UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION, KUMASI

IMPROVING COST PERFORMANCE OF LOCAL GOVERNMENT PROJECTS: PERSPECTIVES OF CONSULTANTS AND CONTRACTORS

MOHAMMED ABDUL-RAHMAN

AUGUST, 2016

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BY

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AUGUST, 2016

DECLARATION

CANDIDATE'S DECLARATION

I, hereby declare that this dissertation is the result of my own original research. With the exception of quotations and references contained in published works (which have all been identified and acknowledged) the entire dissertation is my own original work, and it has not been submitted, either in part or whole for another degree elsewhere.

Candidate's Name: Mohammed Abdul-Rahman

…….. ……

Signature Date

SUPERVISOR'S DECLARATION

I, hereby declare that the preparation and presentation of this dissertation was supervised in accordance with guidelines and supervision of dissertation laid down by the University of Education, Winneba.

Supervisor's Name: Dr. Nongiba Alkanam Kheni

…….. ……

Signature Date

DEDICATION

I dedicate this dissertation to my dear father, Abdul-Rahman Yakubu who nurtured in me the untiring interest in the value of education. Also to my mother Samata Mahama for their prayers and companionship and rest of my family, who provided the support and encouragement that, enabled me to complete this programme.

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ABSTRACT

The purpose of the study was to examine the how cost performance of local government projects can be improved from the perspectives of consultant and construction firms. The study adopted a quantitative research design involving the development of survey questionnaires. The specific objective of the study were to identify the factors that influence cost of completion of construction projects and challenges to effective management of project cost with a view to improving the cost management of construction projects. The target population of the study was construction firms registered with the Tamale Metropolitan Assembly and consultants operating within the Metropolis. The findings of the study revealed that the key causes of cost overruns included; high rate of inflation, poor procurement practices, unforeseen site conditions, improper planning, fluctuations in prices of raw materials, obsolete or unsuitable construction equipment and methods, insufficient finds and mistakes in design. Also, the findings of the study revealed that the key challenges to effective management of the cost of local government projects included; political influence, lack of cooperation between contractors and local government officials, poor supervision and lack of transparency in contract award. Further findings were that completing projects on schedule, proper project planning, minimizing materials waste, and ensuring value for money in project cost estimates and proper design of facilities will go a long to minimize or prevent cost overruns of local government projects.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Construction has become an important player in the economy of many countries, especially developed countries (Ling, 2004). As mentioned by Smith (2002), this industry contributes to the GDP and employment rate of many nations and for this reason it is considered vital for the economic development of any nation. Moreover, the author also affirmed that construction activities have become a significant market due to the fact that this industry procures products and material from other businesses in other sectors.

Smith (2002) stated that although construction activities have decreased since the beginning of the recession, the sector has played an important role in the United Kingdom, due to the fact that it has helped to stimulate the growth of the economy. Firstly, the construction sector has shown to be dependent on an extended supply chain which contributes to the growth of the other sectors, such as manufacturing sector. Secondly, construction sector has also shown that it has a low rate of imports which indicates that investments and spending stay in the UK economy. Thirdly, construction is employing less qualified and young workers, suggesting the major employer of job entrants (Smith, 2002).

Finally, construction has been considered as an investment that will benefit the country in the future. For example, the construction of new schools will contribute to the education of young people. Therefore, the economy of the UK will be improved with the increase of educated people (Smith, 2002). Many authors affirmed that construction projects usually present delays and cost overruns. These overruns are considered a critical issue in this business because they represent a loss of money for the contractors and owners. This idea was also suggested by Pang (2006) who stated that, although the management of projects

has been studied for many years, most projects either failed or present cost and time overruns. The author also affirmed that many projects are cancelled due to the lack of proper management. The construction industry operates in an extreme competitive environment, with high risks and low margins of profit when compared with other key industries. Consequently, pricing is one of the most important aspects of marketing in construction.

Simons (2009) identified factors affecting the accuracy of cost estimating. These were classified as financial issues, bidding situations, project characteristics and the estimating process itself. Odeck (2004) summarized nine factors that have some influence on the accuracy of estimating the costs of construction work. These factors are: availability of the design information, type and quality of cost data, type of the project, project size, number of bidders on competitive projects, stability of market conditions, personal factors, proficiency in estimating and sheer quantitative experience. Additional factors that affect the accuracy of cost estimation have been identified. These are classified as financial issues, bidding situations, project characteristics and the estimating process itself (Odeck, 2004).

The cost estimator, in the course of preparing a cost estimate, is expected to carry out tasks such as a thorough examination of tender documents, a site visit, the preparation of methods statement and tender program, a visit to the project consultants, and to make inquiries and receive quotations for materials, plant and subcontractors (Takim, 2005). The major problems facing cost estimators in preparing cost estimates, in order of importance are: tough competition, contract period, incomplete drawings and specification, incomplete project scope definition, unforeseeable changes in materials prices, changes in owners requirements, current workload, errors in judgment, inadequate production time data, lack of historical data for similar jobs and lack of experience in similar projects

(Takim, 2005). Project complexity, project information, technological requirements, contract conditions, contractor's efficiency, market requirements, project duration and project's risks have been identified as the main groups of factors which affect the accuracy of cost estimation (Williams, 2003).

1.2 Statement of the Problem

Construction can be considered as a dynamic industry which is important to the economic growth of many nations. However, the contribution of the construction industry to economic growth is seriously challenged by cost overruns and other related issues. Cost overruns are considered one of the most critical issues during the execution of construction projects (Zou & Lee, 2008). As mentioned by Aibinu and Pasco (2008). The presence of cost overruns can be a reason for project failure. There have been ma ny studies that suggest that the success of a project depends on the presence of certain critical factors which included cost (Aziz, 2012; Zou & Lee, 2008; Aibinu & Pasco, 2008). In other words, some authors ascertained that there are some critical success factors that help to improve cost performance and prevent cost overruns.

There have been many studies focused on Critical Success Factors (CSF's) that improve the overall performance of projects, such as the study carried out by Aziz (2012). However, much of the existing research is not focused on the construction industry and more specifically on those critical success factors that influence the cost performance of construction projects in the local government sector in Ghana. For this reason, an attempt will be made in this study to examine the cost performance of local government projects in Ghana using Northern Region as a case study.

1.3 Objectives of the Study

The aim of the study is to examine the factors that influence cost of completion of local government in construction projects with a view to improving the cost performance of construction projects. The specific objectives of the st udy are to:

1. Identify the causes of cost overruns of local government projects in the Northern Region of Ghana;
2. Identify key challenges to effectively managing the cost of local government projects in Northern Region of Ghana;
3. Identify measures to minimize cost overruns of local government projects Northern Region of Ghana.

1.4 Research Questions

The following research questions are asked:

1. What are the causes of cost overruns of local government projects in the Northern Region of Ghana?
2. What are the key challenges to effectively managing the cost of local government projects in Northern Region of Ghana?
3. What measures can be taken to minimize cost overruns of the local government construction projects in the Northern Region of Ghana?

