

STUDYING THE USE OF TERMINATION AS PROJECT COST CONTROL  
TECHNIQUES IN THE CONSTRUCTION INDUSTRY

By

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## ABSTRACT

Building construction project termination is a very common phenomenon in Africa of which Ghana is not an exception, he argued that, the phenomenon can be attributed to lack of political continuity of projects started by predecessors and the frequent award of contracts to party apparatchiks. The study revealed that Ghana in the last two decades has experienced the highest number of abandoned building projects in its development history, they opined that, the situation is alarming and needs national dialogue to put an end to the menace, their findings also suggest that, the situation has huge financial implication on Ghana's struggling economy as a developing country. This revealed the need to investigate the possible usage of project termination as a project cost control mechanism. The main goal of the study is the use of termination as project cost control technique in the construction industry. Specifically, the study looked at factors that causes project termination, secondly, the study was to identify termination methods that can be used as a project cost control mechanism in the construction and finally, the study was to investigate the relationship between project termination factors and project cost control. To achieve the aforementioned objectives the researcher employed descriptive survey research design approach using research questionnaires as a data collection instrument. The study sampled 40 respondents using a non-probability (convenient sampling) sampling technique. Findings from the study revealed that, political factors were the most severe project termination factors with a Relative Importance Index (RII) of 0.813, followed by managerial factors, financial factors and the least severe project termination factor was identified as sustainable factors. furthermore, findings identified termination by default is the best termination method used to control project cost, more than 80% of the respondents endorsed project termination by default as the most appropriate termination tool to prevent and control project cost at the municipal assemble level. Finally, a Kurskal Wallis test of association showed the relationship between project termination factors and project cost control. All the project termination factors were all statistically significant at alpha ( $\alpha$ ) =5%. Based on these findings the researcher recommends that, the award of contracts by municipal assemblies must be preceded by due diligence to determine the financial status of the contracting firms and their competent level in the line supposed project.

**Keywords:** Construction Industry, Cost control techniques, Project termination, Project stakeholders.

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## **DEDICATION**

I dedicate this work to my husband; Rev. Prof. D.Y. Bruce, my children; Makafui Bruce; Prosper Bruce and Joshua Bruce. Also, to a God sent friend; Master Mohammed Abdulai.

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# CHAPTER ONE

## INTRODUCTION

### 1.1 Background to the Study

The growing demand for government building in the globe shows the importance of the construction industry for the social and economic development of the country. One of those sectors facing the plague of project mistakes in terms of project delivery according to Miller (2000) is the construction industry. According to Smith and Jaggar (2007), it has been noted that the various types of building projects, including their multifaceted nature, always make it quite hard to plan, forecast, manage and control projects. As a result, Miller et al., (2000) argued that decisions taken at the initial stage of the management of the project process have become critical to the success of the project, and that the construction sector is among the industries which cannot be confronted with difficulties or challenges.

Due to the complexity of the construction projects, the risk of their participation is very high. Nicholas (2010) described the building project as having completed operations of restricted length and all projects. Nicholas (2010) again stated and I quote Contracts are created to be executed by the responsible parties performing the suitable tasks and, when the parties enter into an agreement, to be executed as anticipated by the terms of the agreement. Indeed, the agreement comprises of a number of commitments which determine the scope of the performance commitments accepted by the parties. Failure on the part of a member to comply with these conditions is a violation of agreement which will give the party the right to a suitable remedy on the basis of the agreement (Mckendrick, 2013). Subsequently, as a remedy, the abandonment of the project may be canceled by either party, according to Smith and Sims (2015), the termination of the agreement happens when different valid conditions that are

enforceable in the agreement are brought to an early end, either circumstances that were unforeseeable at the moment the agreement was entered into or the actions of the parties could be rendered impossible.

The termination of the project is inevitable, but the termination path will have a long-term impact on project stakeholders that cannot be determined. According to Amir et al (2010), the successful completion of future projects may rely not only on the achievement of previous projects, but also on how unsuccessful projects have been managed by the organization and its stakeholders.

According to Nathaniel (2014), the termination of construction projects is a very prevalent occurrence in Africa, of which Ghana is no exception, he stated that the phenomenon can be attributed to the absence of political continuity of the projects initiated by the predecessors and the frequent award of agreements to party apparatchiks. A comparable research by Ahmed et al. (2014) revealed that Ghana has encountered the greatest amount of deserted construction projects in its development history over the last two decades, they argued that the situation is alarming and that domestic dialog is needed to put an end to the threat, and their results also indicate that the scenario has enormous economic implications for Ghana's cash strapped economy like a third world country. This latest research has a particular interest in exploring the termination of the project as a price control measure.

## **1.2 The Problem Statement**

According to Adomako-Kwakye (2012), unwelcome project output will lead in one of the primary issues influencing building sectors around the globe and mostly developing nations. The construction industry in Ghana has seen so much uncertainty about the way in which

contracts are awarded and performed in this sector. This led in countless agreements being truncated / terminated early leading to enormous economic losses on the part of the parties, despite the reality that the state has always been on the receiving end. Al-Rasas (2014) stated that this challenge is a prevalent syndrome between public sector initiatives and their counterparts in the private sector. As large as the issue may be, there is very little literature addressing this challenge, and instead the focus of the past research in this region has been on project delays and their implications for the sector, as is prevalent among the available literature, project closure methods and results. It will therefore be very appropriate to acknowledge these factors and their impact on the termination of the project and to study the present scenario in Ghana in order to prevent or mitigate the abandonment of projects.

### **1.3 Research Questions**

- i. What are the variables that lead to the termination of the project in the construction industry?
- ii. What are the termination variables that can be used to regulate costs in the construction industry?
- iii. What is the link between termination variables and price control?

### **1.4 Aim of the Research**

The aim of the research is to study the use of termination as a project cost control technique in the construction industry.

## **1.5 Research Objectives**

The primary aim of the research is to evaluate the impacts of termination on the construction industry. Explicitly, the research aims to:

- i. To determine the factors that cause the termination of the project in the construction industry.
- ii. To determine the termination variables that can be used for price control in the construction industry.
- iii. To establish a link between the termination variables and the price control.

## **1.6 Study Significance / Justification**

The aim of the study is to provide industry players with the skills needed to manage the completion of the project and, as a result, to ensure the full performance of the project in the construction industry. It also aims to facilitate and improve project team collaborations for better future projects. The research also made an enormous contribution to the accessible literature on the topic. Last but not least, the government's readiness to accept and enforce recommendations will certainly mitigate / reduce the number of completed / abandoned projects in the nation.

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

With regard to the wide and complicated nature of the construction industry, the research was focused on construction projects under the oversight of the municipal assembly of Adenta. This organization is carefully chosen as a result of the development projects undertaken in the municipality.

## **1.8 Research Methodology**

Both main and secondary data were used by studies. Secondary data was gathered from students' books, journals, appropriate articles, and dissertations published and unpublished. Primary data included the use to contractors and professionals of self-directed questionnaires. The questionnaire included the use of the closing questions and the scale of Likert to rate and answer the participants' questions. Feedback on the questionnaires were the opinions of the participants on the impact of "project completion" as a control measure on the construction industry and their corresponding effects on project stakeholders, especially contractors. The importance index rate was used to analyze the information gathered to define main problems and possibilities.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Overview of Chapter**

The related studies on the topic are reviewed in this chapter. This helped form the theoretical and conceptual underpinning of this research, providing readers with a full knowledge of the existing gaps in literature to assist the investigator conduct a holistic survey to fill the gaps identified.

#### **2.2 Understanding Contract**

##### **2.2.1 Meaning of Contract**

Ross et al. (2016) describe a contract as legally binding by two or more parties. Generally, a contract agreement is defined as one party's "offer" and the other party's "recognition" of that offer. Adomako-Kwakye (2008) also describes a contract as a binding agreement among two or more individuals, which implies that the agreement will be implemented by the competent tribunal of jurisdiction. BPI (2007) also argued that the building agreement is defined as a contract for the construction contractor to execute as designed by the design employees and/or an autonomous architectural, engineering company under a distinct agreement. These opinions differ as Haider (2009) defined a construction contract as a specifically negotiated contract for the construction of an asset or a mix of funds that are closely interrelated or interdependent in terms of their design, technology and operation, or ultimate intention or use. Gilbreath (2010) as referred to in Dilts et al. (2016) defined a project as a series of activities or activities needed to achieve a specific objective within certain technical criteria, within defined start and end dates, subject to funding limits and resource accessibility. Iyer et al.

(2008) defines the termination of contracts as the termination of contract work without any intention to resume contract work in the foreseeable future. Balachandra and Friar (2007) define the termination as the project's discontinuation before completion. The contract is terminated and there is no need for any party to continue the agreement's accomplishment. However, the parties may still be entitled to damages on the grounds of termination once the contract has been terminated. Once again, the nature and amount of such damages depends on how the termination is handled in the construction contract (Wittbrodt et al., 2009).

### **2.2.2 Essential Components of a Contract in Force**

Several of key elements are required to form a valid contract.

#### **i. Agreement**

An agreement between the parties on the agreement's intention, rights, duties and remedial measures is essential. A written agreement is not a necessary requirement, but in practice, putting the agreement in writing is desirable, as it will provide substantial evidence of the contract terms.

#### **ii. Offer and Acceptance**

The offer is a suggestion from one party that the proposal be legally bound as fast as another party approves it (Adomako-Kwakye, 2008). Acceptance is the full acceptance by the offering group (Adomoko-Kwakye, 2008). There must be an offer in the form of an agreement composed of a firm commitment from one party to the other that it is willing to be legally bound by particular terms and that the second party accepts these conditions unconditionally. An offer may be withdrawn before it is approved and will be valid for a reasonable period of time if there is no time limit (Seid, 2008).

