

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

COLLEGE OF ART AND BUILT ENVIRONMENT

DEPARTMENT OF BUILDING TECHNOLOGY

KNUST

**ASSESSMENT OF FACTORS AFFECTING PERFORMANCE OF CONTRACTORS
IN THE CONSTRUCTION INDUSTRY: CASE STUDY OF ASOKORE MAMPONG
MUNICIPAL ASSEMBLY.**

A DISSERTATION PRESENTED TO THE DEPARTMENT OF BUILDING
TECHNOLOGY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
MASTER OF SCIENCE DEGREE IN CONSTRUCTION MANAGEMENT
PROGRAMME

BY

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AUGUST, 2015

DECLARATION

I hereby declare that except for reference to other authors' work, which had been duly acknowledged, this thesis was the result of my own original research and that no part or whole of it had been presented for another award in this university or elsewhere.

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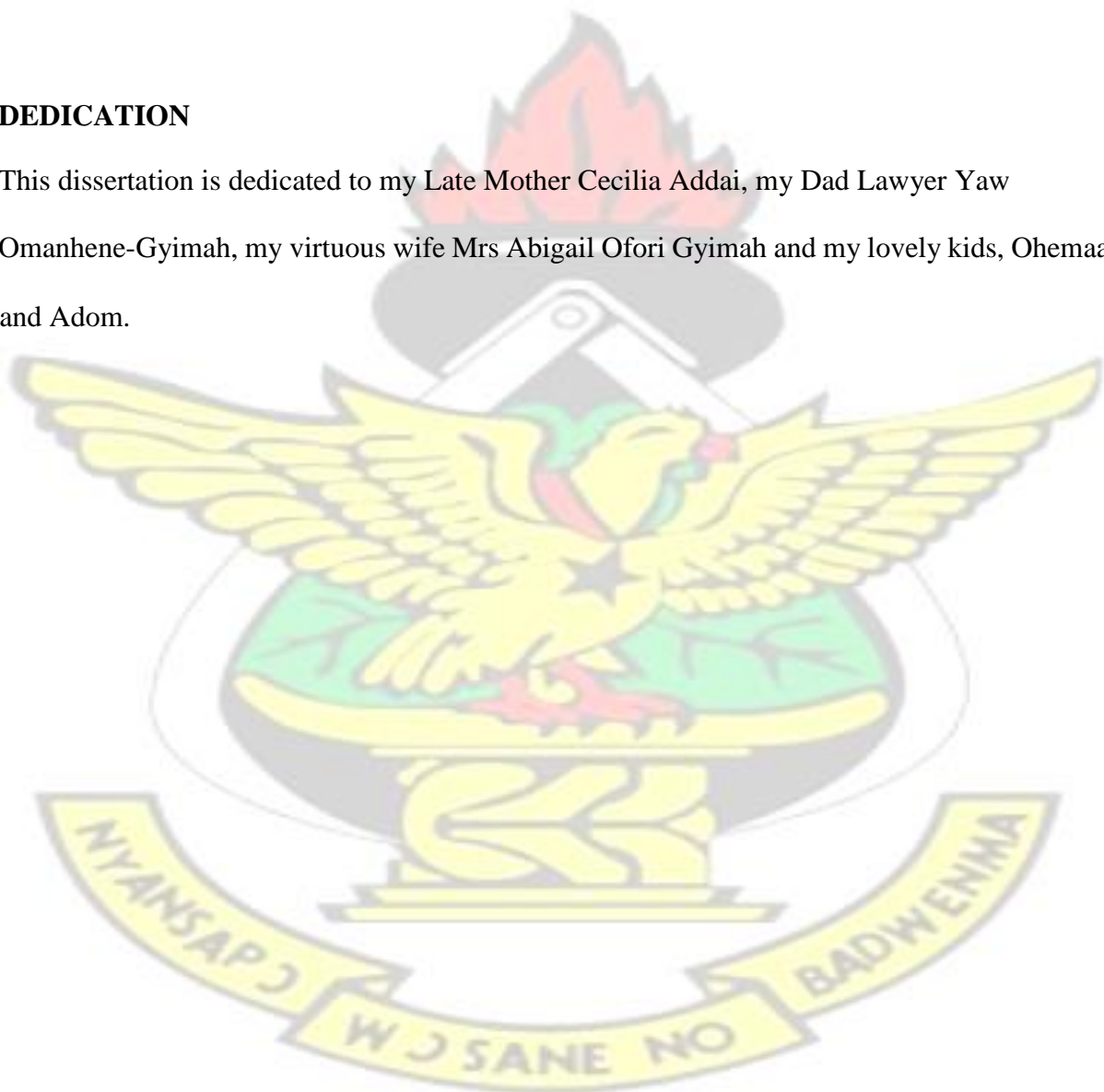
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DEDICATION

This dissertation is dedicated to my Late Mother Cecilia Addai, my Dad Lawyer Yaw Omanhene-Gyimah, my virtuous wife Mrs Abigail Ofori Gyimah and my lovely kids, Ohemaa and Adom.



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ABSTRACT

The disappointment to meet deliverables within the Ghanaian construction industry is a common feature. In reference to Ahadzie (2008), such outlook is witnessed as far as contractors are concerned because owners of most construction companies do not have any formal or little knowledge about the operation of the industry there-by affecting them in applying well-grounded management theories in achieving good performance. In many instances, contractors are blamed for poor performance and criticized for having limited knowledge in the application of requisite management techniques. Moreover, they lack the ability to employ people with the requisite experience because they see the industry as only business oriented forgetting about the technicalities involved. In Asokore Mampong Municipal Assembly, similar issues are faced by clients. It is against this background that this study seeks to identify and examine the factors affecting contractor performance on development projects. The research approach presented in the study was mainly quantitative. The study made use of questionnaire as means of gathering useful data for the study. A sample size of 52 was chosen from five (5) departments out of sixteen (16) departments for the study. Developed questionnaires and interview guides were used through purposive sampling to collect data from the respondents. Statistical Package for Social Science (SPSS) was used to perform descriptive analysis whiles Relative Importance Index (RII) was used to rank the identified critical success factors for improving contractor performance. Adoption of Total quality management, utilizing up to date technology and introduction of health and safety programs problems were the major factors identified for improving performance. Also, analysis from the study identified these problems associated with contractor performance: Personal issues; inadequate supervision; incompetent designers/contractors; and changes in scope of works. Based on the findings from the study, some recommendations such as the Municipal Assembly trying as much as possible to make payments on time to the local contractors so as to prevent delays in the execution of projects