1.5 Significance of the Study

This study is of interest to a number of stakeholders who stand to benefit from its outcome. They include construction firms, the Ministry of Local Government, Government of Ghana, students and other researchers. This study is also significant because it will help identify the factors that influence cost of completion of construction projects with a view

to improving the management of construction projects. Another significance of the study is that it will help identify factors that influence the project cost of local government projects in the Northern Region. It will also identify the best strategies needed to manage challenges associated with project cost in the construction industry. Lastly, the findings of this study will be useful for researchers and students as it will help add to the stock of knowledge on construction firms in Ghana.

1.6 Limitation of the Study

The study was limited to selected consultants and construction firms in Tamale within the Northern Region of Ghana. The sample size was makes it difficult to generalize the findings of the study to all local government projects in Northern Region and in Ghana. Respondents were a bit hesitant to participant in the survey. Those who participated were also hesitant to provide certain information.

1.7 Organisations of the Study

The study report is organised into five chapters. The first chapter considers the background to the study, the problem statement, research questions and significance. The second chapter of the study looks at the literature review where key concepts are explained and views of researchers on similar studies considered. This is followed with chapter three where the methodology regarding the study is presented. The report of this study will conclude with the presentation of chapters four and five which will deal mainly with data presentation and findings and recommendations respectively.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents related literature on the study. The chapter is organised into seven main sections comprising; an introduction, the construction industry in Ghana, the local government sector in Ghana, procurement of local government projects, cost of construction projects and measures to reduce construction cost overruns.

2.1 Construction Industry of Ghana

The construction industry plays an essential role in the socio economic development of Ghana. The activities of the industry have a lot of significance to the achievement of national socio-economic development goals of providing infrastructure, sanctuary and employment. The construction sector holds immense potential for stimulating growth, boosting project exports and generating employment in the country. The domestic construction sector happens to be one of the fastest growing sectors, with an impressive average growth of 7-8 per cent per annum. The foundation of a higher growth rate rests on a sound and efficient infrastructural development which makes the construction sector a key sector (Osei, 2013).

The rapid expansion of infrastructure by both government and the private sector has triggered off construction activities and fuelled demand in many key sectors like cement, steel, paints and chemicals, glass, timber and earth moving equipment and machinery. The construction sector is a crucial industry having strong backward and forward growth linkages. It deals with all economic activities directed to the creation, renovation, repair or extension of fixed assets in the form of buildings, land improvements of an engineering

nature. Besides, the construction industry generates substantial employment and provides a growth impetus to other sectors through backward and forward linkages.

The main purpose of this study is to assess the economic contribution of the construction industry in Ghana and to throw light on the emerging opportunities and challenges. Construction in any country is a complex sector of the economy, which involves a broad range of stakeholders and has wide ranging linkages with other areas of activity such as manufacturing and the use of materials, energy, finance, labor and equipment (Osei, 2013). The contribution of construction industry in the aggregate economy of a country has been addressed by a number of researchers and valuable literature available on the linkage between construction sector and other sectors of the economy.

The construction industry has made significant contribution to both industrial output and overall Gross Domestic Product (GDP) of Ghana over the years. With reference to available country-wide statistics, the impact of the built environment sector as a whole is much greater; including segments of the manufacturing, mining, quarrying, electricity and water sectors. From observations and reference to legal and regulatory documents such as the Building Regulations (Osei, 2013), it suggests that the Ghanaian built environment sector is modeled on the UK regulatory system. The Ghanaian construction sector is akin to the UK construction sector about 20 years ago. There are serious shortfalls in materials handling, safe working practices, quality and timeliness of construction. Another widely applicable feature of the Ghanaian built environment sector, common to many developing countries, is that labour is comparatively cheap. This means that greater emphasis is put on selection of materials and components by price rather than might be expected in countries where there is a higher labour cost.

The Construction sector's share to overall Gross Domestic Product (GDP) has improved significantly over the past two decades. The sector's share as percentage of GDP was 7.6 per cent in 1996 and this improved to 8.5 per cent of GDP in 1997. Due in part to the overall improvement in the macroeconomic landscape of the country as a result of the implementation of good macroeconomic policies, the sector's contribution to GDP rose steadily to 9.1 per cent of GDP in 2005 from 8.8 per cent in 2004. The sector's share of GDP improved further to 9.8 per cent in 2007 from 9.3 per cent recorded in 2006. Again, the construction sector's contribution to the overall economy picked up to 9.9 per cent of GDP in 2011 from 9.4 per cent of GDP registered in 2010 and which compares favorably with 1993-2011 period average of 9.1 per cent of GDP (Osei, 2013).

2.1.1 Parties to a Construction Project

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

2.1.1.1 Client

The Client is, by far, the single most important member of the construction team. He is the initiator and financier of all the projects. Asamoah (2002) noted that the major contribution the client can make to the successful operations of the construction industry lies in his skill in specifying his needs prior to the preparation of the design. It is also important for the client to set cost limits of the project at the briefing .He should also ensure that adequate financial provisions are made prior to the commencement of any project.

2.1.1.2 Consultant

Cost considerations are among the most important and basic considerations that Consultants must deal with. It is essential to see that projects are contained within the client's budget and cost forecasts. Cost has the final control over virtually every project. Accurate cost analysis and control is one of the necessary services the client requires from the consultants (Asamoah, 2002).

2.1.1.3 Contractor

Cooke and Williams (2003) further reveals that the major task of Contractors is to assemble and allocate the resources of labour, equipment and materials to the project in order to achieve completion at maximum efficiency in terms of time, quality and cost.

2.2 Components of Construction Costs

Many authors have expanded the cost structure beyond labour-material breakdown and have identified construction cost components with respect to which actor incurred the cost and how the costs have been accounted for. They also underline the uneasiness of describing construction cost elements with certainty. Meikle (2001) states that a contractor's construction costs are not generally known and describes them as an aggregate of the costs of materials, labour, and equipment to undertake the work and the contractor's finance, management and various site and office overheads. The contractor then charges these costs plus a margin profit to the developer. When the developer's cost is added then its called the total costs of the production factors (Jagren, 2003). The level of the project costs is dependent on whether the analysis is based on contractor or developer's estimation and the two estimations differ because of the extra costs incurred by the developer such as land cost, finance, etc. Berger (2004) argues that often when we say construction cost we