### **iii.Considerations**

Consideration is what each party contributes to the contract, or what the parties enter into and withdraw from the contract, in other words. Consideration must have some economic value, but the meaning is not considered inadequate by the legislation (Seid, 2008).

### **iv.The Intension to be Legally Bounded**

While a legal contract involves explicit agreement on the rights and duties it will create, a mere arrangement alone will not be legally enforceable unless the parties completely plan to be legally bound by its terms and conditions. Therefore, the parties are required to legally enforce a contract if it is intended to be legally binding (Seid, 2008).

### **v.Genuine Concerns of Parties**

It is of the utmost importance that the contracts are free from misunderstanding, mistake, hardship and undue influence and created with the parties ' adequate and sincere approval (Adomako-Kwakye, 2008).

### **vi.Legal Capacity**

Some parties, including minors, drunks, madmen and convicts under sentence, are either not allowed to enter into an arrangement or are restricted in some way. Corporate bodies, such as limited companies and public officials, may only conclude contracts within the jurisdiction set out in their association memoranda, and people signing contracts on behalf of their organisation should not do so unless they are specifically authorized to participate the organisation (Seid, 2008).

### **2.1.3 Contract Documents**

These are words that the parties have spoken or recorded in handwriting, typing or printing.

The following forms are usually used in most construction contract papers.

i. **Contracting requirements:** These include contract kinds (agreements) and contract terms and conditions (general and additional terms, or proprietor's specific or special terms and conditions), as well as various annexes and kinds. Revisions, clarifications and modifications are amendments applicable to contract documents, such as additions made during the procurement stage or changes to orders issued during work (CSI, 2011).

ii. **Specifications:** These include particular written work specifications.

Specifications identify the quality criteria for the goods, equipment and workmanship on which the agreement is based and create criteria for project management and efficiency. They are usually published as parts for each job consequence and structured By Master Format Divisions (CSI, 2011).

iii. **Contract drawings:** These include significant graphic illustrations of the work to be carried out in the physical form. The drawings are visual representations of the work that is based on the contract. Since graphic files usually contain more than a perspective of the plan, sketches rather than plans are the preferred term. The quantitative magnitude and the component relationship are indicated (CSI, 2011).

### **2.1.4 Stakeholders of the Construction Project**

The stakeholders are individuals, groups or organisations, institutions and others who are actively involved in the project and whose interests may be affected positively or negatively by the project execution (Seid, 2008). Project stakeholders can be divided into two main organizations: main and secondary stakeholders. The primary stakeholders are those persons

or groups of the project team that have a contractual or legal obligation to the project team and have the responsibility and authority to manage and commit resources according to the timetable, cost and technical performance objectives. These stakeholders can also be identified as parties to the contract. Secondary stakeholders are those who have no official contractual link with the project but may have a strong interest in what happens to the project. These stakeholders may be involved in budgetary and financial agreements, business and professional interests or relationships, and are also referred to as budgetary and collateral stakeholders (Seid, 2008).

### **2.1.5 Types of Contracts**

There is a legally enforceable agreement between two or more sides with mutual obligations as we define the contract before the contract. But there are various types of it:

#### **A fixed price contracts**

A fixed price agreement requires the contractor to receive a lump amount compensating the contractor for the cost of the work, including labor, materials and facilities, as well as overhead and profit. Also referred to as price or lump sum contracts are those contractors. Under these contracts, the owner usually has no right to direct the contractor to the construction methods and methods and has no right to inquire about the actual cost of performing the work. The contractor will be allowed to maintain any additional profit earned as a result of cost-saving measures, but will also be responsible for overruns, subject, of course, to the completion of the terms of the agreement and provided that the owner has not made any changes (Ross et al., 2016).

### **Cost-plus contract**

Cost plus contract usually requires the contractors to compensate the owner for the actual construction costs, plus a fee that can be fixed or vary with the "construction cost." In such an arrangement, it is essential that the building costs are defined accurately. This was the cause of many conflicts, especially overhead items. Cost plus contracts should generally allow the owner to participate significantly in building information, including the means and methods (Ross et al., 2016).

### **Unit price contract**

Unit price contract needs the owner to pay for each unit or quantity of work performed a defined amount. These contracts are common in projects involving roads, construction, earth movement and pipelines.

While unit price agreements do not ensure final expenses, they may be advantageous for various reasons where the amount of job may differ, requiring the contractor to bid on a lump sum basis often leads to contingency within the price to safeguard against the danger of an amount other than that estimated. Thus, the owner ends up paying a premium under the price arrangements (Ross et al., 2016).

## **2.2 Overview of the construction project**

In most organisations, projects have obviously become a key activity, and businesses are investing growing resources in projects such as new product development, process improvement, or fresh services. However, many studies have shown that most projects do not meet time and budget objectives, or fail to meet the expectations of customers and/or companies. Yet project success implies more than just meeting objectives in terms of time and

budget. It includes extra dimensions of achievement, such as company outcomes or future preparations (Sausser, 2009).

### **2.2.1 Project Success Overview**

Dvir (2015) described the project's achievement as the moment, price and efficiency limitations of finalizing an event. This definition is said to have been used for the last twenty years. Today, to include completion, the project's definition of accomplishment has been changed.

- Without changing the culture of the company
- Without disrupting the organization's primary workflow
- Minimum or mutually agreed changes in scope
- The customer / user recognition
- At the suitable performance or specification level
- Within the estimated cost
- Within the time allotted

### **2.2.2 Project Failure Overview**

Kaminetzky (2011) defines failures as "a human act; omission of event or performance; absence of achievement; inefficiency; loss of strength; and cessation of adequate functioning or performance" a failed project is usually defined as any project with severe cost or schedule overruns, quality problems, or one that suffers full cancellation.

Work on the project has stopped or slowed to the point where progress has been halted on the project. Not all of the stopped projects are said to have been completed as some of the projects that have significantly slowed down are also considered to be completed (EPM, 2011). Fundamental factors for project failure include (EPM)

- Project requirements met, but the requirements of the company remain unchanged.
- Exceeded costs and schedules
- Poor project support from senior leadership
- Missing planning

#### **2.2.4 Risk in Construction Projects**

Risk can be described as any occurrence, incident or influence that in terms of time, cost or quality affects the successful implementation of a project (Medda, 2007).

Determining where the risk is regulated is one way to classify the risk. This may change over the project's life. There are five risk categories depending on the location of the control (IMCA, 2006):

##### **i. External: unpredictable**

These are dangers beyond the person or operator's control, and they are extremely unpredictable. They arise from internal variables like third parties, god acts, etc.

##### **ii. External: predictable but uncertain**

These risks are also beyond the control of individuals or companies. They are expected, but to what extent? In general, data is available to determine the standard or average, but the actual impact may be above or below this standard. Bad weather is an example.

##### **iii. Internal: technical**

These are risks arising directly from the project work technology, plant design, construction or operation.

#### **iv. Internal: Non-Technical**

They are under individuals or operator control and usually result from the project team's failure to achieve its expected production. They can lead to schedule delays, cost overruns or cash flow interruptions.

#### **v. Legal: Civil and criminal**

Civil law risks can arise from contractual clauses, patent rights, etc. The dangers of criminal law may arise under the law.

### **2.3 Termination of Construction Projects**

The contract is terminated and there is no need for any party to continue the agreement's accomplishment. However, the parties may still be entitled to damages on the grounds of termination once the contract has been terminated. Once again, the nature and amount of such damages depends on how the termination is handled in the construction contract (Wittbrodt et al., 2009). It is vital that contractors and owners understand when and how to legally terminate and how to cope with such threats of termination (Brumback, 2006).

#### **2.3.1 Types of Termination**

El Karriri et al. (2011) said there are two types of project termination.

(2011) stated that there are two kinds of termination of projects.

i. Natural termination

ii. Unnatural termination

Natural termination: Implies that the project's objectives have been met. Unnatural

termination: means that project work has ceased because of a violation of project constraints or that the goal of the project has become irrelevant to the overall goals (EPM, 2011).

Termination may be as stated in Brumback (2006) by default or for convenience.

**a. Termination for Default:**

On request, both the contractor and the owner are entitled to terminate.

**1. Default Contractor Termination**

Pursuant to the underlying clause validating the contract, the contractor may terminate the contract for a material breach. For the most part, this clause provides that a contractor may terminate a contract if the work is stopped for 30 days or more by no fault of the contractor, including only for specified reasons; the issuance of a public stop-work order, a government act such as a national emergency declaration, failure to make a timely payment or failure to issue a payment certificate without notification. Moreover, if repeated suspensions, delays or work interruptions are encountered in the following delay instances, the contractor may terminate the contract on a case-by-case basis:

- If work is halted owing to the owner's fault for 60 successive delays or
- more than 100% of the total number of days scheduled to be completed, or 120 days for any period of 365 days, less than that.

**2. Owners termination for Default**

The owner may also terminate the contract if the contractor is substantially in breach of the contract in one or the following way; he is persistently unable to supply adequately skilled staff or suitable materials, fails to pay equipment or labor to the subcontractors in accordance with the relevant agreements, continues to ignore the laws, orders Infringements that are "so material as to be efficient in defeating the very circumstances of the contract must be terminated for cause.

## **b. Termination for Convenience**

Only the owner can terminate or cancel the convenience agreement, and the contractor has no right to do so. The owner may suspend the project for convenience pursuant to the validation provision of the agreement by written notification. This power is wholly discretionary with the owner, but in such a case the quantity and time of the agreement will be adjusted for increases generated by suspension, delay or disturbance.