and project designs and specifications must be clear to the various stakeholders of the project to prevent future complexities during the construction activities were put forward to the Municipal Assembly of the district to help improve the situation.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Ahadzie (2007) posited that, the Ghanaian construction industry is laced or tuned after the construction industry of Britain because Britain was the colonial master of Ghana. The construction industry has been tipped as a great sustainer of the economy of Ghana because it provides employment opportunities (2.3%) and made great strides by contributing 8.5% to GDP (Ankomah et al., 2010). The government of Ghana is the main client of most infrastructure works because of that the Ministry of Water Resource, Works and Housing and the Ministry of Road and Highways have been mandated by an Act of Parliament to spearhead all construction activities fully funded or partially funded by the Government of Ghana. They are also mandated to register and classify building and road contractors based on the criteria set by the respective Ministries (Vulink, 2004). According to Ayisi (2000), more than 20,000 contractors have registered with the Ministry of Water Resource, Works and Housing however, the number was pegged 34,000 contractors meaning that the industry is a conduit of employment. The Association of Building and Civil Engineering Contractors of Ghana (ABCECG) was formed about thirty-five (35) years ago, *“to offer a common and united front for persons in building and civil engineering construction to dialogue effectively with the Government of Ghana through our sector Ministry (Ministry of Water Resources, Works and Housing, MWRWH) for the development and growth of the industry and for the economic benefit of the nation.”* The vision of the association is *“the evolution of a local indigenous construction Association which will ensure that the commanding heights of the construction industry in Ghana are in the hands of Ghanaians”*. After three decades in existence, there has not been much impact in the Ghanaian construction industry as the industry is marred with issues associated with local contractors. With membership strength of approximately 1282

companies, including 12 foreign contractors the association keeps growing with little reflection on contractor performance. With all these roles played by the Ghanaian construction, the industry has been labelled to underperform because of consistent delays experienced on most project which lead to abandonments of projects because of the non-performance (Ofori-Kuragu, 2014). The quality of completed projects in Ghana raises many eyebrows. This is as a result of the shoddy works and early developments of defects identified within the defect liability period. The early years of the projects upon commission and handing-over also contributes to this factor therefore most complicated infrastructure are awarded to foreign contractors (Tawiah, 1999) as issues cannot be brush-away as far as the Asokore Mampong Municipal Assembly is concerned. The current study in the perspective of the issues raised seeks to improve factors affecting the performance of contractors on development project.

1.2 PROBLEM STATEMENT

Performance and products of Ghanaian contractors have been in doubt as far as stakeholders in the built environment are concerned. The disappointment to meet deliverables within the Ghanaian construction industry is a common feature. In reference to Ahadzie (2007), such outlook is witnessed as far as contractors are concerned because owners of most construction companies do not have any formal or little knowledge about the operations of the industry thereby affecting them in applying well-grounded management theories in achieving good performance. In many instances, contractors are blamed for poor performance and criticized for having limited knowledge in the application of requisite management techniques. Moreover, they lack the ability to employ people with the requisite experience because they see the industry as only business oriented forgetting about the technicalities involved. In Asokore Mampong Municipal Assembly, similar issues are faced by clients. It is against this

background that this study seeks to identify and examine the factors affecting contractor's performance on development projects.

1.3 RESEARCH QUESTIONS

In finding solutions to the objectives the following research questions were formulated as a guide

1. What is the level of contractor's performance in Asokore Mampong Municipal Assembly (AMMA)?
2. What is the influencing performance factors affecting contractors in Asokore Mampong Municipal Assembly (AMMA)?
3. What critical success factors can be adopted to improve contractor's performance?

1.4 AIM AND OBJECTIVES

The aim of the research was to determine factors influencing contractor's performance in AMMA. The aim of the research was achieved through the following set of objectives;

1. To examine the performance level of contractors in Asokore Mampong Municipal Assembly(AMMA);
2. To critically examine the factors affecting contractor performance in Asokore Mampong Municipal Assembly(AMMA); and
3. To determine critical success factors for improving contractor performance.

1.5 SIGNIFICANCE OF THE STUDY

Poor performance of contractors has been a challenge for long in the Ghanaian construction industry. The study aims at identifying the influential causes of the challenge of contractor performance and determines critical success factors that would improve contractor

performance in Asokore Mampong Municipal Assembly (AMMA). The findings in this study will be important for various reasons. Firstly, they will provide data for future institutional and policy framework analysis and development regarding contractor performance and industry improvement. Secondly, it will constitute an important addition to the professional knowledge base to facilitate and give direction to future research in construction management.

1.6 SCOPE OF THE STUDY

The scope of the research was limited to the Asokore Mampong Municipal Assembly to identify real causes of poor contractor performance and determine critical success factors for improving contractor performance. The reason for the selection of AMMA was that the researcher was conversant with the area. The study involved key stakeholders like active contractors from the Association of Building and Civil Engineering Contractors of Ghana (ABCECG) and professionals like Quantity Surveyors, Directors, Auditors, Architects, Planning Officer and Structural Engineers who belonged to the various departments in the Municipality. Out of the sixteen (16) departments in the municipality, the study considered five (5) which were; Administration, Finance, Internal Audit, Planning and Works. These target groups served as the key source of information on the issue under consideration.

1.7 RESEARCH METHODOLOGY

Sarantakos (2005) opined that, methodology provides the processes and procedures needed to contextual a study to follow a specific concept and such helps the researcher to choose a preferable route other than others. The research objective required an overview of contractor performance globally, in Africa and in Ghana. In terms of data collection both primary and secondary data was used because works from other researches were reviewed which formed the basis for the formulation of the questionnaire survey.

The study adopted quantitative approach which involved the use of questionnaire to identify real causes of poor contractor performance and determine critical success factors for improving contractor performance.

1.8 ORGANISATION AND STRUCTURE OF THE REPORT

The research work is divided into five (5) chapters. Chapter one focuses on the research conducted and discussed the background of the study. The chapter also discussed the research statement, the research aim and objectives, scope of the study, significance of the study and research questions. Chapter two discussed the review of literature on contractor performance. The literature review is an account of related works published by researchers in the area of the study. The literature review also discovered major problems faced by contractors which affected the level of performance in the construction industries. Chapter three described the research methodology. The research design, process of research, research style, and research approach was discussed in Chapter three. The sample population, sample size, the sampling technique and the development of the questionnaire was described in Chapter three. The chapter explained methods that were used to analyze the data. Chapter four provided descriptive analysis on the data collected. The appropriate relevant statistics used in analyzing and interpreting the collected data was discussed in this chapter. Chapter five presents conclusion of the study. Recommendations, findings and areas for future studies are discussed in this final chapter.

1.9 SUMMARY OF CHAPTER

The entire thesis was introduced in chapter one. Chapter one introduced the background to the study and the research problem. The aim and objectives were also presented. Research

questions were highlighted in order to address the specific objectives. The scope of the study and the structure or organization of the report was further described.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

The literature review first considers the overview of the Ghanaian construction industry in general. Performance of contractors in the Ghanaian construction industry is critically looked at, bringing out definitions and key concepts. It further discusses the problems affecting contractor performance. Finally, critical success factors for improving contractor performance are also discussed.

2.2 THE CONSTRUCTION INDUSTRY

The construction industry has been going through series of innovations for some time now, from the purely technical field to blend of business oriented and technical field. Firms lacking the capabilities to cope with the new environment always roll-up because the industry operates on the survival of the fittest mantra (Lee et al. 2005). According to Navon (2005), there are a lots of intricacies surrounding the industry because it is made up of many stakeholders. Moreover, the industry has the responsibility to spearhead the infrastructure deficit of nations, also one of the drivers of development and a great contributor to Gross National Product. Such can also be said about the Ghanaian Construction Industry because it happens to be one of the sectors that drives the economic status of Ghana through employment and GDP contribution. Samson and Lema (2002), did not mince words by declaring that, as the world approaches the age of sustainability, environmental issues have come to the light and act as a tool of assessing the performance of contractors in the built environment toppled with the intense competition and developing of innovative ideas to improve contractor's performance.