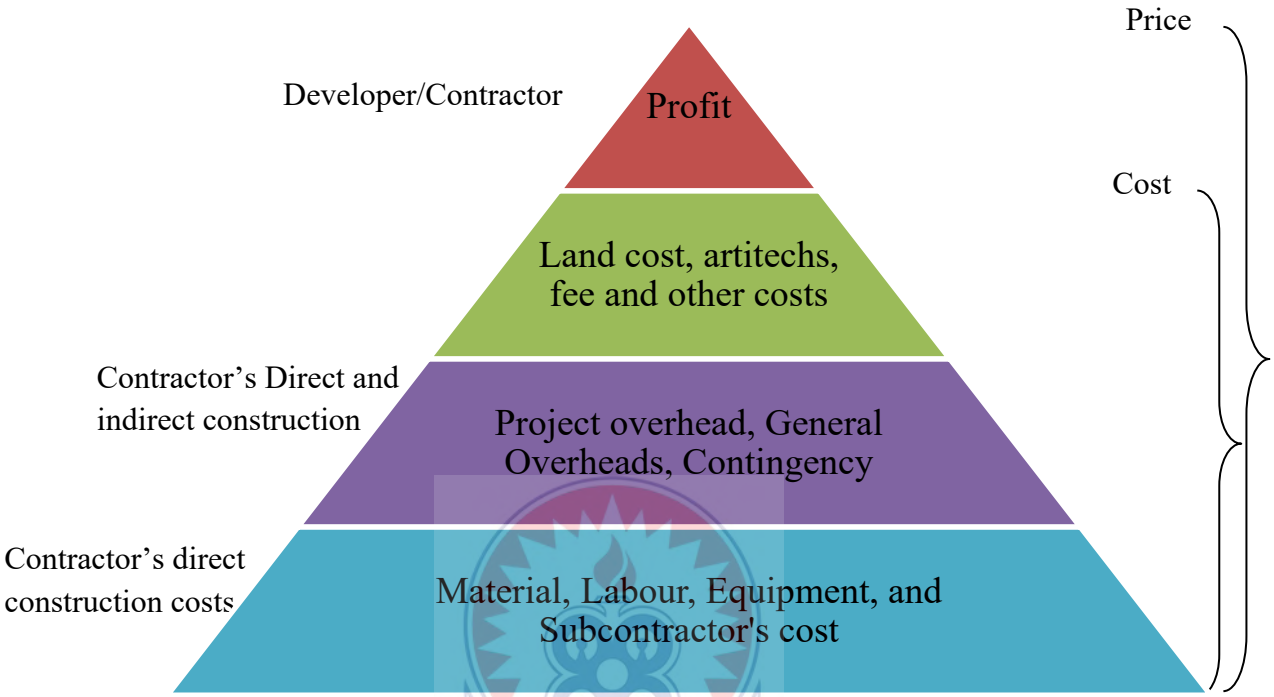
mean total production costs while the term production cost refers to the sum of land cost and construction costs. Construction cost means cost for erecting buildings and construction components but excludes the land cost.

It is also difficult and subjective when one tries to differentiate direct and indirect cost elements from the tender price Tah et al, (1994) but one can simply define these costs in terms of their tractability to the specific work. Tah et al (1994) note similar components of direct and indirect cost as Carr (1989) but they also include subcontractors‟ costs as part of the direct cost and allowances for risk as part of the indirect costs. Akintoye (2000) also considers subcontractor costs as a factor of production just like labour, material and equipment. He argues that it is often the case that subcontractors carry out more than 50% of the work of any particular project and hence the main contractors include subcontractors‟ prices in their estimation.

When the developer and the contractor are part of the same organization there is no overt price determination for the project (Hillebrandt, 2000) hence cost and price separation becomes hard since the required level of profits and various overheads are not easily determined. Indeed, this has been one of the sources of confusion in the distinction of the two words cost and price as discussed earlier. The profit of the contractor is counted at the developer's level for a vertically integrated firm. If the developer and the contractor were separate, then the contractor's direct and indirect cost plus his profit would be the cost charged by the contractor to the developer. Subsequently, the developer's cost plus the profit that the developer seeks will equal the price charged to the final owner if the final product is sold to a new owner. In the residential rental market the developer and owner are, however, often same entity.

The following figure depicts the cost and/or price structure of a building project when the developer and the contractor are the same.

Figure 2.1: Price/Cost structure of a generic building project



This categorization of the final total construction costs is not much different from the total construction cost that is typically measured in the following two ways: The Input approach where the costs of all the components required to build a dwelling are summed up to give the total cost or the output models that are based around the final prices/costs of dwellings produced by construction companies (DTZ Research, 2004). The main difference between the input approach and the above pyramid of cost structure is that the input model, and similarly the input price index do not take into consideration the productivity and profit margins of the contractor.

Fleming (1966) asserts that one way to ascertain the constituents of price is through labour and materials cost indices that may or may not incorporate some allowance for changes in productivity, overheads, and profits. Interestingly, in relation to the discussion about costs

and prices, Fleming emphasises that failure to allow for changes in profits means that the index will be insensitive to changes in market conditions and will be a measure of costs rather than prices.

Table 2.1: A short Summary of the construction cost component

Author	Components	Comments
Adams, R. (1965)	Labour and material as well as overhead and profits	Includes profits and overhead cost in the labour cost
Carr (1989)	Direct costs: labour, material, and equipment. Indirect costs; project overhead, general overhead, and profit	Did not include subcontractor's costs in the direct/indirect costs of the contractor. Considers project overhead as indirect costs.
Tah et al (1994) and Akintoye (2000)	Similar as Carr (1989) plus subcontractor's costs and risk allowance as indirect cost component.	Define mark-up as indirect costs without site overhead.
Jagren (2003)	Material, labour, equipment, transportation utility, electrical power, and overhead costs.	Emphasize the difference between total production costs and construction costs

Cost components that are identified by the above listed authors are not necessarily an exhaustive cost structure. However, it is evident that the constituents of construction cost have changed over time; from Adams‟ simple labour-material break down to Jagrens' multi-itemized components. The significance of the inclusion of the different cost elements in the cost structure pertains to the scope of our analysis which is identifying factors that

could be associated with cost increase differences among the regions. The direct and indirect costs components stated by Tah et al (1994) and Akintoye (2000) seems to be suitable in our analysis since it is neither too broad to include elements that have some trivial regional cost differences, such as electrical power, nor too concise to limit labour-material cost structure. Most of the major components i.e. labour, materials, subcontractor's costs, overheads, and profits can be found in their cost structure.

2.3 Key Determinants of Initial Project Costs

No two infrastructure projects will cost the same amount of money no matter how similar they are. Apart from basic technical factors, the wide range of economic and institutional conditions in different Member States will itself always lead to variations. Nevertheless, the fundamental project costs are based on the actual cost of the land, materials, equipment and labour in the region where the project is being procured (Assaf & Al-Hejji, 2006).

2.3.1 Project Specification

The specification defines the physical attributes of a project. With a road, for example, given levels of forecast traffic will lead to specification of the required length, depth and width of the road pavement, the material to be used for surfacing, the number of lanes, bridges and junctions etc. For buildings, the required function and expected occupancy rate will lead to a specification of total floor space and floor plate size, height, internal and external appearance, floor loadings, heating and lighting requirement (Clamp & Lupton, 2007).

2.3.2 Location

Location affects project costing via institutional factors and through geographical realities. Institutional factors can affect initial project cost estimates in a number of ways. Consents procedures in particular may be more arduous in some countries affecting the time it will take to successfully implement a project. Allowance for the costs involved in sustaining a long public consultation exercise is an example. Where major projects are likely to be strongly opposed on environmental grounds, more cost may have to be allowed for environmental mitigation measures (Hwang & Lim, 2012).

In geographical terms, construction and material costs, land costs and design standards vary widely across the EU because of the varying distances from suppliers, climate and weather conditions, and general market conditions. Even within a country, variations will exist depending on whether a project is being implemented in a peripheral or central area, or in an urban or rural context (Hwang & Lim, 2012).

2.3.3 Form of Procurement/Contract

As explained in Section 1, the form of procurement and contract used by the project sponsor can alter the estimated cost of a project. Cost savings may be made by means of lump sum contracts although these are usually marginal in relation to the total project costs. DBFO contracts, which seek to transfer most of the risk of cost over-run from project sponsor to contractor, may in some circumstances yield savings (Jackson, 2002).