Furthermore, the owner may terminate the contractor for convenience at any time in accordance with the validation clause. The contractor shall cease to function as directed upon receipt of a written notice, take the necessary steps to protect and retain the work, and terminate all subcontracts and buy orders.

In the case of such termination for the owner's convenience, the contractor shall be entitled to receive payment for the job done and the expenses incurred as a consequence of such termination, together with reasonable overhead and profit on the job not conducted.

### **2.3.2 Standard Contractual Premises for Termination**

Termination clauses are common forms in standard construction contracts such as the International Consulting Engineers Federation (FIDIC). Determining the events in regard of which one or both sides may terminate the contractual relationship between them is usual for the parties. This includes some of the typical variables (Article 2008):

- Where a party exercises for its own comfort its discretionary right to terminate;
- Where an incident occurs, e.g. where a party becomes insolvent or has a recipient or administrator appointed over his estate;
- Where a party fails to meet its obligations continuously;
- Where a party breaches certain terms (e.g. workmanship) of the contract;

### **2.3.3 Prevention of failure or termination of construction projects**

YI et al. (2016) quoted the following factors in the prevention or termination of a project:

#### **1. Scientific identification and forecasting of failure**

Failure to conduct building company and management includes research in multiple areas.

Only through multidisciplinary and multi-angle discussions can scientists understand the roots of mistakes. Only on the basis of an extensive assessment of failure variables can science and rational prediction models be developed and maximum prevention and therapy at minimal price (Wang 2012) achieved. Many financial techniques should be used for reference purposes in order to predict scientifically. For example, some of the fundamental methods used in Western economics today include analyzing the functions of financial factors, building statistical models, making decisions and predicting them. Business failure research needs to embrace this type of methodology to use mathematics and statistics to construct a failure forecast model. Generally, the background of business failures is complicated and cannot be explained by just one factor. It can be said that a single disease is caused by different variables, and different illnesses are caused by one factor.

#### **2. Evaluation of competitive capabilities**

It should be noted that all the construction company's failures can be attributed to a lack of competitive capacity. The failure of a construction business in the market environment is a normal event. To avoid failure, cultivating a company's competitive capacities is vital. A construction company's competitive capacities include three elements: marketing skills, project management abilities, and capacity for innovation (Teku, 2015).

A firm must be sufficiently different to have a unique advantage over its competitors, especially in a difficult market (Arditi, 2010). A company's competitive capacities are critical to a firm, including a manager's abilities as well. An organisation or a project has life, a longer life at times, a shorter life at times. Preserving a health status is crucial for an enterprise or an employee. As a result, the assessment of competitive capabilities is a key counter measure to stop an enterprise from failing.

### **3. Improving the quality of construction management**

Quality is essential for a project, a company, or a manager. The manager should emphasize the characteristics of the company, and the employees should pay attention to its characteristics.

The quality of the company, the employees and the manager are distinct. It must be emphasized, therefore, that all should study in all their lives. The growth of a building company depends on the growth of the skills of the staff. The best way to enhance the quality of employees is to encourage the training of employees and make them a skilled individual.

### **4. Unbiased professional inspection and supervision**

Business and management of a building company requires to be supervised by autonomous experts. For instance, cost technicians are able to evaluate accurately and budget closely; chief inspectors are able to monitor efficiently; licensed structural engineers are able to calculate properly and save money; self-employed construction experts are able to provide full-time inspection and strong supervision should be provided to avoid employee short reductions. Sometimes the building's wrong design will result in waste. For example, a blockhouse will

be built instead of a building if the structural design is as secure as possible. A construction business should use certified professionals and agencies. Intermediate agencies can be hired in many areas in business and construction management.

## **5. Embracing Synthetic Preventative Interventions for Failure**

Generally, a company fails without achieving its objectives. The loss of actual assets and invisible assets will result in failures. On the basis of economic statistics, the first can be calculated, including economic losses and material resources. While the latter cannot be calculated by money, such as mark depreciation, the culture of the business is sluggish and confusing (Wang, 2002). Failures will lead to social wealth and resource losses. It means the incorrect collocation of social wealth and the destruction of big quantities of social wealth. It will even result in a mass of unemployment, accidents, disasters, crimes, etc.

In one word, the losses caused by failure are different. Failures from different areas and angles need to be analyzed, and synthetic prevention measures taken to control failures need to be taken accordingly.

### **2.4 Empirical Study of Construction Project Termination**

The agreement's objective is to generate and allocate the parties' rights, duties, duties and responsibilities. Acceptance of an obligation or duty involves accepting the corresponding danger, which is the danger of being unable to fulfill the obligation or duty due to one's own inadequacy, incapacity, inadvertence or error, or due to interference from external sources or events. However, the contract describes only the basic guidelines with any contractual

agreement, the performance of the contract depends on the good, the intention and the link between the parties. (Norman and Flanagan, 1993).

In his thesis research, Al-Hallaq (2003) showed that the cause of the failure of contractors was: delay in collecting offers from customers (donors), closure, depending on banks and paying large wages, lack of capital, cash flow management, lack of work experience in the Gaza Strip, lack of building legislation, low profit margins due to competition, lowest cost contract award, lack of w

Enshassi et al. (2006) examine in their article the factors that cause contractor failure in Palestine and examine their severity from the contractor's point of view. The study findings show that the primary causes of business failure are delays in debt collection from customers (donors), border closures, heavy reliance on bank loans and high interest payments on such loans, lack of capital, lack of industry laws, low profit margin due to high competition, contract award to the highest bidder and lack of expertise in contract management.

The paper demonstrates the differences between the critical success factors and the variables discovered in our system usage. Many critical variables have become apparent in this study, such as variables related to project managers performance, factors related to team members and environmental variables. The findings are encouraging in that professionals promote the use of this system to identify and analyze critical success factors and how systems respond to these factors, and demonstrate that project managers ' management capabilities are the most critical variables, while environmental variables are at the forefront of construction.

In her dissertation study (Investigate of Critical Success Factors for the Construction Industry in Nigeria), Hamdia (2008) indicates that the most significant results of this research were that approximately 71% of Nigerian contracting firms had a clear description of the objectives and

the task, while economic resources were the first Critical Success Factors (CSF), while the second CSF was the owner. Moreover, the third was the CSF Pricing Police Force. The fourth CSF was also associated with contractors ' managerial skills. Furthermore, the fifth was the price control CSF. Finally, there's the sixth mission and goal. He suggested the need for contractors in Nigeria to be more interested in, develop and implement strategic planning Modern management strategies and science tools; including a senior contractor in Nigeria, efforts should not be focused on economic issues, but they should be interested in other topics such as the development of human resources.

The contractor's skills also resulted to the project's time effectiveness. The members of the project team should also recognize that time and cost efficiency as well as design quality and workmanship are significant elements of D&B projects ' overall success. It is suggested that practitioners focus on teamwork and partnership for efficient project completion. Abu Mousa (2005), in his thesis research on understanding the 44 risk factors facing building projects in the United Arab Emirates, as well as the effectiveness of techniques of risk prevention and mitigation. The research showed that the most significant risk variables are: the contractor's economic failure, work in warm (hazardous) fields, closure, faulty design, and delayed contract payments. The owner respondents, on the other hand, concluded that the most important risk factors are: awarding the design to an unqualified designer, faulty design, accident occurrence, difficulty accessing the site, and incorrect quantity.

In their article, Dilts et al. (2006) examine the impact of the work or role, the decision to cancel a project, and the impact of separate information gathering occurrences, such as data scanning of the media wealth used, and the range of data sources, by examining the opinions

of decision-makers who have canceled or terminated a public sector project. Two roles in decision-making are explored: executives, those with the power to initiate or cancel a project, and project managers, those who manage the project's day-to-day operation. The paper shows that the role's impact in project success or failure cannot be ignored.

## **2.5 Guide to Smooth Closure (Termination) of Project**

Maylor (2005) group the necessary operations into a six-stage operation, which may differ depending on the size and scope of the project and is very important for the project (contract) when finished:

### **2.5.1 Completion**

First, the project manager must ensure that the project is 100% complete. (Young, 2003) observed that in the closing phase, "it is quite common to find a number of outstanding minor operations unfinished from the early primary stages. They are not critical and have not hindered progress, yet they must be completed." Moreover, some projects need ongoing service and help even after completion, such as IT projects. While it may be helpful if this application is part of the original claim statement, it is often part of the closing contract. (Rosenau and Githens, 2005) indicate that continued service and support should be seen by the contractor as an opportunity, not just an opportunity. Since both of them can learn by exchanging ideas from each other.

### **2.5.2 Documentation**

Mooz et al. (2013) defines documentation as 'any text or pictorial information describing the project's achievements.' The meaning of the paperwork is emphasized by (Pinkerton, 2013) who notes that 'it is essential that everything learned during the project, from conception

through original activities, be captured and become an asset.' Documentation is the key to the project owner's well-organized shift, i.e. the new investor that takes over after completion of the project. (Thompson, 2005) distinguishes between internal and external customer documentation requirements, since the internal party usually needs audit documents only. Despite the uninteresting nature of historical data documentation, the person responsible for this task must take an active role in their assignment.

### **2.5.3 Project System Closer**

All project systems need to be closed at the close-out point. This includes economic systems, i.e. it is necessary to complete all payments to external suppliers or providers and to terminate all work orders (Department of Veterans Affairs, 2014). "In closing project files, the project manager should bring up-to-date records and ensure that all original documents are stored in project files and at one location" (Arora, 2015). (Maylor, 2015) suggests that "a formal notice of closure should be given to inform other employees and support systems that there are no further activities to be carried out or fees to be incurred." As a consequence, unauthorized spending and customers can avoid unnecessary fees.