The Bank of Ghana reported in the year 2009 that the construction industry accounted for 10% of Ghana's GDP and remains one of the major routes in job and wealth creation to address socio-economic goals of Ghana (Ahiaga-Diagbui et al., 2011). According to Kheni (2008), labour intensive methods, typically employed in the construction industry in developing countries including Ghana, also makes it most interesting for implementation of government policies relating to job creation. Moreover, the construction industry still has a role in the social and economic growth of every nation, and by acting as a conduit of employment, for all kinds of labour force both skilled and unskilled (Ofori, 2012).

As indicated earlier about the role of the Ministry of Water Resource, Works and Housing (MWRWH) because there are classes of works and also requirement to be fulfilled to undertake a specific project, the MWRWH has developed a criteria by grouping contractors (A, B, C, S, D, K, E and G) based on their services or works they undertake which is known from the Registrar General's registration form. These classification are Roads, Airports, and Related Structures (A); Bridges, Culverts and other Structures (B); Labour based road works (C); Steel bridges and structures: construction rehabilitation and maintenance (S); General building works (D); General civil works (K); Electrical works (E); and Plumbing works (G). Each class is further broken down to 4, 3, 2 and 1 financial classes in increasing order (Vulink, 2004). Moreover, Dansoh (2005) asserted that, road contractors normally perform the job descriptions in class A and B. Class 4 contractors can tender for project with a ceiling amount of \$75,000, class 3 and class 2 have a ceiling of \$200,000 and \$500,000 respectively while Class 1 has no specific ceiling and has the capacity to tender for contracts of all amounts. Interestingly, most of the contractors falling within the class 3 and 4 are owned by Ghanaians and also dominant in the Ghanaian industry with a few class 1 and 2 which are mostly owned by foreigners. In Ghana, local contractors are found in the classes of 3, and 4 because such

firms are able to register with as little equipment as possible and is of sole proprietors, (few cases of partnerships), and normally characterized by high attrition rate. Gyadu-Asiedu (2009) indicated that there are often more jobs within the financial class of 3 and 4 than those in 1 and 2, and because they are the largest, their under or poor performance greatly paints a negative outlook of the industry. Because of this, the MWRWH classification has come under series of critique because it is alleged of not specialize in nature and obsolete with the registration criteria and even lacks frequent updates (Eyiah& Cook, 2003; World Bank, 2004).

The two upper classes (D1 and D2) are well organized, stable and undertake both complex and simple projects. However, their ability to undertake these projects do not necessarily indicates that, they always employ high skilled labour. The Ghanaian-based foreign contractors are able to do this and hence perform better. Vulink, (2004) noted that because of the abysmal performance of local contractors most complex projects in nature are awarded to foreign based contractors because Assibey-Mensah (2008) believes it is as a result of contractors viewing the industry as not a better business venture. Urban infrastructure, transportation systems, electrical installations, telecommunications, buildings, irrigation systems,just to mention few are all different degrees of projects (Khan, 2008)

2.3 PERFORMANCE

2.3.1 Review of Performance

According to Rhinesmith (1992) performance is the accomplishment of a given task measured against predetermined standards of accuracy, completeness, cost, and speed. In a contract, performance is considered to be the accomplishment of an obligation, in a manner that discharges the performer from all liabilities under the contract. The Baldridge National Quality Programme BNQP (2008) describes performance as “outputs and outcomes from processes, products and services that permit evaluation and comparison relative to goals,

standards, past results, and other organisations. BNQP (2008) identifies four (4) types of performance: product and service, customer-focused, financial and marketplace and operational. Prabhu (2000) describes a level of performance where organisations achieve high scores in every area of practice and performance. To achieve international competitiveness in performance, organisations should emulate and surpass the best international companies in their sector (Munro and Munro, 1995). To improve performance, organisations should both measure their performance and benchmarks (Beatham *et al.*, 2004). Bourguignon

2.3.2 Construction Projects and Performance

Success of every project depends to a large extent on the success of performance.

Kumaraswamy (1997) stated that one of the principal reasons for the construction industry's poor performance has been attributed to the inappropriateness of the chosen procurement system. Cheung *et al.*, (2004) identified project performance categories such as people, cost, time, quality, safety and health, environment, client satisfaction and communication. The main performance criteria of construction projects are financial stability, progress of work, standard of quality, health and safety, resources, relationship with clients, relationship with consultants, management capabilities, claim and contractual disputes, relationship with subcontractors, reputation and amount of subcontracting (Thomas, 2002). Chan and Kumaraswamy (2002) stated that construction time is increasingly important because it often serves as a crucial benchmarking for accessing the performance of a project and the efficiency of the project organization.

2.4 CONCEPTUALISING PERFORMANCE MEASUREMENT

According to Thomas (2002) performance measurement is the monitoring and controlling of projects according to regular basis. Kuprenas (2003) also affirmed that project performance

measurement means an improvement of cost, schedule, and quality for design and construction stages. Long *et al.*, (2004) stated that a project performance measurement is related to many indicators such as time, budget, quality, specifications and stakeholders' satisfaction. Navon (2005) also defined performance measurement as a comparison between the desired and the actual performances.

Harrington (1991) attested that performance measures are recognized as an important element of all Total Quality Management programs. Performance measures are a tool to help us understand, manage, and improve what organizations do (Harrington, 1991). Navon (2005) also affirmed that performance measurement provides the information necessary to make intelligent decisions about what has been done. Performance measurement is deeply rooted on standards such as time, cost and quality. Bourguignon (1995) highlighted that performance measurement is regarded as one of those household words in which people try to conceptualise in a manner that favours their concepts and define it in a particular concept. Performance measurement according to Moullin (1990) is the evaluation of how well organizations are managed and the value rendered to customers and other stakeholders. However, performance measurement is also regarded as the process of quantifying the efficiency and effectiveness of past action (Adams, 2002). Hatry (2006) also explained performance measurement as the steady measurement of the outcomes (results) and efficiency of services or programmes.

Despite the numerous definitions suggested regarding performance measurement, the various definitions have their own deficiencies. The purpose of performance measurement is to conduct the regular appraisal that enables the management of results through managing measures. In this regard, performance measurement should not only be considered as a rearview mirror to evaluate past performance but as a tool to support the continuous process of decision making in an organisation. This work adopted the definition as suggested by

Takim *et al.*, (2002) which defined performance measurement as the continuous and consistent collection and reporting of information about the inputs, efficiency and effectiveness of construction projects. Takim *et al.*, (2002) definition of performance measurement presents an opportunity for regular decisions to be taken regarding the efficiency and effectiveness of the inputs applied which is considered as a critical component of any measure adopted for managing for outcome of a procedure or an activity.