2.3.4 Site Characteristics

A site can be affected by soil and drainage conditions and access restrictions which can affect the original cost estimates. The amount of excavation, piling and foundation activities required are particularly affected by poor ground conditions. Where there is

uncertainty about ground conditions, accurate project costing cannot be achieved unless a soil survey is undertaken. This may require the sinking of boreholes to obtain soil samples at different levels beneath the surface (Jackson, 2002).

2.3.5 New Build or Improvements

Generally, the construction of new infrastructure is more expensive than improvements to existing infrastructure, or the refurbishment of buildings. This is primarily because the "non-building" costs such as land purchase, foundations, services provision etc. do not have to be included when simply upgrading existing structures (Kashiwagi, 2011).

2.3.6 Tax Liabilities

An organization will be liable to pay tax on its purchases. Some organizations and types of project are not liable to pay taxes, or else these can be reclaimed. Local government projects and infrastructure for public use are examples. Some public or quasi-public sector companies, voluntary and private sector organizations can be liable and these tax costs can have a significant impact on gross construction costs (Kerzner, 2003).

2.3.7 Timescale

Generally, the longer a project takes, the greater the project costs will be. Project timescales are dependent on the specification of a project. Usually, the larger a project is the longer it will take to implement. This is not always the case; if substantial additional resources are used, project implementation can often be accelerated (Kerzner, 2003).

In some cases, work on a project may take a lot longer than expected because its phasing is dependent upon other, linking projects or public finance programmes. A project which involves non-continuous phases is usually more expensive than one undertaken without

interruption because of the additional costs involved in re-mobilising plant and contractors (Kerzner, 2003).

2.3.8 Inflation

The longer the expected construction period, the more account will need to be taken of expected inflationary price increases over time. This is particularly important where a public authority's expenditure programme is involved. Initial cost estimates will need to allow for the value that will need to be paid at the time the project actually goes ahead. Levels of inflation vary amongst Member States and can be as low as 1-2% or as high as 10% per annum. In some of the states that will accede to the EU in future, higher inflation rates may be more typical (Lee *et al*., 2005).

2.4 Cost Performance of Construction Projects

Cost is among the major consideration throughout the project management life cycle and can be regarded as one of the most important parameters of a project and the driving force of project success (Ling & Boo, 2001). Marjuki (2006) mentioned that cost performance is an effective technique in project management effort expended and it is widely accepted in the literature and industry. Earned Value Analysis (EVA) is used to evaluate cost performance of different types of projects. Cost control, cost estimating, and cost budgeting are three cost related processes that interact among each other and with other scopes of construction projects (Marjuki, 2006).

Besides that, Olawale (2010) stated that there are four cost-related measures in cost performance analysis which are used to analyze cost performance of a project. The measure is used to evaluate the project whether the project is being performed within the budgeted cost or whether it is in line with the actual cost. The four cost-related measures

are TBC (total budgeted cost), CBC (cumulative budgeted cost), CAC (cumulative actual cost), and CEV (cumulative earned value) (Olawale, 2010).

Cost estimation will be made before start a project so that it can be controlled within cost budget. A project may require more than one person and may occur more than once during the life of a project which depending on the complexity of the project. It may be very simple or extremely complex when managing the cost of project. In project management, it should also consider the needs of project stakeholders in the project cost (Yakubu & Sun, 2009).

It found that it is important to studies more detail on costs of building and it is agreed by Yakubu and Sun (2009) holds the view that "cost studies of buildings consist of the application of the techniques and expertise of economics to construction projects". Also, it is to ensure available resources are used efficiently and to increase the rate of growth of construction work in the most efficient manner.

Cost overrun is a very common phenomenon and majority projects in construction industry facing this problem. Cost overrun occurs when the final cost or expenditure of the project exceeds the original estimation cost, Murdoch and Hughes (2008). Liu and Zhu (2007) pointed out that cost overrun is one of the main problems in construction industry. The problem may found in both developing and developed countries. This problem is quite serious and further study on this issue is needed to reduce the problems. There are some factors contribute to cost overrun in construction industry which are found from the researchers' study.

2.5 Causes of Cost Overruns

2.5.1 Inaccurate or Poor Estimation of Original Cost

Nicholas (2001) stated that the biggest factor that contributes to overruns of budget is inaccurate estimation of original or initial cost of a project. It is because of technical problem on how to estimate project costs and also not enough project information in the early stage of project.

2.5.2 Inflation of Project Costs

Nicholas (2001) stated that inflation of project costs cause increasing of costs. Inflation of materials, equipments, and labours costs may vary geographically within a country, from country to country, and contracts of subcontractors with suppliers may involve different inflation protection terms that agreed with a client. As inflation goes up, interest rates will go up and the costs will increase too.

2.5.3 Improper Planning

According to Frimpong (2003), improper planning and management experience limitation caused failures of using technical. The processes to produce a product become slower and take longer period to complete the project.

2.5.4 Fluctuation in Price of Raw Materials

Price fluctuation causes cost overruns in most cases where it is hard to estimate the cost accurately because it is objective. This happen caused by high inflation of price in developing countries or the speculation of suppliers (Frimpong, 2003).

2.5.5 Poor Project Management

Poor of site supervision and management and poor project management assistance contribute to problem of cost overrun in construction projects. Poor of site management reflected the weakness and incompetency of contractors. Skilful and experience human resource is insufficient in site management (Frimpong, 2003).

2.5.6 Lack of Experience

Chan (2004) found that most of the contractors are lack of experience especially in financial management. The distribution of the costs do not plan well in the projects. It might cause over of costs budgeted.

2.5.7 Obsolete or Unsuitable Construction Equipments and Methods

Obsolete and unsuitable equipments and methods cause the progress of construction works become slower. Some countries try to import or transfer the modern technology into their countries. However, the method is unsuccessful because lack of skilful human to operate the technology (Lester, 2000).

2.5.8 Unforeseen Site Conditions

Kaliba *et al.* (2009) found that actual site conditions of a project are not usually determined until excavation is completed. It is sometimes possible that site conditions are overlooked by the initial review or conditions have changed due to change of weather conditions or subsoil conditions. The unexpected conditions on sub surface sometimes require fundamental redesign of projects with high expense. Changes of site conditions become a problem for machinery and supplies to move in and out of the site. This also increase costs required (Kaliba*et al.*, 2009).

2.5.9 Mistake in Design

According to Lester (2000), mistakes in design or poor design are caused by the low competence designer. The approval design or drawing process becomes low quality and ineffective especially for those with government-funded projects. The unrealistic design which found after the start the construction projects has to change and it could lead to cost overrun.

2.5.10 Insufficient Funds

Lester (2000) noted that delay of the projects followed by cost increasing to cover all the expenses during construction. Owners are not preparing sufficient fund for project and pay on time as shown in contract agreement to contractor.

2.5.11 Poor Contract Management

Cooke and Williams (2004) mentioned that many contractors in developing countries have organizes their own commercial undertaking. They are good in managing expense because they are familiar with the business of making money. They pay low wages, submit low bids and low ability to plan and coordinate contracts. They do not follow the agreement that stated in contract.

2.5.12 High Cost of Construction Plant and Equipment

Chan (2004) found that high cost of machineries is one of the market related problems. Construction industry is mainly market driven where it is influenced by current market style. For example, when the oil needed to run machineries increasing, the rental cost of machineries also increasing.

