delays	Budgeting	Practices	Stakeholders	Position	Experience	Projects
Delays	Pearson Correlation	1	.421**	.110	.335**	.278*	-.062	-.133
	Sig. (2-tailed)		.000	.360	.004	.019	.606	.267
	N	71	71	71	71	71	71	71
Budgeting	Pearson Correlation	.421**	1	.187	.277*	.172	-.015	-.025
	Sig. (2-tailed)	.000		.118	.020	.151	.903	.836
	N	71	71	71	71	71	71	71
Practices	Pearson Correlation	.110	.187	1	.245*	-.172	-.196	-.128
	Sig. (2-tailed)	.360	.118		.039	.151	.102	.288
	N	71	71	71	71	71	71	71
Stakeholders	Pearson Correlation	.335**	.277*	.245*	1	.117	.069	-.143
	Sig. (2-tailed)	.004	.020	.039		.330	.569	.235
	N	71	71	71	71	71	71	71
Position	Pearson Correlation	.278*	.172	-.172	.117	1	-.009	-.076
	Sig. (2-tailed)	.019	.151	.151	.330		.943	.530
	N	71	71	71	71	71	71	71
Experience	Pearson Correlation	-.062	-.015	-.196	.069	-.009	1	.068
	Sig. (2-tailed)	.606	.903	.102	.569	.943		.573
	N	71	71	71	71	71	71	71
Projects	Pearson Correlation	-.133	-.025	-.128	-.143	-.076	.068	1
	Sig. (2-tailed)	.267	.836	.288	.235	.530	.573	
	N	71	71	71	71	71	71	71

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.1382	4.3100	3.7686	.36364	71
Std. Predicted Value	-4.484	1.489	.000	1.000	71
Standard Error of Predicted Value	.109	.375	.183	.062	71
Adjusted Predicted Value	2.6616	4.3548	3.7739	.35551	71
Residual	-1.51999	1.45220	.00000	.58831	71
Std. Residual	-2.470	2.360	.000	.956	71
Stud. Residual	-2.619	2.507	-.004	1.032	71
Deleted Residual	-1.81050	1.70562	-.00529	.68988	71
Stud. Deleted Residual	-2.750	2.619	-.005	1.052	71
Mahal. Distance	1.215	25.007	5.915	5.102	71
Cook's Distance	.000	.459	.027	.068	71
Centered Leverage Value	.017	.357	.085	.073	71

a. Dependent Variable: Delays

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.304[a]	.093	.052	.67344	.093	2.278	3	67	.088	
2	.526[b]	.276	.209	.61527	.184	5.422	3	64	.002	2.158

a. Predictors: (Constant), Projects, Experience, Position

b. Predictors: (Constant), Projects, Experience, Position, Budgeting, Stakeholders, Practices

c. Dependent Variable: Delays

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.099	3	1.033	2.278	.088[b]
	Residual	30.386	67	.454		
	Total	33.484	70			
2	Regression	9.257	6	1.543	4.075	.002[c]
	Residual	24.228	64	.379		
	Total	33.484	70			

a. Dependent Variable: Delays

b. Predictors: (Constant), Projects, Experience, Position

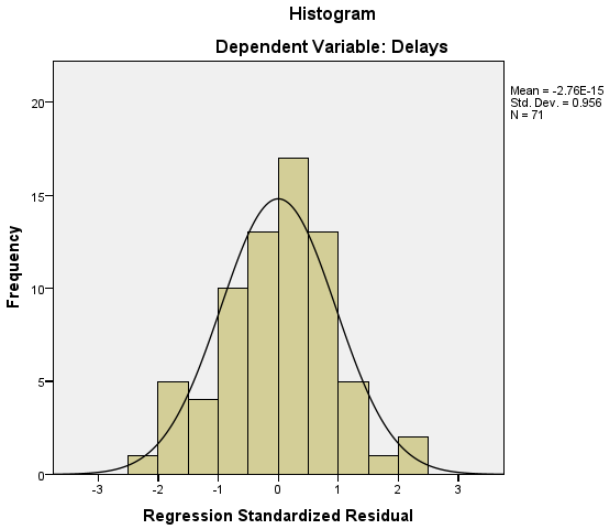
c. Predictors: (Constant), Projects, Experience, Position, Budgeting, Stakeholders, Practices