2.4.1 Relevance of Performance Measurement

Osborne and Gaebler, (2005), mentioned that failure to measure results means that a distinction cannot be made between success and failure, and if success is not appreciated, it cannot be rewarded. This means that, if success is not rewarded, then, probably failure is being rewarded and the inability to recognize failure means it cannot be corrected. But if results can be demonstrated, then, improvement can be achieved. A major use of performance measurement is to establish accountability so that stakeholders in the construction industry can assess what programmes have been achieved with the funds provided (Neely, 2002). Another major use is to help stakeholders develop and then justify budget proposals that support strategic planning and goal-setting. Performance measurement also helps or assists stakeholders in determining effective use of resources (Neely, 2002). Performance measurement also assists in the improvement of customer service (Hatry, 2006). According to (Greiner, 2007) performance measurement gives a basis for rating the outcomes and competitiveness of programmes or activities. It also stimulates productivity and creativity that is to say performance measures can be used to create new incentives and rewards to stimulate staff's creativity and productivity. Organizations may be able to reduce costs while maintaining or even improving service delivery if they implement creative ideas to reach the performance measurement goals.

Furthermore, performance measurement changes the focus from what is achieved over how the job is completed. This enables administrators to manage and motivate employees to develop or try new ideas that will achieve the stated objectives. Performance measurement can improve the budget process and help to develop budgets that are based on realistic costs and benefits. Performance measurement can also improve the monitoring of organization budgets by measuring whether the budget and expected service levels are being met.

Reporting to the public improves municipal government accountability to taxpayers. Accountability is improved because stakeholders and taxpayers involved can be informed about the achievements and challenges succinctly. Performance measurement also allows managers and administrators to delegate authority with greater confidence because their expectations are clearly stated, and a consistent method for reviewing actual performance. Nassar (2009) posits that, the importance of performance measurement in the construction industry is believed to accrue to the major stakeholders in the industry, that is, the client, consultant and the contractor. To the client, he mentioned that best value for money will be achieved since the project stands the chance of being delivered on schedule and to quality standards as spelt out in the specifications. Performance measurement also provides the client with an objective and consistent means of implementing prequalification process since performance information of different contractors would be available for comparison and selection. To the consultant, Nassar (2009) mentioned that performance measurement will help the consultant to know specific areas of the contractor's performance to focus during construction supervision to ensure a smooth implementation of the project. Also, it will provide the consultant with reliable, accurate and consistent means to assess contractor performance.

Furthermore, to the contractor, Nassar (2009) again mentioned that performance measurement will provide the contractor with an objective assessment of performance with strength and weaknesses pointed out. The contractor will know which areas need strengthening in order to

improve performance. Furthermore, performance measurement will help the contractor to institute improvement measures which will lead to an increase in quality of work, cost effectiveness and efficiency of operations. Results become the focus, leading to a closer review of how service is delivered, how well it is delivered, its costs, and the impacts on the community. Service delivery can be regularly altered or tuned to respond to current taxpayer needs. A focus on client needs causes organizations to rely more on cooperation and partnership. Setting targets improvements in performance can occur simply by setting clear, measurable targets. Improved communication, setting targets, comparisons, a focus on service, and access to a directory of best practices can lead to improved project outcome. Project can be more easily altered and adjusted to the current situation because the changes are revealed earlier.

2.4.2 Benefits of Performance Measurement

- Strategic performance measures monitor the implementation and effectiveness of an organization's strategies, determine the gap between actual and targeted performance and determine organization effectiveness and operational efficiency (Pall, 1987).
- Performance measurement is useful in benchmarking or setting standards for comparison with best practices in other organizations (Pall, 1987).
- Performance measurement reveals problems with bias, emotion, and longevity cover up (Pall, 1987).
- To identify whether suppliers are meeting our requirements (Pall, 1987).

2.5 PERFORMANCE MEASUREMENT AND CONTRACTOR PERFORMANCE

Studies have been done on performance in the construction industry with differing views in its definition. Ahadzie (2007) described performance as the competences required to fulfill a stated goal set by an organization. Salaheldin (2009) also described performance as primarily

fulfilling the primary objectives of a project through satisfying the needs of the client. Swanson (1995) earlier related performance to the end product of an activity through time and quality. Apparently, performance has been linked to productivity because positive productivity is achieved when upon measuring the output of project to a predetermined objectives, the real status of the project is known, the same applies to performance because products can be assessed based on goals, standards and results obtained from similar projects.

Works done on every construction project involves a set of objectives and such determines the project's performance. Dissanayaka and Kumaraswamy (1999) posited that, mostly performances are related to the time and cost indicators of a project. Love *et al.* (2005) also postulated that time and cost are good drivers determining the performance of a project and also established that there is a strong relationship between time and cost in-terms of project performance. Iyer and Jha (2005) also contributed to the study of contractor performance by considering role of cost in determining the performance of a project. Enhassiet *al* (2009) also added that quality, time and cost are the major dimensions of performance. (BNQP, 2008) also believed that performance can be measured based on customer satisfaction, financial status, operation-ability of an organization and the quality of its product.

DETR (2000) and Cheung *et al* (2004) also suggested that the drivers of performance are the financial status of an organization, client satisfaction, health and safety, client environment as well as cost, time and quality. These indicators play around three (3) central themes which are time, cost and quality. It can be considered that these are the most important criteria for determining the performance of a project because it encapsulates the other indicators identified earlier in this section. Notwithstanding that Pheng and Chuan (2006) believes that at least in performance studies, two of the performance indicators can serve as conceptual basis.

2.6 FACTORS AFFECTING CONTRACTOR'S PERFORMANCE

Most construction projects have been blacklisted as underperforming because of materials related problems, drastic and little changes to the design of a project, absence of better leadership strategies, inconsistency and less effective monitoring, poor coordination of various stakeholders and even the socio-economic and political environment (UNRWA 2006). Iyer and Jha (2005) added that the incompetence of project managers, challenges in decision making, inability of the project manager to co-ordinate and adapt the necessary leadership skills, the external environment and even the clients inability to provide the required brief for the project.

Okuwoga (1998) opined that, the main problematic factors are inability to develop workable budget and developing better time control techniques. Dissanayaka and Kumaraswamy (1999) also asserted that, external environment, the procurement system, the characteristics of a project, the client's representation, and the contractors themselves form part of the factors affecting project performance. Enhassiet *al* (2009) also identified that, the material prices, delays, inexperience skilled labour and leadership qualities are the major contributors of poor performance. Long *et al* (2004) also attributed performance problems to site management issues, inaccurate estimation, change of project scope, technology and incompetent designers and incomplete designs.

Sidawi (2012) also studied on construction project and classified the major problems as human resource factors, project objectives factors and procurement and risk management factors. In details, mistakes, poor quality of works, unskilled labour, and resource related problems and change in scope of project. Delays affect the performance of a project through slow decision making, unrealistic contract duration, improper planning of works contractors' in-experience, poor site management practices as well as materials management challenges (Sambasivan and Soon, 2007). Olawale and Sun (2010) also delved into factors inhibiting against cost and time

performance of construction projects, which revealed that project complexity, changes in scope and design, unrealistic duration of project, lack of training and in-experience of contractors, disagreement between parties to the project, inflation of material prices and others. Navon (2005) indicated that the main performance related problems can be associated or classified under planning and construction. In addition, the conduit used in identifying performance factors can be through establishing control systems. When the project within the system can be described as performing and vice versa.