### **2.5.4 Project Review**

The assessment of the project usually takes place after the completion of all the project structures. It's a bridge that connects two projects one by one. Project reviews not only transfer concrete understanding, such as data about numerical prices and time, but also tacit knowledge that is hard to document. Know-how' and, more importantly, 'know-how' is passed on to future projects to eliminate the need for project managers to 'invent the wheel' from scratch whenever they start It's a fresh project. The re-useof current instruments and knowledge can be extended to separate project teams of the same organisation in order to improve the outcomes of the

project (Bucero, 2015). Reviews are of a holistic nature that investigates the effect of the project on the environment as a whole.

Audits may also be useful, but they are centered on the inner organisation. The planning of the reviews should include the appropriate time and place for the workshops and, most importantly, the people to be invited. Choosing the correct individuals for the evaluation will improve the importance of the conference and assist the teaching process while maintaining objective criticism not only of the team members, but also of the neutral. The result of this evaluation should be a final report to be submitted to the senior management and the project sponsor. (Whitten, 2013) also notes that "often just preparing a review presentation forces a project team to think through and fix many of the issues by openly revealing the state of their job."

#### **2.5.5 Stakeholders Satisfaction**

PMBok (2014) establishes that "actions and activities are essential to affirm that the project has met all the specifications of the funder, the client and other stakeholders." Such activities may be a final presentation of the evaluation of the project, including all the significant data that should be made available to stakeholders. This data may include a timeline illustrating the progress of the project from start to finish, milestones that have been met or missed, issues experienced and a short economic presentation. A well-prepared introduction, which focuses on the powerful elements of the projects, can contain some faults on the part of the stakeholders and make the failure look like an unexpected one.

## **2.6 Conclusion**

The examination of the appropriate accessible literature on the topic disclosed that prior studies on the topic were restricted to variables leading to the termination of the project, taking into account variables such as delays in the project, insufficient project funding, absence of project knowledge by the contractor, political and socio-cultural factors, etc.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Overview**

The procedures and strategies used for data collection and evaluation are discussed in this chapter. It explained in detail how the study design was used, the sampling technique used, the information collection instrument used, etc. The chapter also provided a preview of the methodology used by the scientist to create inferential interpretations.

#### **3.2 Study (Research) Design**

According to Flick et al. (2015), surveys are primarily used as a research method to gather data from a particular population and typically use questionnaires or interviews as a study tool. Surveys are used to gather and evaluate information from chosen people about themselves, their practices, views and perceptions. This research embraced the descriptive survey design strategy since it included the collection of primary data in order to test or answer questions about the current status of the topic under study. Descriptive research identifies and reports the way things are done. Descriptive research highlights the clear image of the events that the study focuses on (Ghauri and Gronhaug, 2010).

#### **3.3 Population of the Study**

Creswell (2011) defined population as a set of people or items known to have comparable features. The complete population under account is forty (40) registered contractors and advisors of the Municipality of Adenta in the Greater Accra Region sampled for the research.

### **3.4 Sample and Sampling Size**

Kothari (2004) describes sample as a group of topics chosen from a bigger group. Flick (2015) describes the sample survey as a study tool for making comparatively secure generalizations of a bigger target population based on results from a smaller sample taken from the target population. Convenient sampling was used to select the participants for this study. Convenience sampling is a form of non-probability sampling that includes the sample being taken from that portion of the population that is available (Creswell, 2011). Respondents were chosen on the basis of their accessibility and readiness to engage. This included an in-person conference. As much as this study focused on finding the true opinions and views of stakeholders in order to achieve the true effect of the termination of the project on the construction industry, stakeholders who could be readily accessed and ready to react to the few issues were chosen to represent the population. This type of sampling was adopted because the investigator considered the most reliable method of obtaining correct and precise reactions, since the participants were prepared to offer their views in order to attain the study goals. To achieve the goal of the researcher, data was gathered from 40 participants, composed of sampled project managers, consulting companies, contractors, senior members of the municipality of Adenta and members of the society in which the projects are situated.

### **3.5 Methods of Data Collection**

The study employed the use of data acquired from both primary and secondary sources in order to achieve the aim of this study.

### **3.5.1 Primary Data**

Primary data were collected from chosen participants composed of sampled project contractors, consulting companies, senior members of the municipality of Adenta and community members in whom the projects were situated. Primary data helped the investigator to obtain initial information from the participants on important problems through a study study. Primary data were gathered primarily by means of a questionnaire study. Kothari (2004) describes the questionnaire as 'a collection of statements or questions intended to ask the participants for data on the goals of the study. According to Naoum (2016), the most prevailing technique of information collection for conducting surveys is to identify opinions, facts and perspectives. A questionnaire was chosen for this study on the basis of Naoum (2016)'s statement that it promotes the accuracy of observations and increases replications as a consequence of the intrinsic standardized measurement and sampling processes. A structured questionnaire was intended and administered to each respondent to achieve the necessary information on all problems of the subject under research.

### **3.5.2 Secondary Data**

Secondary data was acquired through a review of current literature from published books and journals, as well as policy papers and current reports on the subject under research. The secondary data thus given insight into the study and made it possible to carry out a thorough examination of the different opinions and works of other individuals involved in this study. Secondary data was acquired through a review of current literature through the use of the Internet, published books and articles in publications, as well as records and other current reports on the subject under research.

### **3.6 Validity and Reliability of Data Collection Instrument**

The technical purpose of this strategy is regarded and the internal consistency is deemed to be suitable. The selection of this strategy is endorsed by the powerful argument made by most scientists that the Likert scale data / interval values / summated rating scales pass the Cronbach Alpha or Kappa Inter correlation and Validity Test (Allen and Seaman, 2007).

Internal consistency is based on Cronbach's alpha (Cronbach, 1970). This is based on the 'tau equivalent model' which assumes that each sample object measures the same latent trait on the same scale (Tavakol and Dennick, 2011). It is a unique type of correlation coefficient that estimates the reliability of the survey instrument using the actual response data (i.e. the variance ratio that is systematic or consistent in the test score set (Brown, 2003). The alpha value ranges from 0.0 (if no variance is consistent) to 1.0 (if all variances are consistent), but there is no actual coefficient limit and that the nearer the alpha of Cronbach is to 1.0, the higher the internal consistency of the products in the scale.

### **3.7 Method of Data Analysis**

The data gathered from the questionnaires were sorted and coded in preparation for assessment. The surveys were examined for accuracy and completeness. The pre-coded questionnaire information was grouped into topics in line with the study goals. There has been no unfinished survey. The next operation involved the processing of information. Microsoft spreadsheets and the Social Sciences Statistical Package (SSPS) were used to process primary data. Data gathered was entered in the software to produce tables, frequency distributions and other visual presentations to help with the assessment of information. Data analysis included interpretation of quantitative and Quality information produced by the software. As the

research sought information on the termination of the project, qualitative data were evaluated and clarified.

## CHAPTER FOUR

### DATA ANALYSIS AND DISCUSSION OF FINDINGS

#### 4.1 Overview

The results of the field survey information gathered are provided in this section. The outcome is depicted hierarchically; first and foremost, the descriptive information is displayed in tables and figures. The tables present easy statistics such as frequencies and percentages and numbers described in bar graphs and pie charts. The thorough assessment is carried out using the Relative Importance Index and the association test of Kurskal Wallis. The further assessment contributed to the conclusion of the interpretation of the outcomes.

#### 4.2 Demographic Features of the Respondent

##### 4.2.1 Age Distribution of Respondents

The table below highlights the age distribution of the respondent.

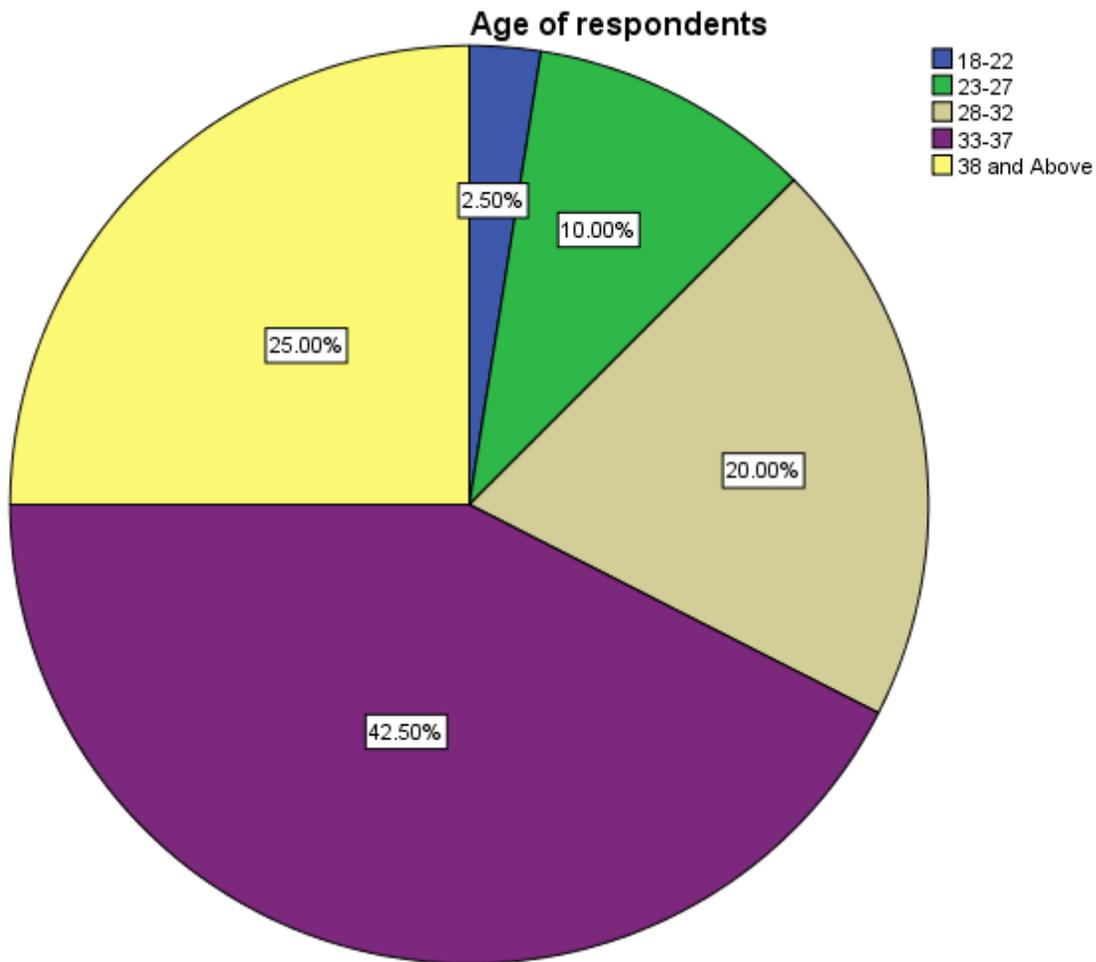
**Table 4. 1: Respondents Age Distribution**