2.5.13 Construction Cost Underestimation

In order to get project approval for the project, some parties have deliberated underestimating of costs for their project. It is quite serious situation that occurred on some project (Cooke & Williams, 2004).

2.6 Measures to Control Construction Cost Overruns

There are some measures which are found from the researchers' study to control the construction costs or to overcome the problems of cost overruns. The researchers have their own opinion on how to solve the problems. The measures are as below:

2.6.1 Proper project costing and financing

Kaliba *et al.* (2009) stated that delays of schedule may occur caused of delayed in payments due to complex financial processes in client organisations. Delay in payment would cause financial difficulties to contractors and subsequently delay the schedule to complete the activities on site. Interest could be charged on delayed payments hence inducing cost overruns in the project.

2.6.2 Competent personnel

Kaliba *et al.* (2009) mentioned that contractors, consultants, and clients should ensure that they have the right personnel with appropriate qualifications to manage their projects efficiently. It is better if construction manager have experience and qualifications in project or construction management.

2.6.3 Appropriate contractual framework: Increase supply of materials and Realistic cost estimation

Leeman (2007) has supported that once the objective of cost has been estimated, it is followed by choosing an appropriate contract model where there are techniques to make a relationship between the initial estimate and final price.

Frimpong *et al.* (2003) found that there should prepare adequate allowance for any emergency case in order to cover increasing in material cost due to inflation. The initial cost estimates should be as accurate as possible. Accuracy of cost estimation allows clients to check and determine the required funds for executing the project are made available when required (Kaliba *et al.*, 2009).

2.6.4 Efficient management

Rad (2002) stated that efficient management is important to produce a productive and cost efficient site. Scope may changes due to inadequate planning and feasibility studies. In order to control the project effectively, the project manager must follow up the schedule to avoid additional costs and ensure the building can be occupied on time as planned.

The techniques to overcome the problems of cost overrun are found by literature study. From the literature study, it found that there are eleven variables that are suggested by the researchers to overcome or reduce the problems of cost overrun in construction projects. An appropriate technique should be considered and used in construction projects in Malaysia to reduce the problems of cost overruns.

2.7 Empirical Research

Three of the four factors among the client-contractor related factors described above apparently could be found in each region. Contractor and client type as well as procurement method do not differ greatly between metropolitan and small regions. The four large Swedish contractors operate in most of the regions and their clients on the residential projects are municipal companies that usually procure these projects with fixed price contracts. The common contract method is also either general or all-in-one contract form.

Client-contractor relationship is the only factor in this layer that presumably influences construction costs through indirect cost components where a long run and strong past relationship between the parties could reduce transaction costs and the incentive to price according to current demand.

Client-contractor related factors are very susceptible to the level of competition and the intensity of construction activity. The level of competition and construction activity influences the cost of inputs and could also have an enormous impact on indirect costs. Competition level is a function of the number of contractors in the market as well as the size of the firms operating in that region. As we have mentioned earlier, a few large firms dominate Swedish house building market and most of them are active as developers and contractors. A region with low competition and high demand of contractors' services may encourage opportunistic behaviour that could increase construction cost. The opposite situation of high competition and low demand could bolster clients' negotiation position to solicit lower construction costs. One of the hypotheses that this research is investigated is that a region with high concentration of vertically integrated firms would have higher construction costs and the empirical part of the research will try to test it by soliciting developers' views on this proposition.

Incongruence of objectives of the contractor and client as well as local market conditions and contractor/client related factors might determine how the initial costs get estimated and the level of final construction costs. The type and structure of client and contractor concurrently with the intensity of construction activities in various regions could influence the kind of relationship between the contracting parties and could result in a change in transaction costs. In order to procure specified project with clients' cost and quality desires and at the same time providing contractors with a reasonable profit margin, market and non-market contracting become the two possible strategies to rely upon.

The first strategy is when the parties in the building process hinge on market contracting in which arm's length contracts with the provision of every predictable outcome are practised. With human bounded rationality and complexity of building projects, unforeseen events and variations are inevitable to encounter. This leads to confrontation and adversarial relationship that ultimately introduce higher construction and transaction costs as a result of repair cost due to any mis-specified or deficient quality, and monitoring cost in order to ensure that what is promised is delivered, as well as cost of litigations. The second strategy is that of when construction parties transact with a non-market contracting strategy where trust and past working relationships as well as long-run relationships are the established rules of contracting. Contractors expect that clients will treat them fairly and not only provide satisfactory profits but will consider or even secure them prospect workload in exchange of lower or unreasonable non-escalating construction costs. Thus, a thorough investigation of the strength of the relationship between actors in the building process and the nature of supplier structure could provide an explanation of construction costs disparities observed among the regions.

The empirical part of this research focuses on how long-run relationship between contractors and developers (clients) in the presence of lower competition and higher

construction activity could influence the construction costs. In other words, can the type of relationship between the parties explain at least part of the observed regional construction cost disparities? Furthermore, it will be examined whether vertically integrated contractors can be another part of the explanation of the cost escalation differences among the regions. Respondents‟ perception of whether the vertically integrated contractors tender higher price is sought after. That could help us to conjecture the form of relationship and the direction of correlation among vertical integration, construction cost levels, and local externalities such as the level of competition and construction activity.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The chapter presents the particular methodology used to assemble the data for the research. This chapter therefore gives a comprehensive depiction of the choice of the study area. It explores the population from which subjects for the research were selected and the sampling procedures that were used.

3.1 Research Design

Research design is a plan employ to test the hypothesis to find solutions to the research questions. According to Saunders et al. (2007)., the design involved the identification of the problem, investigating the problem by collecting data through questionnaires and interviews, analysis of the data, drawing conclusions and then making recommendations. This study was therefore structured within the framework of descriptive research approach. Descriptive research design was adopted to obtain information, which concerns the current status of phenomenon. This method was employed to enable induction to be extended to other individuals who could not be covered in the research.

3.2 Study population

Study population in research refers to the total number of all units from which the researcher selects the sample for investigation in the study area. The target population of the study is construction firm registered with the Tamale Metropolitan Assembly and consultants operating within the Metropolis. The number of contractors registered with the assemble stand at 120.

3.3 Sampling Technique and Sample Size

3.3.1 Sampling Technique

The simple random sampling method was used to select constraction firms and convenient sampling to select the consultants. Within each construction firm, the purposive sampling was used to select respondents. The purposive sampling can be used with a number of techniques in data gathering (Godambe, 2012). The simple random technique gives equal chance to each construction firm of being selected while convenient sampling selects available and willing respondents. Purposive sampling purposively selects key respondents with specific knowledge about the issue under study.

3.3.2 Sample Size

The sample of a study refers to the number of respondents the researcher selects from the study population and used in the research process (Yin, 1994). The sample size was 120 broken down into 100 registered construction firms and 20 project consultants.

Table 3.1 Population of the study

	Population	Sample Size
Registered Construction firms	120	100
Project Consultants	-	20
Total		120

3.4 Data Collection

Data gathering is crucial in research, as the data is meant to contribute to a better understanding of a theoretical framework (Bernard 2002). It then becomes imperative that selecting the manner of obtaining data and from whom the data will be acquired be done

with sound judgment, especially since no amount of analysis can make up for improperly collected data (Bernard, 2002).