Stojcetovic *et al.* (2014) opined that, the contractor is the major stakeholder when it comes to the implementation of the project and hence the satisfaction of the contractor affects the performance of a project. It was also suggested that, unrealistic duration of a project can lead to pressure on the contractor to crash the programme of works for the project which might lead to either changes in the scope of the project, reworking due to defective works or abrupt halt of project. These factors identified are also variables which tend to affect the time, quality and cost indicators of project performance. Stretton (1984) also posited that, culture also affect the performance of contractors because culture put pressure on them to employ relatives who have no business in the built environment. The inability to adhere to such pressure usually leads to the neglect by family which from the objective point of view has needed effect on the project. This is also in line with employing unskilled, unqualified and inexperience person to work on projects.

Cheung *et al* (2004) asserted that, a lot of factors exist in identifying performance related studies in construction; however, their study moved a further step by categorizing them into people, cost, time, quality, health and safety, environment, client satisfaction and communication. People factor is related to shortage of personnel, unskilled labour. Inadequate supervision of projects, inability to careful strategizes for a project. Cost related issues are

geared towards client delaying the payment of work done, unavailability of fund, inaccurate estimations which results in cost overrun. Unrealistic duration of project, inability to achieve activities on the critical path. Quality related issues also can be argued by using unspecified material or materials of low standard.

Communication is the vein of organization, without it organizations will not achieve any better results because communication can be related to the blood of the human body. According to Fryer (1985) poor communication affects the performance of a project, for instance a distorted message will not give the expected feedback. Most at times communication between the project stakeholders such as contractors, clients and consultants experience, such challenges especially when there is an un-cordial relation between or conflict between these key stakeholders to a project. In another perspective whenever communications between head office and the site supervisor is distorted, it can affect one of the dimensions of the project. Moreover, releasing information to the wrong person may also affect the performance indicators of the project. It has also been argued that, when the channel of communication is lengthy the central theme of the message losses its essence from the first communicator to the last person on the channel. The key stakeholders are the forerunners of the projects, which can also be phrased that good or poor performance of projects rest on the shoulders of the contractor, client and the consultants. Studies have shown that, before these stakeholders come together to form a team, there is a contract which requires these stakeholders to fulfil a specific role on the project. Suggesting that, each stakeholder is bound to fulfil their part of the deal rather than ignoring them, issues such as formulating design brief, all payments relating to the project, variations emanating from the client, securing of project are mostly the expected role of consultants.

Design of the projects, preparation of the bills of quantities, supervision, seeking approvals from authorize bodies are also done by consultants (Fugar and Agyakwah-Baah, 2010).

Interestingly, the client and the consultants undertake most of their roles at the initial stages of the projects, any mistake done by these people in the execution of the project can infringe on its progress. Although Fugar and Agyakwah-Baah (2010) study was on delays of construction projects but it can be accepted that, performance of projects are achieved when the objectives realized from the brief of the project and designs are done accordingly however inability to do the correct will results to delay of the payment. In other words construction delays are subset of the problems affecting the performance of projects. Their study revealed that financing issues, equipment, materials, variations of any form, environmental factors, governmental and personnel factors are the main heading of activities affecting the performance of project. ILO (1987) also declared that, the role of consultants are very important to the success of a project. The supervisory role is tasked to the consultant, the requirement for such role is experience, good qualities of a leader and the ability to communicate. Consultants are required mostly on the project site especially whenever a major activity in the project is to be executed which might require the approval of the consultants. In the absence of the consultants many contractors execute shoddy works which create intense tension on site when contractors are ordered to re-undertake such activities.

The absence of the consultant can be a big blow to the project.

Miles (1980) suggested that, conflict between client and contractors or un-cordial relationships between the client and the contractor kill the spirit of the projects. A tussle between these two stakeholders mean there is danger on the project because such issues predate or leads the project on the path delay. Aggression between this project stakeholders ends in project abandonment, legal dispute, time overrun, cost overrun and termination of contract which are all negative consequences of poor project performance. Contractors then become victimized since all future projects to be undertaken by such clients would not the right environment for the contractor to

bid because of the broken relationship. Ofori (1991) indicated that, most construction projects especially in the developing projects are undertaken by the government. However, government experiences financial challenges which are shown in delay of unpaid certificates which negatively affect the cash flow of contractors. The inability to complete a project within the stipulated time frame due to some causes of the parties involved can be described as delay. Not selecting the competent subcontractors, poor management of the project changes, lack of mechanism for recording, analyzing and transferring project lessons learned, delay in forwarding material and equipment to the site, delay in awarding subcontractor's contracts, poor management of site, poor management of project contract were identified as the causes of delay in the construction industry (Afshari *et al.*, 2011).

Baccarini and Archer (2001) identified some risk factors in his research which are; uniqueness of the product, complexity of the deliverables, financing, adequacy of funds, project location, project surroundings, hazardous materials, definition of projects, site availability, project justification, project approvals, client's experience, client relationships, availability and competency of contractors, procurement method, consultant selection and stakeholders interest. As Smith *et al* (2006) earlier stressed that, project evolves in environment which has the capability of growing due to technological advancement, new methods and tools, new markets, increased competition, demanding customers and increasing complexity. Before a contract is awarded, the financial status of contractors are assessed but it appears that contractors still complain about financial difficulties and their inability to access financial supports from financial institutions (Miles, 1979).

According to Ofori (1991) such challenges is faced by contractors in developing countries because most contractors do not have asset to act as collaterals in securing loans from financial institutions. As a results of this, small contractors bid for all form of menial works to

accumulate enough fund for future projects. Moreover, it has been suggested that, the procurement route adapted in the selection and systems involved has a direct bearing on the performance of the project since the strategies used in selecting a contractor whether based favouritism or experience produces results that might kill the vision of the projects or vice versa. Leadership in-experience, breakdown and lack of equipment, low level of manpower skills, poor project supervision and improper site management have also a repercussion on the performance of project (Faridi and El-Sayegh 2006). These are all causes of delays that have been identified in the United Arab Emirates conflict among project stakeholders, unskilled labour, contractor's incompetence and inexperience was also identified in the building sector of the South African economy as factors leading to poor project performance (Hanson *et al.*, 2003). Earlier Ofori (1990) contributed to project performance studies by indicating the effect of technology on a project, innovations have sprung out from the construction with a sole aim of maximising project and making new ways of executing an activity more efficient. In simple terms low level of technologies undermines the construction industry from realising its potential in terms of what it can do and what it cannot. The use of new technologies reduce the time taken for an activity, reduces human personnel and even reduces extra cost of construction.

CIDB (2007) also took the factors affecting project performance from the external environment such as government policies, legal frameworks, change of government. OforiKuragu (2013) also postulated some problems affecting performance in the construction industry as unavailability or low technology, variations in bills of quantities, improper or inadequate planning towards a project, project supervision issues, low level of skilled labour and amongst others. Chan et al (2004) posited that factors affecting project performance can be classified under costs, technology and process. Moreover, Odeck (2004) also suggested that the complexity of the projects leads to management challenges. Flyvbjerg *et al.* (2003) also pointed

out that complexity of project, inaccurate estimates, materials shortage and delivery, fluctuation in material prices are factors mitigating against performance of projects. Poor project performance can also be attributed to low productivity, change of government and inflation of cost parameters of the project.