<b>Age distribution</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Cumulative frequency</b>
18-22	1	2.5	2.5
23-27	4	10.0	12.5
28-32	8	20.0	32.5
33-37	17	42.5	75.0
38 and above	10	25.0	100
<b>Total</b>	<b>40</b>	<b>100</b>	

*Source: field survey (2019)*

From the table above, the age distribution of the participants stated that the participants were between 18 and 38 years of age. When 2.5 per cent of respondents fell within the age range of 18-22 years, 10 per cent fell within the age range of 23-27 years, and about 20 per cent of respondents fell within the age range of 28-32 years, while 25 per cent fell within the age

range of 38 and above. The majority of participants dropped between 33 and 37 years of age, representing 42.5 per cent. It is clear that the survey participants displayed youthful characteristics, the bulk of which were below the age of 40.



**Figure 4. 1: Pie Graph Illustrating the Age Distribution of Participants.**  
**Source: Field survey, 2019**

#### **4.2.2 Educational Status of Respondents**

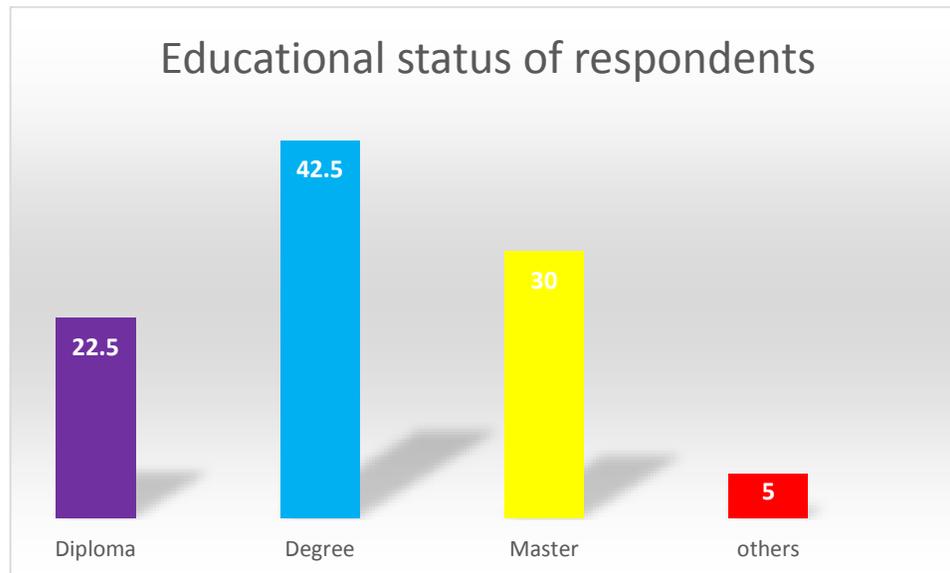
The academic status of participants is provided in Table 2 below.

**Table 4. 2: Educational Status of Respondents**

<b>Level of education</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Cumulative frequency</b>
Diploma	9	22.5	22.5
BSc. Degree	17	42.5	65.0
Master	12	30	95.0
Others	2	5	100
<b>Total</b>	<b>40</b>	<b>100</b>	

*Source: Field Survey, 2019*

Approximately 22.5 per cent of participants reported that they had a diploma qualification, and 30 per cent also stated that they had a master's degree, with the majority of participants being first degree holders representing 42.5 per cent. Very few participants stated that they have a qualification other than BSc. Degree or master's degree. They represented qualifications such as PhD and other professional qualifications.



**Figure 4. 2: A Bar Chart Showing Respondents Educational Status.**

Source: Field survey, 2019

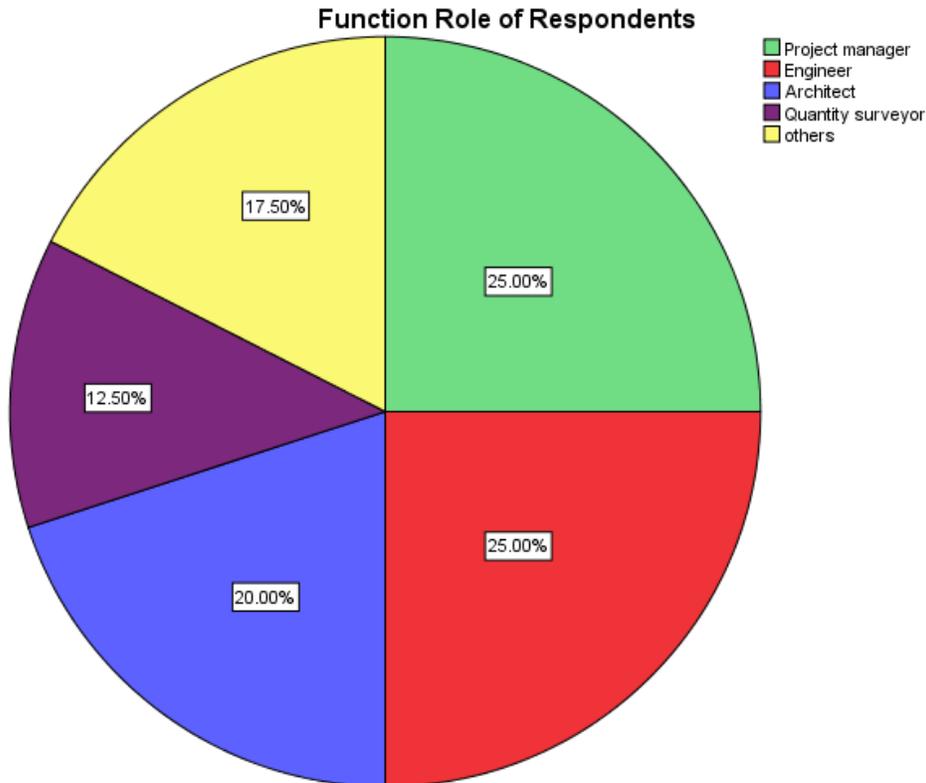
### 4.2.3 Functional Role of Respondents

**Table 4. 3: Functional Role of Respondents**

Functional role	Frequency	Percentage	Cumulative frequency
Project manager	10	25.0	25.0
Engineer	10	25.0	50.0
Architect	8	20.0	70.5
Quantity surveyor	5	12	82.5
Others	7	17.5	100
Total	40	100	

*Source: field survey, 2019*

From the table, 25 percent of the participants were Project Managers and 25 percent were Engineers, while another 20 percent said they were Architects. For Quantity surveyors, the outcome stated that only 12 per cent of the remaining 17.5 per cent were respondents who belonged to professional organizations other than those mentioned above.



**Figure 4. 3: Pie Chart of The Functional Representation of Respondents**

*Source: field survey, 2019*

#### 4.2.4 Work Experience of Respondents

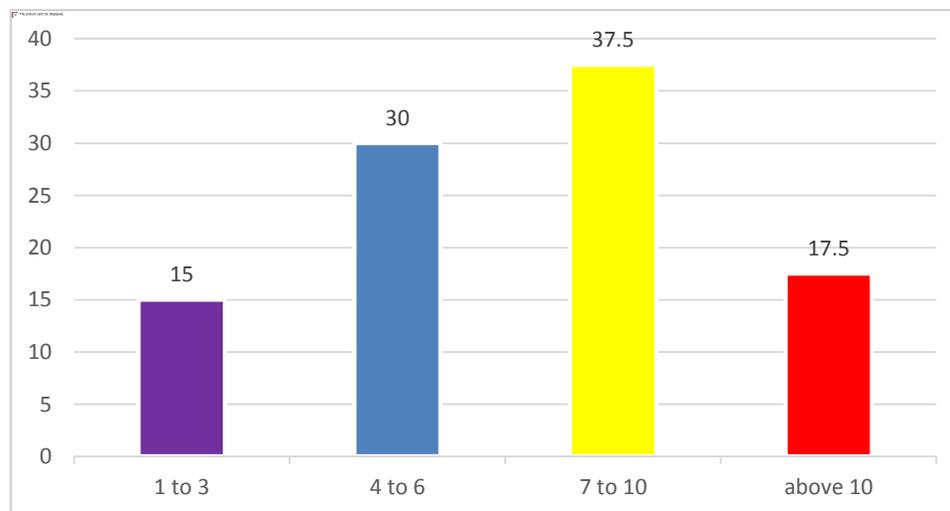
Table 4.4 is representative of the work experience of the respondents for this study.