The instrument for data collection was questionnaire. Questionnaire was used because it offers an opportunity to sample the views of large population. Additionally, the use of the questionnaire helps to ensure that one gets a high proportion of information that is usable; also it saves time and money since many respondents can be attended to at the same time.

One of the major weaknesses of a questionnaire is that, the result obtained may not be reliable if many of the questions are not properly answered. A well designed questionnaire is the culmination of a large process of planning such as: developing the research objective, formulating the problem and generating the hypothesis.

The research questionnaire was structured into four sections-sections "A" to "D". The section "A" of the research questionnaire describes respondents' background information, categories include: gender, age, rank and level of education. Section "B" solicit data on variables associated with factors that influence the project cost of local government projects in the Northern Region while the section "C" solicit data on the challenges to effectively managing the cost of local government projects in the Northern Region. Ultimately, section "D" solicit data on challenges to effectively managing the cost of local government projects in the Northern Region.

The questions in the questionnaire were semi-structured and administered to the target population. The questionnaire included both closed-ended and opened-ended questions. As a way of minimizing researcher bias, the open-ended questions provide an opportunity for respondents to elaborate and provide further details on variables of consideration. On the other hand, the closed ended questions offer respondents enough time and space to provide appropriate answers to the questions by choosing from possible options made

available to them in the questionnaire. However, most of the questions were closed-ended. This is to ensure that respondents' views are guided within the thematic areas dictated by the research objectives so as to prevent too much digression.

3.5 Data Analysis

The data from the questionnaire were analyzed using SPSS (Statistical Package for Social Sciences) software. Statistical Package for Social Science (SPSS), Version 21.0 was used to analyze the primary data collected from the field with the questionnaire quantitatively. The data gathered were then analyzed through the means of relative frequencies and tables after the data was edited for completeness.

3.6 Profile of the Study Area

The Tamale Metropolitan Assembly is located at the centre of the Northern Region. It shares common boundaries with Savelugu/Nanton District to the north, Tolon / Kumbungu District to the west, Central Gonja District to the south-west, East Gonja District to the south and Yendi Municipal area to the east. The Tamale Metro occupies approximately 750 km sq. which is 13% of the total area of the Northern Region.

The Tamale Metropolitan Assembly is located approximately 180 metres above sea level. The topography is generally rolling with some shallow valleys which serve as stream courses. There are also some isolated hills but these do not inhibit physical development.

The Metropolis experiences one rainy season starting from April/May to September/October with a peak season in July/August. The Metropolis experiences a mean annual rainfall of 1100mm within 95 days of intense rainfall. Staple crop farming is highly restricted by the short rainfall duration.

The dry season is usually from November to March. It is influenced by the dry North-Easterly (Harmattan) winds while the rainy season is influenced by the moist South Westerly winds. The mean day temperatures range from 33° C to 39° C while mean night temperature range from 20° C to 22° C. The mean annual day sunshine is approximately 7.5 hours.

The climactic conditions have to a greater extent influenced the vegetation of the area. The Tamale Metro lies within the Guinea Savanna belt of Northern Ghana. Apart from the preserved natural colonies of vegetation at fetish groves, forest reserves and community woodlots, the whole Metropolis exhibits tall grass interspersed with drought resistant trees such as neem, sheanut, dawadawa and mahogany.

The people in the metropolis are involved in varied forms of economic activities for their livelihood. These economic activities range from farming, petty trading involving buying and selling of food stuffs, all forms of vendor services and the service industry, dominated by the banking and the communication industry.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Chapter Introduction

The chapter deals with the presentation and analysis of the data collected using the questionnaires administered to a sample of respondents. The chapter consists of the background analysis of the characteristics of the respondents through personal data and the analysis of all relevant data having a bearing on the research questions. The analysis was presented using tabular illustrations.

4.1 Socio Demographic Characteristics of respondents

This section presents analysis and interpretation of socio demographic data of respondents.

Table 4.1 shows the gender distribution of respondents. Male respondents were dominant in the survey with a representation of 78.30% while female respondents represented 21.70%. From the analysis, it can be concluded that construction works are male dominated industry.

Table 4.1 Gender of respondents

	Sex	Frequency	Percent
Valid	Male	94	78.3
	Female	26	21.7
	Total	120	100.0

Source: Field Survey, 2016

Table 4.2 shows the age group distribution of respondents. The dominant age group was respondents within the age of 20 to 30 years, followed by those within the age group of 31 to 40 years, then those within the age group of 41 to 50 years, and lastly those within the age group of 51 year and above. From the analysis, it can be observed that the construction industry employ dominantly the youth.

Table 4.2 Age group of respondents

	Age	Frequency	Percent
Valid	20-30 Years	64	53.3
	31-40 Years	32	26.7
	41-50 Years	22	18.3
	51-60 Years	2	1.7
	Total	120	100.0

Source: Field Survey, 2016

Table 4.3 shows distribution of years of service in the construction industry. Majority of respondents have been working in the construction industry on average between 4 years and 8 years. The remaining respondents have served the industry on average above 9 years. From the analysis, it can be observed that most of the respondents have little experience in the industry.

Table 4.3 Years of service in construction industry

		Frequency	Percent
Valid	5-8 Years	96	80.0
	9-12 Years	12	10.0
	13 Years Above	12	10.0
	Total	120	100.0

Source: Field Survey, 2016

Table 4.4 shows the qualification distribution of respondents. Majority of the respondents holds HND (50.70%), followed bachelor degree holders (17.80%), then Master's degree holders (12.30%), and lastly PhD holders (1.40%). From the analysis, it can be observed that the construction industry employ dominantly technicians with practical skills.

Table 4.4 Highest level of academic qualification

		Frequency	Percent
Valid	HND	74	61.7
	Bachelor Degree	26	21.7
	Master's Degree	18	15.5
	PhD	2	1.7
	Total	120	100.0

Source: Field Survey, 2016

Table 4.5 shows the membership of professional bodies. Majority of respondents (36.70%) are members of Ghana Institute of Engineers, 21.70% are members of Ghana Institute of Construction, another 21.70% are members of Ghana Institute of Planners, 16.70% are members of Ghana Institute of Surveyors, and lastly 3.30% are members of Ghana Institute of Architect. From the analysis, it can be observed that the construction industry demands professionalism.

Table 4.5 Membership of Institution

		Frequency	Percent
Valid	Ghana Institute of Engineers	44	36.7
	Ghana Institute of Surveyors	20	16.7
	Ghana Institute of Construction	26	21.7
	Ghana Institute of Planners	26	21.7
	Ghana Institute of Architect	4	3.3
	Total	120	100.0

Source: Field Survey, 2016

4.2 Factors that cause cost overruns of local government projects in the Northern Region

This section presents and discusses findings on the factors that cause cost overruns of local government projects in the northern region. Respondents were asked to rank their responses on a Likert scale of 1 to 5 where 1 stands for Strongly Disagree; 2 stands for Disagree; 3 stands for Neutral; 4 stand for Agree and 5 stands for Strongly Agree. The responses have been presented using the mean.