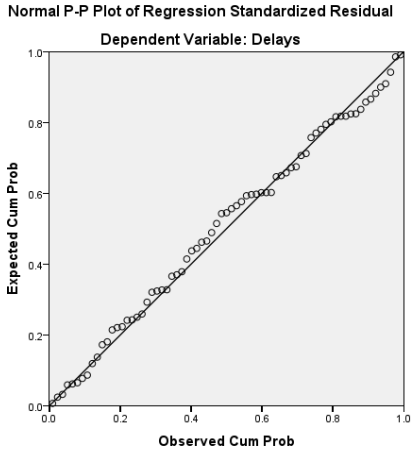
Coefficients[a]

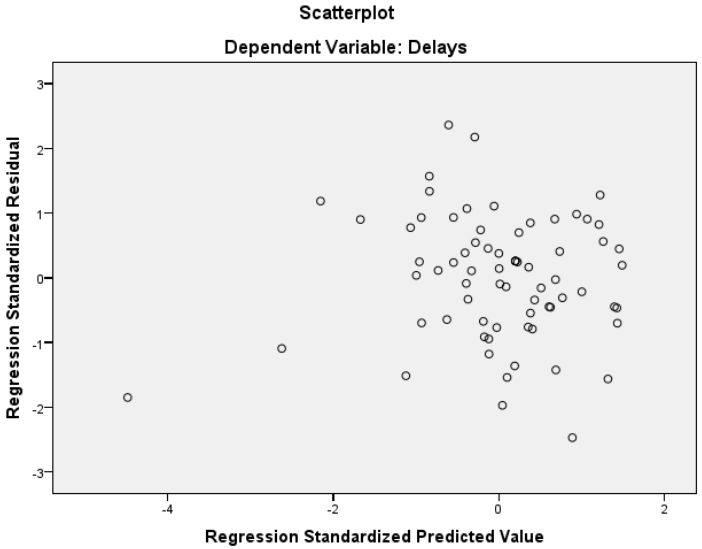
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.550	.295		12.026	.000					
	Position	.149	.065	.269	2.304	.024	.278	.271	.268	.994	1.006
	Experience	-.051	.114	-.053	-.451	.654	-.062	-.055	-.052	.995	1.005
	Projects	-.067	.071	-.110	-.936	.353	-.133	-.114	-.109	.990	1.010
2	(Constant)	1.565	.654		2.392	.020					
	Position	.107	.062	.192	1.713	.092	.278	.209	.182	.903	1.108
	Experience	-.063	.107	-.064	-.584	.561	-.062	-.073	-.062	.940	1.063
	Projects	-.046	.066	-.075	-.689	.493	-.133	-.086	-.073	.959	1.043
	Budgeting	.335	.117	.324	2.856	.006	.421	.336	.304	.878	1.139
	Practices	.008	.119	.008	.065	.948	.110	.008	.007	.821	1.218
	Stakeholders	.202	.108	.215	1.859	.068	.335	.226	.198	.846	1.182

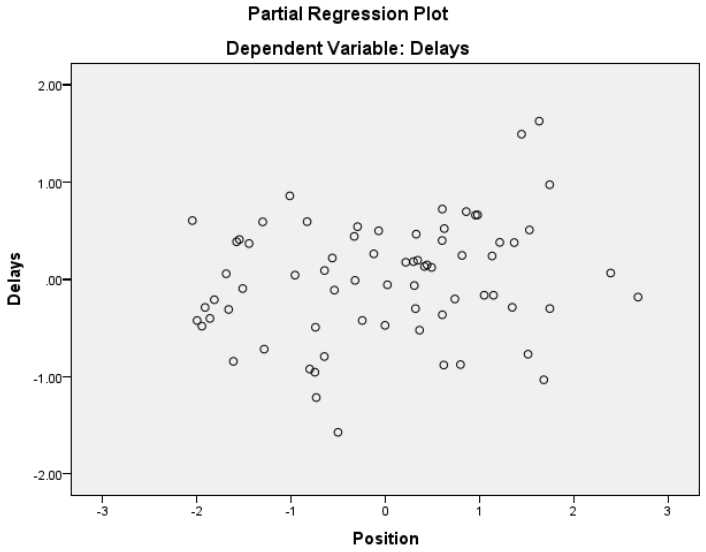
a. Dependent Variable: Delays

APPENDIX VIII: PLOTS






Scatterplot
Dependent Variable: Delays
Regression Standardized Residual
Regression Standardized Predicted Value
3
2
1
0
-1
-2
-3
-4
-2
0
2


Partial Regression Plot
Dependent Variable: Delays
Delays
Position
2.00
1.00
.00
-1.00
-2.00
-3
-2
-1
0
1
2
3