2.7 CRITICAL SUCCESS FACTORS FOR IMPROVING CONTRACTOR'S PERFORMANCE

The positive status of a project shows the success of a project although, issues can be raised about what constitute success. Critical success factors according to Yong and Mustaffa (2012), is applied in industry in specific areas because the measurement tools developed cannot be used to monitor the success of project in all industry and different countries since the business environment differs from one country to the other. Success was limited to quality service provided by the contractor and the satisfaction of the client or the building owner (Al-Momani, 2000). These idea of Al-Momani suggest that, a project is successful provided all the stakeholders to the project especially the client and contractor are satisfied with the physical structure produced. However, emphasis must be made on the client's satisfaction because in the business arena, you are successful only if your customer accept and approve of your work done.

Chua *et al.* (1999) identified the project stakeholders such as clients, manufacturers, opinion leaders, contractors, consultants amongst others suggest that critical success factors can be considered from the characteristics of the project stakeholders. Critical success factor of a project can be limited to technology, knowledge management, selection criteria of contractors and the external environment (Nitithamyong *et al.*, 2004). Walker (1995) also considered the experience of the representatives of the client and consultants since the instructions offered by them are mostly adhered to by the contractors.

Dissanayaka and Kumaraswamy (1999) also opined that because the client is a major stakeholder with regard to a project, financing of a project, client's understanding of the construction process, client knowledge of the construction team, complexity of the project as well as well-defined scope of project should be considered in developing project success criteria. Yong and Mustaffa (2012) also identified key factors to be considered in developing criteria for project success as financial standing of the client, contractors ability to control subcontractors, consultants competence, consultants ability to coordinate all stakeholders of the project, commitment from all stakeholders, availability of skilled labour from the contractors end, adequate design and specifications, effective and efficient communication among stakeholders and weather conditions.

Garbharran *et al.* (2012) also studied on CSF in the construction industry, they opined that there are four C that act as criteria for determining CSF in the construction industry, which includes comfort, competence, communication and commitment. The study furthermore expounded on the details of the four C's, in terms of comfort, adequacy of contract document, availability of funding, availability of resources, involvement of stakeholders and competency of project leaders were raised. Competence also addresses the utilization of modern technologies, past experience and awarding contract to right and qualified contractor.

Commitment was also considered from the perspective of management support, clear and concise project objectives as well as support from all stakeholders. Finally, declaring and sharing the vision of the project, project meetings, constant update of project plans and effective handover procedures are expected in the communication criteria of CSF.

Hassan (1995) was noted to have said, teamwork is a criteria in measuring CSF of construction project. Project does not happen in isolation since it requires the contributions of different people from different professional background such as the architect, construction

manager, owner as well as subcontractors. Without the contribution of these stakeholders the project will be in a limbo and subsequently affect the project objectives. Dissanayaka and Kumaraswamy (1999) added that availability of an effective cost and time control systems, the experience of the contractor, free flow of information among project stakeholders, effective supervision, well laid out and effective site management practices and cash flow of contractors are better tools in determining the success of a project.

Human related factors are crucial in determining the success of a project since human convert all other resources into the physical edifice (Pheng and Chuan, 2006). Pakseresht and Asgari (2012) also classified CSF criteria into the following factors, employer, project management, consultant, and contractor and environmental related. Moreover, the emerging factors from the study suggest that financial payment, quick decision making, and strategic planning, experience of the project manager and the economic assessment of the project can be used to ascertain the success of project. Health and safety, capabilities of top management, contractual disputes, relationships between stakeholders, service quality are criteria for measuring the success of construction projects (Thomas, 2002).

Mbugua *et al.* (1999) asserted that, in developing a measurement for CSF, financial and nonfinancial measures come into play, however, emphasis must be made on people, employer, client, the project itself, business factors and result factors of the project. Chileshe and Haupt(2005)also argue that technical, project control, commercial, organizational and people are the main criteria for CSF using Structural Equation Modelling (SEM) method of statistical analysis.

The New South Wales Government (1998) intends to engender focus on the following as part of their strategy to develop the performance of its industry: management and workforce development; workplace improvement; industrial relations; health and safety, and

environmental management. In terms of a contractor's perspective, The Associated General Contractors of America (1992) advocates Total Quality Management (TQM) as an approach to improve overall contractor performance. TQM has as its main thrust in continuous improvement in health and safety, productivity, quality, and employee and client satisfaction. The TQM mission in construction is to construct a quality product – an error-free one – for the customer by preventing errors in the construction process. TQM is the linkage of the processes, which deal with health and safety, productivity, quality and satisfaction, with the real benefit being the synergy between them (Levitt and Samelson, 1993).

2.8 INDICATORS OF PERFORMANCE MEASUREMENT

Bean and Gerathy (2003) presented that according to their experience; Key Performance Indicators (KPIs) are valid and effective when applied in a consistent and comprehensive manner. Further, they declared that financial performance must be respected as the critical measure of the success for every business but financial KPIs are closely related set of operational metrics. Bauer (2005) stated that once KPIs have been defined and formalized, business leaders may feel that KPI battle is won. Where possible, KPI targets must be based on concrete data and non-manipulative formulas. Griffin (2004) pointed out that there should be a direct link from KPIs to goals, from goals to objectives and from objectives to strategies.

Skibniewski and Ghosh (2009) defined that all KPIs should impact a business decision in some time scale, depending on the window of time available. That makes the decision process difficult from the decisions made under no time constraint. Organizations should identify areas of business processes that are the most critical to the financial success of the organization. Furthermore, KPIs can be divided into lagging and leading indicators. According to Kaplan and Norton (2007), leading indicator is a metric that mainly refers to future developments and

driver/causes whilst lagging indicator is a metric that mainly refers to past developments and effects/results, e.g. reflects history and outcomes of certain actions and processes.

Bauer (2004) emphasized that one of the key concerns during implementation of KPIs is the ability to differentiate more important strategy-driven metrics from the plain vanilla metrics. Selection of the wrong metrics for KPIs can significantly damage or even subvert a performance management initiative. Eckerson (2007) in his paper claimed that metrics are powerful forces that can drive change in an organization – but only if the right metrics are developed and applied. The wrong metrics can wreak havoc on an organization's processes and demoralize employees.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The general research approach, methods of analysis, discussion and the methods of data collection are described in chapter three. The methodology used in investigating into contractor's performances deployed within the Ghanaian construction industry was explained by the researcher. The research methodology focused on the population of the study, Data collection instrument, sampling techniques, administration of the research and data analysis techniques.

A case study is an empirical enquiry that allows for investigation of the dynamics of a particular system (Hagget, 1977). It is economical and convenient for the research. Merriam (1988) had stated case study does not claim any particular methods for data collection or data analysis. All methods of gathering data from testing to interviewing can be used in a case study, although certain techniques are used more often than others. Research which focuses on discovery,

insight and understanding from the perspective of those being studied offers the greatest promise of making significant contribution to the issues studied.

3.2 PROFILE OF THE ASOKORE MAMPONG MUNICIPAL ASSEMBLY

The profile of Asokore Mampong Municipal Assembly covers issues on physical and natural environment, culture, settlement systems, economy, food security, governance, social services, vulnerability analysis, information and communication technology, HIV and AIDS, gender, environmental, climate change and green economy, population, science, technology and innovation, security, disaster, water security and migration.