**Table 4. 4: Work Experience of Respondents**

<b>Respondents experience in years</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Cumulative percentage</b>
1-3years	6	15.0	15.0
4-6years	12	30.0	45.0
7-10years	15	37.5	82.5
Above 10years	7	17.5	100
<b>Total</b>	<b>40</b>	<b>100</b>	

**Source: Field survey (2019)**

In the above Table 4.4 above, 15 percent stated that they had 1-3 years of experience in their multiple roles, and 30 per cent also indicated that they had 4-6 years of work experience. Most of the participants, however, found that they had 7-10 years of working experience with 37.5 per cent of the sampled population, suggesting that they had more than 10 years of sector experience.



**Source: field survey, 2019**

Figure 4 below shows a pie chart of respondents work experience.

### 4.3 ANALYSIS OF OBJECTIVES

The primary objective of this research is to investigate the use of termination as a project cost control technique in the construction industry. Specifically, the investigator seeks to define the factors that cause the termination of the project in the construction industry; secondly, to identify the termination factors that can be used for cost control in the construction industry; and lastly, to create a link between the termination variables and the cost control.

#### 4.3.1 Factors that Cause Project Termination in the Construction Industry

##### 4.3.1.1 Main Groups

**Table 4. 5: RII and Ranking of Main Group**

Factors	Relative Importance Index (RII)	Rank
Political factors	0.813	1 <sup>st</sup>
Managerial factors	0.794	2 <sup>nd</sup>
Financial factors	0.781	3 <sup>rd</sup>
Project characteristics factors	0.740	4 <sup>th</sup>
sustainable factors	0.731	5 <sup>th</sup>

*Source: field survey, 2019*

The primary groups of variables influencing the termination of the project have been categorized as: management group, economic group, political group, environmental group and project characteristics variables. As shown in Table 4.5 above, the most serious group of variables that led to the termination of the project was political factors with Relative Importance Index (RII) of 0.813. Not surprisingly, all industries of the Ghanaian economy are impacted by this factor (Ackah et al., 2014). The last major group of variables that led to the termination of the project were sustainable variables with RII of 0.731. This is due to the reality that Ghana has relatively stable climate conditions with very little adverse weather circumstances.

#### ***4.3.1.2 Relative Importance Index (RII) And Ranking of Sub-Factors***

##### **Managerial Group**

Lack of experience in the line of work ranked first with RII of 0.88. Ranking second was inaccurate quantities with an RII of 0.84. Unmanaged cash flow and neglect of projects ranked third and fourth with an RII of 0.823 and 0.814 respectively. Ability to work as a team and poor communication between involved parties ranked tenth because they both achieved an RII of 0.754. Ranking least was the ability to use computer in management with RII of 0.691.

The findings of this study are in line Flick (2012) who argued that management today combines innovation, enterprise and organisational, analytical and other abilities to generate efficient, goal-oriented outcomes. Some of the key management tasks include learning how to delegate, planning and organizing, communicating obviously, managing situations, motivating staff, adapting to change, constantly innovating and thinking about fresh concepts, building a strong team and providing outcomes that are not only measured but also focused on general growth and development.

**Table 4. 6: RII and Ranking of Managerial Sub-Factors**

<b>Factors</b>	<b>Relative Importance Index (RII)</b>	<b>Rank</b>
Lack of experience in the line of work	0.880	1 <sup>st</sup>
Inaccurate quantities	0.840	2 <sup>nd</sup>
Unmanaged cash flow	0.826	3 <sup>rd</sup>
Neglect	0.823	4 <sup>th</sup>
Resource management	0.814	5 <sup>th</sup>
Unclear goals	0.800	6 <sup>th</sup>
Ability to put plans to work	0.791	7 <sup>th</sup>
Frauds	0.789	8 <sup>th</sup>
Company organization	0.766	9 <sup>th</sup>
“Poor communication between involved parties”	0.754	10 <sup>th</sup>
“Ability to work as a team”	0.754	10 <sup>th</sup>
“Ability to use computer in management”	0.691	11 <sup>th</sup>

**Source: field survey, 2019**

“Lack of experience in the line of job” was ranked first (1st) and reported an RII of 0.880. In relation to a previous study of Al-Hallaq (2013), it was disclosed that job experience is one of the most efficient variables in the achievement and failure of projects, as a lack of job experience may lead to a cost overrun arising in labour, materials, machinery and state-of-the-art handling. Kartam and Kartam (2001) clarified that work experience is essential, particularly for managers, site engineers, estimators, employees, contract supervisors, plans, requirements, site laws, equipment and markets, as they are the primary components for

continuing job on the site. So, it is not odd to have the greatest value in your group. It is evident that Kartam and Kartam (2001) supports these results.

The second most serious organizational factor that could lead to the termination of the project was recognized as “Inaccurate amount” recording an RII of 0.840. Previous studies by Naoum (2016) indicated that precise amounts for equipment and everything that belongs to work products are very crucial for estimating costs where any flaw in one of them contributes to project overrun costs because it impacted project. Because they are precise, they also need to create their abilities and understand the techniques of execution and the materials, the price of the equipment and the lease.

The capacity to use pcs in management was said to be the least serious organizational sub-factor with a significant index rate of 0.691. Computers used in construction management job are very useful because they save effort and time, more precise and faster. It was argued that the determination to use computers in management is not crucial because most of the work in companies can be done without the use of computers and they use report templates, checklists, material delivery, etc (Godin, 2010).

#### 4.3.1.3 Financial Group

The financial group is made of 11 sub-factors as display in the table below.

**Table 4. 7: RII and Ranking of Financial Sub-Factors**

<b>Financial group</b>	<b>Important index rank (RII)</b>	<b>Rank</b>
Contractors bankrupting or insolvent	0.900	1 <sup>st</sup>
Lack of capital	0.866	2 <sup>nd</sup>
Low margin of profit due to competition	0.846	3 <sup>rd</sup>
Difference of local currency exchange with contract currency	0.846	3 <sup>rd</sup>
Client delay in the contract financial payments	0.840	4 <sup>th</sup>
Cost and time organization (cash flow & schedule)	0.776	5 <sup>th</sup>
Evaluation of profit yearly	0.760	6 <sup>th</sup>
Material wastages	0.734	7 <sup>th</sup>
Increment of project size	0.686	8 <sup>th</sup>
Ability to negotiate claims with clients	0.671	9 <sup>th</sup>
Average number of full-time employees	0.657	10 <sup>th</sup>

*Source: Field survey, 2019*

Insolvent or bankrupt contractors were the most serious sub-financial variables that led to the end of the project with an RII of 0.90. El Karriri et al. (2011) found that bankruptcy or insolvency implies the failure to pay the debts as they are due. Their research further indicated that these variables are very essential in any project because the contractor must have a financial capability it belongs to any project to purchase any stuff, e.g. tender documents, bonds, equipment, etc. Bankruptcy therefore prevents him from buying materials, renting facilities, paying salaries, salaries of his employees and his dedication to subcontractors, distributors and banks, such as execution and maintenance bonds. The findings confirm the

work of Enshassi et al. (2006). Lack of capital.' was ranked number two (2) and the RII accounted for 0.866. Al-Hallaq (2003) indicated that lack of capital for the contractor means buying and running a tiny project with little gain, dealing with employees with little experience in saving and reducing project costs and poor performance, and therefore cash is the cornerstone of any project implementation because it means, equipment, experience.

Estimated number of full-time staff was the least ranked (10<sup>th</sup>) variable with the RII of 0.657. Hamdia (2008) indicated that, "The contractor is deemed successful in his or her job if he or she saves it for the business because the contractors have full-time staff with a continuous wage to ensure that the job continues to be of high quality because it makes them comfortable, in generic and active in their job and business. Godin (2010) stated that, in most businesses in Ghana, the contractor has the primary staff of one engineer, one surveyor, one monitor or two, two or three skilled workers and two or three labourers in particular, and if more staff are required to work, it draws them daily and monthly.

#### 4.3.1.4 Political Group

There are seven pseudo-factors in the political factor as shown in the table.

**Table 4. 8: Political Group**

<b>Political group</b>	<b>Relative Importance (RII)</b>	<b>Index</b>	<b>Rank</b>
Lack of resource	0.906		1 <sup>st</sup>
Difficulty to get permits	0.826		2 <sup>nd</sup>
Internal political troubles	0.817		3 <sup>rd</sup>
Lack of clear expectations	0.780		4 <sup>th</sup>
Change in regulatory problems	0.760		5 <sup>th</sup>
Bank policy	0.746		6 <sup>th</sup>
World inflation	0.737		7 <sup>th</sup>

**Source: Field survey, 2019**

Table 4.8 above shows that participants ranked lack of resource in the first place with a significant index (RII=0.906). It is very clear in this portion of the globe, where contracts are granted without the availability of resources most during the political seasons, that the political authorities find nothing wrong with awarding agreements and then cutting off sod for the start of the project, when they are well conscious that there is no economic means to undertake such a project. This generally results in the contractor appearing at the site and subsequently leaving the project, which is the most likely to lead to the termination of the project.