Table 4.6 Factors that causes cost overrun of local government projects in the Northern Region

	N	Mean	Std. Deviation	Ranking
General Inflation rate	120	1.6667	0.94676	1st
Poor Project Management	120	1.8167	1.04506	2nd
Inflation of prices of projects	120	1.9417	0.96402	3rd
Improper Planning	120	2.0167	1.12260	4th
Waste of materials	120	2.1083	1.12119	5th
Mistake in Design	120	2.1750	1.14981	6th
Insufficient Funds	120	2.1917	1.18319	7th
Unforeseen Site Conditions	120	2.2333	1.06695	8th
Fluctuation in Price of Raw Materials	120	2.2333	1.15761	9th
Obsolete or Unsuitable Construction Equipments and Methods	120	2.3917	1.25889	10th

Source: Field Study, 2016

From Table 4.6 above, "*General Inflation Rate*" ranked the most significant factor causing cost overruns of local government projects in the Northern Region yet with a standard deviation less than one indicating the existence of agreement between responses. Followed by Poor Project Management [Ranked=2nd, Mean=1.8167 SD=1.04506]; Inflation of prices of projects [Ranked=3rd, Mean=1.9417 SD=0.96402]; Improper Planning [Ranked=4th, Mean=2.0167 SD=1.12260]; Waste of materials [Ranked=5th, Mean=2.10836; SD=1.12119]; Mistake in Design [Ranked=6th, Mean=2.1750, SD=1.14981]; Insufficient Funds [Ranked=7th, Mean=2.1917, SD=1.18319]; Unforeseen Site Conditions [Ranked=8th, Mean=2.2333 SD=1.06695]; Fluctuation in Price of Raw

Materials [Ranked=9th, Mean=12.2333, SD=1.15761]; Obsolete or Unsuitable Construction Equipments and Methods [Ranked=10th, Mean=2.3917, SD=1.25889].

From these observations, it can be deduced that the main factors that causes cost overruns of local government projects are General inflation rate, poor contract management, inflation of prices of projects, improper planning, and material waste. This implies that building contractors should factor these elements in estimating project cost for local government. The result is in line with similar study carried out by Nicholas (2011) who identify inflation of materials, equipments, and labour cost as factor causing project overrun costs, Again, the study findings confirms conclusion by Frimpong (2003) who identify improper planning and poor project management as cause of project cost overruns.

4.3 Challenges to Effectively Managing the Cost of Local Government Projects in the Northern Region

This section presents and discusses findings on the challenges to effectively managing the cost of local government projects in the northern region. Respondents were asked to rank their responses on a Likert scale of 1 to 5 where 1 stands for Strongly Disagree; 2 stands for Disagree; 3 stands for Neutral; 4 stand for Agree and 5 stands for Strongly Agree. The responses have been presented using the mean.

Table 4.7 Challenges to effectively managing the cost of local government projects in the northern region

	N	Mean	Std. Deviation	Ranking
Political influence	120	1.5167	0.88861	1st
Lack of transparency in the award of contracts	120	1.8417	1.10001	2nd
Types of procurement used for award of contracts	120	2.0667	0.99354	3rd
Lack of cooperation from government agencies	120	2.1583	0.98728	4th
Lack of supervision	120	2.1917	1.13978	5th
Tax liabilities	120	2.2167	0.98034	6th
Lack of cooperation from contractors	120	2.2750	1.12244	7th
Bureaucracy in the local government sector	120	2.4000	1.15519	8th
Transportation challenges to project location	120	2.4750	1.19496	9th

Source: Field Study, 2016

From Table 4.7 above, "*Political influence*" ranked the most significant challenges to effectively managing the project cost of local government in the Northern Region yet with a standard deviation less than one indicating the existence of agreement between responses. Followed by Lack of transparency in the award of contracts [Ranked=2nd, Mean=1.8417, SD=1.10001]; Types of procurement used for award of contracts [Ranked=3rd, Mean=2.0667, SD=0.99354]; Lack of cooperation from government agencies [Ranked=4th, Mean=2.1917, SD=0.98728]; Lack of supervision [Ranked=5th, Mean=2.2167, SD=0.13978]; Tax liabilities [Ranked=6th, Mean=2.2167 SD=0.98034];

Lack of cooperation from contractors [Ranked=7th, Mean=2.2750 SD=1.12244]; Bureaucracy in the local government sector [Ranked=8th, Mean=2.4000, SD=1.15519]; and Transportation challenges to project location [Ranked=9th, Mean=2.4750, SD=1.19496].

4.4 Measures for Minimizing Cost Overruns of Local Government Projects

This section presents and discusses findings on the Measures for Minimizing Cost Overruns of Local Government Projects. Respondents were asked to rank their responses on a Likert scale of 1 to 5 where 1 stands for Strongly Disagree; 2 stands for Disagree; 3 stands for Neutral; 4 stand for Agree and 5 stands for Strongly Agree. The responses have been presented using the mean.

Table 4.8 Measures to minimize cost overruns of local government projects

	N	Mean	Std. Deviation	Ranking
Completion of projects in time	120	1.4333	0.79635	1st
Proper project planning and management	120	1.6917	0.96837	2nd
Proper design of projects	120	1.7583	0.98728	3rd
Minimization of wastage of materials	120	1.9000	0.92944	4th
Ensuring value for money in project cost estimation.	120	1.9083	1.01249	5th
Making of funds readily available to contractors to execute their jobs	120	2.0000	1.13018	6th
Avoiding the use of obsolete construction equipments and methods	120	2.3917	1.18319	7th

Source: Field Study, 2016

From Table 4.8 above, "*Completion of projects in time*" ranked the most significant measures to minimize cost overruns of local government projects in the Northern Region yet with a standard deviation less than one indicating the existence of agreement between responses. Followed by Proper project planning and management [Ranked=2nd, Mean=1.6917, SD=0.96837]; Proper design of projects [Ranked=3rd, Mean=1.7583, SD=0.98728]; Minimization of wastage of materials [Ranked=4th, Mean=1.9000, SD=0.92944]; Ensuring value for money in project cost estimation [Ranked=5th, Mean=1.9083, SD=1.01249]; Making of funds readily available to contractors to execute their jobs [Ranked=6th, Mean=2.0000, SD=0.13018]; Avoiding the use of obsolete construction equipments and methods [Ranked=7th, Mean=2.3917, SD=1.18319].

From these observations, it can be deduced that the main measures to managing the cost overruns of local government projects are proper project planning and management; proper design of projects; minimization of wastage of materials; and ensuring value for money in project cost estimation. The result is in line with similar study carried out by Kabila et al. (2009) who identified proper project costing and financing, competent personnel, and realistic cost estimation as key measures to minimize project overrun costs.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATION

5.1 Chapter Introduction

The main aim of the study was to investigate the factors that influence the project cost overrun by local government in Ghana. This research had three primary objectives, which were achieved through the data collection using survey techniques and the detail analysis of the survey results. This chapter comprises the summary of major findings, conclusions drawn from the findings and practical recommendations to improve the cost management of local government projects in Ghana, and additional study in this subject are proposed.

5.2 Summary of Findings

5.2.1 Factors That Influence the Project Cost of Local Government Projects in the Northern Region

The findings of the study revealed the key causes of cost overruns included; revealed that inflation, poor project management, waste of materials, high rate of inflations, poor practices in procurement, unforeseen site conditions, improper planning, fluctuation in price of raw materials, obsolete or unsuitable construction equipments and methods, insufficient funds, mistake in design.