3.2.1 Establishment

The Asokore Mampong Municipal Assembly was carved out of the Kumasi Metropolitan Assembly and was thus created as a result of the implementation of the Decentralization Programme on June 29th, 2012. The Municipality was established by a Legislative Instrument, (L.I) 2112.

3.2.2 Physical and Natural Environment

The physical and natural environment looks at the description of interreaction between human and the physical environment and its development implication considering the location and size, climate and vegetation of AsokoreMampong Municipal Assembly.

3.2.3 Location and Size

The Municipality covers a total land area of 23.91 km² and it is located on the North-Eastern part of the Kumasi Metropolis. The assemblies shares boundaries with Kumasi Metropolitan Assembly (KMA) to the East, South and West, Kwabre East Municipal to the North-West and Ejisu-Juabeng Municipal Assembly to the South-East. Although a small land size, the Municipality has a population of 304,815 (Population and Housing Census, 2010) with 10

electoral areas namely; Aboabo No.1, Aboabo No.2, Adukrom, Akurem, AsokoreMampong, Sawaba, Asawasi, New Zongo, Sepe-Tinpom and Akwatialine Electoral Areas.

3.3 RESEARCH DESIGN/STRATEGY

Research strategy is a plan used by a researcher to address research questions during the data collection process (Saunders *et al.*, 2007). According to Naoum (1998), the strategy of a research is defined as the way in which the research objectives can be questioned. The research design employed for this study was descriptive research strategy. This describes the characteristics of a population being studied. Descriptive research does not fit neatly into the definition of either quantitative or qualitative research methodologies, but instead it can utilize elements of both, often within the same study. The term descriptive research refers to the type of research question, design, and data analysis that will be applied to a given topic. Descriptive research can be either quantitative or qualitative. It can involve collections of quantitative information that can be tabulated along a continuum in numerical form. Descriptive studies are aimed at finding out "what is," so observational and survey methods are frequently used to collect descriptive data. There are three ways a researcher can go about doing a descriptive research project, and they are:

- **Observational** which is defined as a method of viewing and recording the participants;
- **Case study** which is defined as an in-depth study of an individual or group of individuals; and
- **Survey** also defined as a brief interview or discussion with an individual about a specific topic

3.4 RESEARCH APPROACH

The two types of research approaches that exist are; quantitative research and qualitative research (Naoum (1998). Creswell (1994) has given a very concise definition of quantitative research as a type of research that is `explaining phenomena by collecting numerical data that are analysed using mathematically based methods (in particular statistics). Quantitative research was the approach adopted for this study. Fugar (2010) stated that quantitative research involves the use of structured questionnaires where the response options have been predetermined and a large number of respondents are involved. It can also be described as a process of inquiry based on testing a theory composed of variables, measured with numbers, and analyzed using statistical techniques. The aim was to develop generalization that contributes to theory that enables the researcher to predict, explain and understand phenomenon. The researcher remained distant and independent of what was being researched. Questions concerned with quantitative research are: How much? How often? To what extent? Collection of numerical data in order to explain, predict and or control phenomenon of interest are said to be characteristics of quantitative research. Data analysis is mainly statistical; the result of research is number or a series of numbers presented in graphs and tables or other forms of statistics (Abawi, 2008).

3.5 RESEARCH STYLE

The research style adopted for the study was the case study research. A case study is a process or record of research in which detailed consideration is given to the development of a particular person, group, or situation over a period of time. It is also a particular instance of something used or analyzed in order to illustrate a thesis or principle. A case study involves an up-close, in-depth, and detailed examination of a subject (the case), as well as its related contextual conditions. Case studies appear with great frequency throughout popular works, with nearly anybody able to claim to have done one. Case studies also can be produced by following a

formal research method. These case studies are likely to appear in formal research venues, such as journals and professional conferences, rather than popular works. In doing case study research, the "case" being studied may be an individual, organization, event, or action, existing in a specific time and place.

According to Kardos and Smith (1979) a good case has the following features:

- It is taken from real life (true identities may be concealed);
- It consists of many parts and each part usually ends with problems and points for discussion. There may not be a clear cut off point to the situation;
- It includes sufficient information for the reader to treat problems and issues; and
- It is believable for the reader (the case contains the setting, personalities, sequence of events, problems and conflicts)

The case study was then conducted on contractor performance in the Asokore Mampong Municipal Assembly to enable the aim of the research to be achieved. The present study used the case study in order to determine the critical success factors for improving contractor performance.

3.6 THE POPULATION OF THE STUDY

A population is any group of people, events or things that are of concern to the researchers which they wish to investigate (Sekeran, 2000). It is for the advantage of the population that we undertake research, a population is usually a well-defined collection of individuals or objects known to have similar characteristics. The Asokore Mampong Municipal Assembly has almost all the departments represented in the Assembly. These decentralized departments take care of activities within the municipality that fall within their scope of operations. These departments are Finance, Works, Administration, Procurement, Internal Audit, Planning and Budget Unit, Information Service Department, Agric, Town and Country Planning, Social

Welfare and Environmental Health. These departments contribute to the running of the Municipality as a whole. The population of workers in the Asokore Mampong Municipal Assembly is 70. Registered Contractors in the Asokore Mampong Municipality are classified into general building works, drilling of boreholes and dual desk suppliers. The researcher concentrated on projects undertaking by the building contractors. The populations of registered building contractors are currently at fifty-five (55). The projects they are executed include the Construction of One number (1No) Police Station at Aboabo; Construction of Two Storey Court building at Aboabo; Construction of eighteen (18) seater W.C at Nima; Construction of Three number(3No) Mechanised Borehole at Aboabo and Asokore Mampong; Construction of Two(2) Bedroom Semi-Detached Quarters for municipal staff at Asokore Mampong; Construction of Municipal Co-ordinating Director's Residence with Boys Quarters at Asokore Mampong; Construction of Sick Bay and Nurses Quarters at Kumasi Academy Senior High School; Construction of One number(1No) Three Storey Office for AsokoreMampong Municipal Assembly; Construction of One number (1No) SixUnit Classroom Block atSepeTinpom M/A Primary School; Construction of Two Storey Twelve Unit Classroom Block with Office Storey and Staff Common Room at Adukrom Primary School etc. The researcher would concentrate on ongoing and completed projects.

DEPARTMENT	NUMBER
FINANCE	6
WORKS	13
ADMINISTRATION	8
PROCUREMENT	2
INTERNAL AUDIT	4
PLANNING AND BUDGET	6
INFORMATION SERVICE	6
AGRIC	10
TOWN AND COUNTRY PLANNING	3
SOCIAL WELFARE	5
ENVIRONMENTAL HEALTH	7
TOTAL	70

Source: Central Administration Asokore Mampong Municipal Assembly

3.7 THE SAMPLE USED IN THE STUDY

A sample is a subset of the population in question and consists of a selection of members from the particular population (Sekaran, 2000). Sampling is described as the selection of a proportion of the total number of units of interest for the ultimate reason of being able to draw general conclusions about the total number of units (Parasuraman, 1986). The concept of sample arises from the inability of the researchers to test all the individuals in a given population. The sample must be representative of the population from which it was drawn and it must have good size to warrant statistical analysis. The main function of the sample is to allow the researchers to conduct the study to individuals from the population so that the results of their study can be used to derive conclusions that will apply to the entire population. It is much like a give-and-take process, the population gives the sample and it “takes” conclusions from the results obtained from the sample. The target of the study were active contractors whose works were watched, and selected staff of the Municipal Assembly who share out with the contractors like finance, central administration, planning, internal audit and works department.