Another key factor ranked second among participants with a significant index (RII=0.826) is the difficulty in obtaining permits, which reflects the difficulty in the land tenure scheme in Ghana, where land is handed over to local traditional heads, making it very hard to obtain a

project license, whether governmental or private, resulting in a project termination. Also, according to table 4.8, the participants ranked world inflation in the last place with the significance index (II= 0.737) this explains the need for adequate forecasting in the preparation of the project budget to prevent overrun costs as item prices continue to rise day by day owing to inflation.

#### **4.3.1.5 Sustainable Group**

Table 4.9 shows the Relative Importance Index (RII) of sustainable group that contributed to project termination.

**Table 4. 9: RII and Ranking of Sustainable Sub-Factors**

<b>Environmental group</b>	<b>RII</b>	<b>Rank</b>
National slump in economy	0.863	1 <sup>st</sup>
Accounting and tax practices	0.823	2 <sup>nd</sup>
Change in resource (people, material)	0.794	3 <sup>rd</sup>
Adverse climate conditions	0.734	4 <sup>th</sup>
Working at hot (dangerous) area	0.717	5 <sup>th</sup>
Social environment	0.711	6 <sup>th</sup>
No specialized arbitrators to help settle fast	0.663	7 <sup>th</sup>

**Source: Field survey, 2019**

National decline in the economy was ranked first (1st) and the RII of 0.863. The environment for any nation is represented by the significant variables for its development and advancement, the building industry has had a direct impact on the economy because of the economic downturn in building materials and equipment, the halting of the country's development and

the fluctuations and changes in the local currency, all of which have had an impact on the work of the project (Naouma, 2010).

**Table 4. 10: RII And Ranking of Project Characteristics Sub-Factors**

<b>Project characteristics group</b>	<b>RII</b>	<b>Rank</b>
Wrong cost estimation	0.880	1 <sup>st</sup>
Increase number of projects	0.766	2 <sup>nd</sup>
Quality of work	0.763	3 <sup>rd</sup>
Life cycle period	0.754	4 <sup>th</sup>
Wrong estimation for the total time of the project	0.749	5 <sup>th</sup>
Size and value	0.720	6 <sup>th</sup>
Change in overall project complexity	0.717	7 <sup>th</sup>
Change in the type of work	0.654	8 <sup>th</sup>

**Source: Field survey 2019**

Wrong cost estimation was ranked first by participants, with an RII of 0.88. The results of El Karriri et al. (2011) disclosed that the preparation of cost estimates is one of the most significant operations in building, since estimates are produced at the start of the projects and are based on incomplete data. Most building businesses do not have the appropriate means of estimating their projects in the right way. Therefore, before the contractor makes any assessment, he must read contract documents. Very well, and know about building methods, and be acquainted with typical working circumstances, building goods, fluctuations and shifts in local currency, etc. In order to calculate the correct cost estimate, you must estimate the direct field cost, the indirect field cost, the office cost and the profit and contingency according to El Karriri et al. (2011). Flick (2008) also stated that, in the event of a mistake, the project

would suffer for the duration of the project due to a lack of funding, or that companies could go bankrupt or terminate the project.

The second (2nd) ranked factor was Increase in the number of projects with an RII of 0.766. Al-Hallaq (2003) revealed that "rise in the number of projects is not a healthy case for the company if the contractor cannot coordinate these projects because he has scattered job and cash, takes unskilled labor and employees to the end of the shortage of his employees to work in projects, which contributes to an increase in the number of projects.

#### **4.3.2 Termination Factors that can be Used for Cost Control in the Construction Industry**

The table below presents results on the opinion of respondents on the termination methods that can be used for cost control in the construction industry.

**Table 4. 11: Termination Methods that can be Used for Cost Control**

<b>Item</b>	<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Respondents familiarity of project termination	Yes	39	97.5%
	No	1	2.5%
Termination method that can be used as a cost control mechanism	Termination by default	22	55.0%
	Termination by convenience	12	30.0%
	Both	6	15.0%
Reasons for the chosen method being the best in terms cost control.	It saves time	12	30.0%
	It provides quality	13	32.5%
	It saves cost	13	32.5%
	All the above	1	2.5%
	Others	1	2.5%
The use of termination as a project cost control tool	Strongly disagree	4	10.0%
	Disagree	1	2.5%
	Neutral	11	27.5%
	Agree	13	32.5%
	Strongly Agree	11	27.5%

*Source: field survey 2019*

Table 4.11 above provided the respondent's view on the multiple termination techniques that may be used for project price control in the construction industry. According to the literature, the termination of the project generally takes two forms, namely: termination of the project by default and termination by comfort. According to table 4.11 above, about 97.5 per cent of participants stated that they were acquainted with the termination of the project as a price control instrument for the project, with only 2.5 per cent showing that they were not acquainted with the termination of the project. As a consequence, it is clear that almost all of the participants were acquainted with the termination of the project in one manner or another. In addition, when participants were asked to choose a termination technique that could be used as a cost control system, about 55 per cent of participants stated that the default termination of the project is the best technique that can be used as a cost control system in the building sector, while 30 per cent of participants thought that the best cost control mechanism would be to terminate the project by comfort. The remaining 15 per cent were those who stated that both techniques (either by comfort or default) could be used as project costs.

Taking into account the participants expert view on the topic, it is very clear that the participants were in favor of default termination as the best technique of termination that could be used in other ways to regulate costs in the construction industry. On the grounds that the respondent had to settle the project termination by default as the best technique of project cost control, 32.5 per cent of participants stated that it provides/ ensures value in terms of project service at the same moment as cost savings. Approximately 30 per cent of participants also found that default termination is the best time-saving technique that could guarantee early delivery of building projects. Finally, participants were asked to show their level of agreement and disapproval on the termination of the project being used as a price measure for the project.

Table 4.11 showed that approximately 32.5 per cent agreed, while 27.5 per cent of the sampled population indicated that they highly agreed (SA) that the termination of the project could be used as a price control measure. Interestingly, some 27.5 per cent of the participants indicated that they were neutral on the assumption that the termination of the project could potentially be used as a price control measure in the construction industry. Whereas 10 per cent and 2.5 per cent are highly dissatisfied and dissatisfied, it is clear from the consequence that about 60 per cent of the participants backed it. The fact that the project could be terminated could be the price control of the project.

#### **4.3.3 Linkage Between Termination Factors and Cost Control**

The Kurskal Wallis test (a non-parametric test used to compare three or more autonomous groups of sampled information) is used to verify the connection between project termination variables, primary groups and project cost control. If the P-value is less than 0.05 there is a connection between them and if it is more than 0.05 there is no connection between them (Creswell, 2011). The last research objective of the study was to find out whether or not there is a link between the termination factors of the project and the cost control of the project, table 4.12 below shows the results of the analysis.

**Table 4. 12: Kurskal Wallis Test of Association Between Termination Factors and Project Cost Control**

<b>Factors</b>	<b>Group</b>	<b>p-value</b>	<b>Level of sig.</b>
Lack of experience in the line of work	Managerial	0.003	Significant
Poor communication between parties involved	Managerial	0.001	“
Low margin of profit due to competition	Financial	0.02	“
Contractors bankruptcy or insolvency	Financial	0.04	“
Client delay in the contractor financial payment	Financial	0.009	
Internal political troubles (rebellion, civil war)	Political	0.007	
Difficulty to get permit	Political	0.01	
Adverse climate conditions	Sustainable	0.002	
Wrong estimation for the total time of the project	Project charact.	0.04	
Change in overall project complexity	Project charact.	0.006	

**Alpha ( $\alpha$ ) = 0.05**

**Source: Field survey, 2019**

The table above shows the result of the Kurskal Wallis test of the association between the termination factors and the cost control of the project, and it is clear from the results that all the termination factors were statistically significant at  $\alpha=0.05$ , which means that there is a link between the termination factors and the cost control of the project. The completion of the project according to the results can be used as a price control measure for the construction industry.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION**

#### **5.1 Overview**

The chapter presented the summary of findings, conclusion and recommendations on the use of project termination as a cost control measure in the construction industry. The section provide evidence on the findings in available literature and the current study.

#### **5.2 Summary of Findings**

The main aim of this study was to explore and investigate the usage of termination as a project cost control technique in construction project. Specifically, the study was to identify factors that cause project termination in the construction industry, the study also looked at project termination method that can use as a “cost control measure in construction projects and finally the relationship between termination factors and control in construction projects”.

The findings from the study revealed that, political factor was said to be the most severe factor they can cause project termination in the construction industry, respondents ranked this factor first (1<sup>st</sup>) among other factors with a Relative Importance Index (RII) of 0.813. Political related factors are the leading cause of project termination which include but not limited to lack of resource, difficulty to getting permits, internal political troubles, lack of clear expectation etc. This factor was followed by managerial factors as the second most severe factor that could lead to project termination in the construction industry, with an RII of 0.794. The sub-factors of this factor are “lack of experience in the line of work”, ‘inaccurate quantities’, ‘unmanaged cash flow’ etc. other factors identified were, Financial factors ranked third (3<sup>rd</sup>) and the least severe factor was said to be sustainable factors ranked fifth (5<sup>th</sup>) with an RII of 0.731.

On the termination method that can be used as a project cost control mechanism, findings from the study revealed that, majority of the respondents endorsed, 'project termination by default' as the best project cost control mechanism in the construction industry. Nonetheless, almost all the respondents indicated that, they are familiar with project termination as a project cost control method. Literature confirms that, there are two broad categories of project termination methods. Termination by default looks better when considering project termination as a cost control mechanism which confirms the findings of this study.