5.2.2 Challenges to effectively managing the Cost of Local Government Projects in the Northern Region

The study finding revealed that [Political influence; Lack of cooperation from government agencies; lack of cooperation between contractors and local government officials, poor of

supervision; lack of transparency in the award of contracts; project location; Tax liabilities; Types of procurement used for award of contracts] are all challenges to effectively managing the cost of local government projects in the Northern Region

5.2.3 Measures to minimize Cost Overruns of Local Government Projects

The study finding revealed that [Completion of projects in time; Proper project planning and management; Minimization of wastage of materials; Ensuring value for money in project cost estimation; Avoiding the use of obsolete construction equipments and methods; Making of funds readily available to contractors to execute their jobs; Proper design of projects] are all recommendations for minimizing/preventing cost overruns of local government projects in the Northern Region.

5.3 Conclusion

The study examined the how cost performance of local government projects can be improved seeking the views of project consultants and construction firms. Local government system in Ghana is structured into metropolitan, municipal and/or district assemblies under whom report area council which in turn oversees unit committees who also oversees community members. Projects undertaken by the local government are often confronted with several challenges that affect its effective cost management. Further the cost of projects is influenced by several factors that need to be considered seriously when estimating and evaluating the cost of projects.

The study sought the opinion of 100 construction firms and 20 consultants on factors, challenges and ways project cost at the local government level can be improved. The study was undertaken in the Tamale Metropolitan Assembly in the Northern Region of Ghana. The findings from the study revealed that factors influencing project costs at the local

government level are inflation, poor project management, waste of materials, inflation of prices of projects, the procurement process, unforeseen site conditions, improper planning, fluctuation in price of raw materials, obsolete or unsuitable construction equipments and methods, insufficient funds, mistake in Design. Further, challenges affecting the effective management of project costs are political influence; lack of cooperation from government agencies; lack of cooperation from contractors; bureaucracy in the local government sector; lack of supervision; lack of transparency in the award of contracts; transportation challenges to project location; tax liabilities; types of procurement used for award of contracts.

5.4 Recommendations

Based on the challenges identified in the previous chapter, the following recommendations are put forward:

Political influence: This was identified as a challenge to effectively managing cost of local government projects. It is therefore recommended that politicians should abstain from interfering in local government projects so as to allow smooth completion of work.

Lack of cooperation from government agencies: Another challenge identified was lack of cooperation from government agencies. It is recommended that a higher authority should be established to promote cooperation among government agencies in relation to project completion.

Lack of cooperation from contractors: Contracts should be bound by a contract to be of good behaviour and cooperate with all stakeholders in completing the projects. This would ensure that contractors cooperate with government agencies and officials.

Lack of supervision: A unit should be established to oversee the supervision of government projects. This unit would be responsible for ensuring that government projects are completed according to schedule, cost estimates, and contract specifications.

Lack of transparency in the award of contracts: Proper procedures and approach should be followed in the award of government contracts. The Public Procurement Act should the standard for compliance to all award of government contracts.

5.5 Suggestion for Further Studies

The study was limited to Tamale Metropolis in the Northern Region. It is suggested that similar studies should be conducted in other regions in Ghana.

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APPENDIX: QUESTIONNAIRE

UNIVERSITY OF EDUCATION, WINNEBA

SCHOOL OF GRADUATE STUDIES

I am undertaking a study into improving cost performance of local government projects: perspectives of consultants and construction firms. Results from this study will be used mainly for academic purpose. Your responses will be treated with the utmost confidentiality. If you are not comfortable with any question, please skip it and move to those that you are comfortable with. Please, you are also at will to discontinue with the questionnaire at any point. I would greatly appreciate your help in responding to this questionnaire.

SECTION A: DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Please, provide the following demographic information pertaining to you.

1. Which of the following age groups do you belong? (Tick)

   [ ] 20-30 years

   [ ] 31-40 years

   [ ] 41- 50 years

   [ ] 51- 60 years

   [ ] 61 years and above

2. Sex of respondent

   [ ] Male

   [ ] Female

3. How many years have you worked in the construction industry?

   [ ] 0-4 years

   [ ] 5-8 years

   [ ] 9-12 years

   [ ] 13 years and above

4. Highest level of academic qualification.

   [ ] HND

   [ ] Bachelor Degree

   [ ] Masters Degree

   [ ] PhD

5. Please, indicate the name of your business

   [ ] Ghana Institute of Engineers

   [ ] Ghana Institute of Surveyors

   [ ] Ghana Institute of Construction

   [ ] Ghana Institution of Planners

   [ ] Ghana Institute of Architech

   [ ] Other (Please specify)……

6. What is your professional qualification/ membership institution……..…….

   ……

7. SECTION B: FACTORS THAT CAUSES THE PROJECT COST OVERRUNS OF LOCAL GOVERNMENT PROJECTS IN THE NORTHERN REGION

To what extent do you agree on the influence of the following factors on the cost overrun of Local Government projects? Please rate using a scale of 1 to 5, where 1 represents strongly agree, 2 represents agree, 3represents uncertain, 4represents disagree and 5 represents strongly disagree.

Variable	**Ranking**				
	1	2	3	4	5
Inflation					
Poor Project Management					
Waste of materials					
Inflation of prices of projects					
The procurement process					
Unforeseen Site Conditions					
Improper Planning					
Fluctuation in Price of Raw Materials					
Obsolete or Unsuitable Construction Equipments and Methods					
Insufficient Funds					
Mistake in Design					

8. In your view, indicate factors that may contribute to increase in cost of government projects? (List as many as you can).

……..……

SECTION C: CHALLENGES TO EFFECTIVELY MANAGING THE COST OF LOCAL GOVERNMENT PROJECTS IN THE NORTHERN REGION

9. To what extent do you agree on the following as challenges to effectively managing local government projects? Please rate using a scale of 1 to 5, where 1 represents strongly agree, 2 represents agree, 3 represents uncertain, 4 represents disagree and 5 represents strongly disagree.

Variable	**Ranking**				
	1	2	3	4	5
Political influence					
Lack of cooperation from government agencies					
Lack of cooperation from contractors					
Bureaucracy in the local government sector					
Lack of supervision by AESL					
Lack of transparency in the award of contracts					
Transportation challenges to project location					
Tax liabilities					
Types of procurement used for award of contracts					

10. Please, what are the other challenges to effectively managing cost of local government projects? (List as many as you can)

……

SECTION D: MEASURES TO MINIMIZE COST OVERRUNS OF LOCAL GOVERNMENT PROJECTS

11. To what extent do you agree on the following suggestions for overcoming cost overruns in local government projects? Please rate using a scale of 1 to 5, where 1 represents strongly agree, 2 represents agree, 3 represents uncertain, 4 represents disagree and 5 represents strongly disagree.

Variable	**Ranking**				
	1	2	3	4	5
Completion of projects in time					
Proper project planning and management					
Minimization of wastage of materials					
Ensuring value for money in project cost estimation.					
Avoiding the use of obsolete construction equipments and methods					
Making of funds readily available to contractors to execute their jobs					
Proper design of projects					

Thank you very much for your time.