Finally, findings from the study revealed that, there was a statistically significant relationship between termination factors and cost control in construction project. A Kurskal Wallis test of association revealed that, all the project termination factors were statistically significant at  $\alpha = .05$ . Termination factors such as political, managerial, financial etc. This is positively related to project cost control and hence when a construction project is terminated by the any of the aforementioned factors it consequently leads to cost control.

### **5.3 Recommendation**

1. The award of contracts by municipal assemblies must be preceded by due diligence to determine the financial status of the contracting firms and their competent level in the line supposed project.
2. Construct firms should do well to employ qualified and competent technical staff with the needed experience to complement their project execution success rate and their chances of been contracted for large government projects.
3. The researcher also recommends further study on the subject matter specifically, a comparative study of government and private institutions on the application of termination as a cost control mechanism in the construction industry.

## **5.4 Conclusion**

Construction project continues to be very complex and demands a complete collaboration among stakeholders to deliver a successful project. Consistently the country has experienced several project terminations prematurely due to several factors ranging from political, managerial, financial etc. Ghana in the last decades has experienced the highest number of abandoned building projects in its development history. This situation has huge financial implication on Ghana's struggling economy as a developing country. The successful end of future projects may depend not only on the success of the past projects but also on how unsuccessful projects were treated by the organizations and stakeholders involved.

The aforementioned findings from the study clearly demonstrated the importance of project termination in the construction industry especially when used as a cost control mechanism. It is obvious that, the municipal assemblies can apply termination by means of default to save the cost of projects within the Adenta Municipal Assembly. It can be concluded that, political infiltration and influence on awarded government projects leads to project termination, and also "management lack of experience in their line of duty" can influence project termination in the construction industry, not undermining "low margin of profit due to competition as a financial" factor can as well leads to project termination. Nonetheless, it can be concluded that, there is a significant relationship between the aforementioned termination factors and cost control and hence the factors directly influence the project cost control. Based on these findings the researcher recommends the following for stakeholders and industry players.

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**APPENDIX**

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI  
RESEARCH DATA INSTRUMENT**

**USING TERMINATION AS PROJECT COST CONTROL TECHNIQUE IN  
CONSTRUCTION PROJECTS**

Dear Respondent

This Data Instrument forms part of a Master’s thesis research at the Kwame Nkrumah University of Science and Technology. The series of statements below are designed to study the effects of termination as project control tool on the construction industry (the case of some selected municipal assemblies in the greater Accra region).

You are kindly requested to indicate your opinion by answering the questions provided with sincerity and honesty. If your option does not match exactly with any one of the options provided, please choose the one that is closest to your considered judgment, and best fits or describes the actual situation that prevails in the institution.

This exercise is purely for academic purposes and all information provided will be treated in the strictest confidence. You have the freedom or right to withdraw your participation at any time. If you have any questions about the research, please call Mrs. Henrietta Mawufemor Kley-Bruce - 0244249157

Thank you very much for your co-operation.

**SECTION A  
(Background Information)**

This section seeks to explore respondent’s demographic characteristics.

1. Age: 18 – 22 [ ], 23 – 27 [ ], 28 – 32 [ ], 33 – 37 [ ], 38 And above [ ]
2. What is your education level? Diploma level [ ] Degree level [ ] Master level. [ ] PhD level [ ] others (specify).....
3. What is your function role? Project manager [ ] Engineer [ ] Architect [ ] Quantity surveyor [ ] other (please specify).....
4. Please state your working experience. 1- 3years [ ] 3- 6 years [ ] 6- 10 years [ ] 10 years and above [ ]

**SECTIONN B**

**Factors that cause project termination in the construction industry**

This section interns to measure the opinions and expert view on the factors that cause project termination. “Termination” in the context of this study is used as a cost control tool.

Respondents are to tick "" the most appropriate option in their opinion or expert view on the scale provided

Items	Highly Important		Important	Medium	Low	Very low
	<b>1. Managerial Factors</b>					
1. <i>Lack of experience in the line of work</i>						
2. Company organization						
3. Frauds						
4. Neglect						
5. Inaccurate quantities						
6. Unmanaged cash flow						
7. Resource management						
8. Poor communication between involved parties						
9. Ability to put plans to work						
10. Ability to use computer in management.						
11. Ability to work as a team						
12. Unclear goals						
	<b>2. Financial Factors</b>					
1. Low margin of profit due to competition.						
2. Lack of capital						
3. Client delay in the contractor financial payments.						
4. Contractors bankrupting or insolvent						
5. Evaluation of profit yearly						
6. Material wastages						
7. Ability to negotiating claims with clients.						

8. Increment of project size						
9. Average number of full time employees						
10. Cost and time organization (cash flow and schedule )						
<b>3. Political Factors</b>						
1. Lack of clear expectations						
2. Internal political troubles; as: rebellion, civil war, or disorder.						
3. Change in regulatory problems						
4. Increment of material prices						
5. Banks policy						
6. Lack of resources						
7. Difficulty to get permits						
8. Change in funding source						
9. World inflation						
<b>4. Environmental Factors</b>						
1. Adverse climate conditions						
2. Social environment						
3. Accounting and tax practices						
4. Working at hot (dangerous) areas						
5. National slump in economy						
6. Change in resources (people, materials, funds)						
7. No specialized arbitrators to help settle fast						
<b>5. Project Characteristic Factors</b>						
1. Change in the type of work						
2. Size & value						
3. Life cycle period						
4. Increase number of projects						
5. Wrong estimation for the total time of the project.						
6. Change in overall project complexity						
7. Quality of work						
8. Wrong cost estimation						

**SECTION C**

**Termination method that can be used for Cost Control in contraction projects.**

This section seeks to investigate the method that can be used for cost control in the contraction projects. The section presents open ended questions for respondents to express their expert opinions on the subject matter, respondents are expected to elaborate their opinions.

1. Are you familiar of project termination as project cost control method? Yes  No

2. If “Yes” which of the termination methods do you think can be used for the purpose of cost control? A) Termination for Default (breach of contract)

B) Termination for Convenience (Client Choice)  C) Both of the Above  D)

C) Others.....

3. What makes your stated method in (2) the best as compared to the rest of the methods?

A) It saves time  B) It provide quality  C) It saves Cost  D) All

others.....

4. As a project team member, to what extent do you agree or disagree on the use of

termination as a cost control tool? **A) Strongly disagree**  **B) Disagree**  **C) Neutral**

**D) Agree**  **E) Strongly agree**

## SECTION D

### The linkage between termination factors and cost control in construction projects.

This section seeks to ascertain the linkage between termination factors and cost control in the construction industry.

1. Terminating a project as a result of ‘lack of experience’ contributes to effectiveness in cost control? **A) Strongly disagree** [ ] **B) Disagree** [ ] **C) Neutral** [ ] **D) Agree** [ ] **E) Strongly agree** [ ]

**Strongly agree** [ ]

2. Terminating a project as a result of ‘poor communication between involved parties’ thus contributes significantly in project cost control. **A) Strongly disagree** [ ] **B) Disagree** [ ] **C) Neutral** [ ] **D) Agree** [ ] **E) Strongly agree** [ ]

**Neutral** [ ] **D) Agree** [ ] **E) Strongly agree** [ ]

3. Terminating a project as a result of ‘low margins of profit due to competition’ contributes to efficacy in project cost control. **A) Strongly disagree** [ ] **B) Disagree** [ ] **C) Neutral** [ ] **D) Agree** [ ] **E) Strongly agree** [ ]

**Neutral** [ ] **D) Agree** [ ] **E) Strongly agree** [ ]

4. Terminating a project as a result of ‘contractors bankrupting or insolvent’ contributes to effectiveness in project cost control. **A) Strongly disagree** [ ] **B) Disagree** [ ] **C) Neutral** [ ] **D) Agree** [ ] **E) Strongly agree** [ ]

**D) Agree** [ ] **E) Strongly agree** [ ]

5. Terminating a project as a result of ‘client delays in the contractor financial payments’ contributes to effectiveness in project cost control. **A) Strongly disagree** [ ] **B) Disagree** [ ] **C) Neutral** [ ] **D) Agree** [ ] **E) Strongly agree** [ ]

**C) Neutral** [ ] **D) Agree** [ ] **E) Strongly agree** [ ]

6. Terminating a project as a result of ‘internal political troubles’; as: rebellion, civil war, or disorder contributes to efficacy in project cost control. **A) Strongly disagree** [ ] **B) Disagree** [ ] **C) Neutral** [ ] **D) Agree** [ ] **E) Strongly agree** [ ]

[ ] **C) Neutral** [ ] **D) Agree** [ ] **E) Strongly agree** [ ]

7. Terminating a project as a result of ‘difficulties to get permits’ contributes to efficacy in project cost control. **A) Strongly disagree [ ] B) Disagree [ ] C) Neutral [ ] D) Agree [ ]**

**E) Strongly agree [ ]**

8. Terminating a project as a result of ‘adverse climate conditions’ contributes to effectiveness in project cost control. **A) Strongly disagree [ ] B) Disagree [ ] C) Neutral [ ]**

**D) Agree [ ] E) Strongly agree [ ]**

9. terminating a project as a result of ‘wrong estimation for the total time of the project’ thus contribute hugely in project cost control. **A) Strongly disagree [ ] B) Disagree [ ] C)**

**Neutral [ ] D) Agree [ ] E) Strongly agree [ ]**

10. There exist a relationship between ‘changes in overall project complexity’ contributes to effectiveness in project cost control. **A) Strongly disagree [ ] B) Disagree [ ] C) Neutral [ ]**

**D) Agree [ ] E) Strongly agree [ ]**