<i>TARGETED DEPARTMENTS</i>	<i>NUMBER</i>	<i>RESPONSES</i>
<i>ADMINISTRATION</i>	<i>8</i>	<i>8</i>
<i>FINANCE</i>	<i>6</i>	<i>6</i>
<i>INTERNAL AUDIT</i>	<i>4</i>	<i>4</i>
<i>PLANNING</i>	<i>4</i>	<i>4</i>
<i>WORKS</i>	<i>13</i>	<i>13</i>
<i>TOTAL</i>	<i>35</i>	<i>35</i>

Source: Field work, 2015

In addition to the above Table, the Municipality consisted of **17** active contractors.

3.8 SAMPLING TECHNIQUES

In selecting the sample from the population, a non-probability sampling technique was adopted.

Non – probability sampling is a sampling technique where it is not known which of the units will be picked to be sampled, and where some of the units have a zero probability of being chosen. A core characteristic of non-probability sampling techniques is that samples are selected based on the subjective judgement of the researcher, rather than random selection (i.e., probabilistic methods). Purposive sampling is primarily used when there are a limited number of people with expertise in the area being studied. Considering the scope and objectives of the study, purposive sampling procedure was deemed appropriate for the study hence adopted in getting the sample out of the population.

3.9 INSTRUMENT ADMINISTRATION

According to Shaughnessy and Zechmeister (1997) researchers are opened to different methods of administering questionnaires. Questionnaires can be administered through postal mail, telephone interviews, internet or self – administered.

The questionnaires were administered by the researcher (self-administering) after the researcher explained to the respondents that the research was purely for academic purpose and for that matter responses were to be treated confidential. In total **35** questionnaires were administered. An interview guide was employed for the active contractors. The researcher was able to interview fifteen (15) contractors out of the 17 active ones which represented 88% response rate.

All the 35 questionnaires representing 100% response rate were retrieved. A copy of the questionnaire can be found at Appendix 1. Some of the questionnaires were retrieved on the spot while the rest were retrieved five (5) days after their administration. Reminders were

constantly sent to respondents and after one week twenty (20) were retrieved. The total number of responses received out of the fifty-two was fifty (50).

3.10 DATA COLLECTION TOOL

Many collection tools are used for collecting data. They include interviews, observations, structured and unstructured questionnaires etc. For the purpose of this study, questionnaire and interview were the main data collection instruments. Questionnaire is a data collection technique or an instrument which involves the preparation and use of series of questions to gather information on a subject from a target group. Questionnaire survey was employed for the study because it is easier and guide respondents to make their contribution within the context of the study. Moreover, questionnaire survey helps researchers to generalize their findings. Furthermore, it helps researchers to reach many respondents. The researcher used structured questionnaire with closed-ended question. Some of the questions required the respondents to rank the answer obtain. With the structured or close ended questions, all the questions and answers were specified. The interview guide was designed for the contractors which were read out to them to give their response.

3.11 DESIGN OF QUESTIONNAIRES

A questionnaire is a formalized set of questions for obtaining information from respondents. It includes instructions for its completion, response alternatives where appropriate and specific means for recording responses (Frazer and Lawley, 2000). Oppenheim (1992) described questionnaire formulation as an integral part of the research design stage. Unfortunately, questionnaire design has no theoretical base to guide the researcher in developing a flawless questionnaire. The questionnaire was developed in line with the objectives of the study after literature review. The questionnaire was designed for both contractors and staff members of

some selected departments in the Asokore Mampong Municipal Assembly. The collection tool was in two forms; an interview guide and a questionnaire.

3.11.1 THE INTERVIEW GUIDE

The guide was structured for active contractors in the municipality whilst the questionnaire was generated for the staff members. The interview guide was in 2 Sections which were;

- Section A; and
- Section B

Section A consisted of questions on the demographic characteristics of the contractors which were used to assess the credibility.

Section B ascertained the level of performance of the contractors. Some of the questions asked were:

- How often do officials of the Assembly visit the project site?
- What was the duration given for the completion of your previous project?
- Were funds readily available as and when needed to continue with the project?

3.11.2 THE QUESTIONNAIRES FOR THE STAFF

The structured questionnaire was also divided into four sections: Section A, Section B, Section C and Section D.

Section A consisted of questions on the demographic characteristics of the respondents. This was meant to assess their credibility.

Section B ascertained the level of performance of the contractors from the staff. Some of the questions asked were:

1. How would you assess the performance level of contractors in terms of meeting delivery time limits of the clients of the assembly?

2. How would you assess contractor performance level in respect of quality of the work output?

Section C also had thirty-two (32) problems affecting contractor performance. The researcher enquired from the staff what they thought were the most problematic factor affecting contractor's performance. The factors were ranked on a likert scale of 1 to 5 where 1=never, 2= rarely, 3= occasionally, 4= often and 5= always.

Section D consisted of twenty-six (26) success factors for improving contractor's performance. The researcher enquired from the staff what they thought could be done to address contractors performance. The success factors were ranked on a likert scale from 1 to 5 where 1=never, 2= rarely, 3= occasionally, 4= often and 5= always.

3.12 DATA ANALYSIS

The study use both descriptive and mean score ranking to analyze the data collected from the study. The analysis was aided by the use of the Statistical Package for Social Scientist (SPSS) and the Microsoft Excel software packages.

The data collected was edited, sorted, and coded. The basis for deviations from the common trends running through the responses was established from the analysis using Mean Score ranking and standard deviation. The researcher analyzed the data by these central tendencies on the responses from the survey, standard deviation, mean score, frequencies and percentages. Tables and bar charts were used to present the results. The study made use of the **Relative Importance Index (RII)** on the problems affecting contractor's performance.

3.13 SUMMARY

Chapter three discussed the methodology used in answering the main research question. A quantitative research design was used and the research strategy discussed. The design of the questionnaire, interview guide and sample procedure was discussed.

Chapter four presents the results of discussions on the findings of the study.

KNUST

The logo of KNUST (Kwame Nkrumah University of Science and Technology) is centered in the background. It features a red flame on a black base, with a yellow eagle with spread wings below it. A yellow banner at the bottom contains the text 'KNUST' and 'WISDOM BEGETS NO FEAR'.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 INTRODUCTION

The focus of this chapter is on the analysis of data gathered from the field with the aid of questionnaires. A questionnaire was issued to sampled respondents representing some randomly selected contractors on various projects at Asokore Mampong Municipal Assembly. This chapter now introduces the data analysis and discussions of results using Statistical Package for Social Sciences (SPSS) and Excel. The demographic data was analyzed using descriptive statistics and Relative Importance Index. The survey focused on some selected contractors working currently at the Asokore Mampong Municipal Assembly. The data presented in this section of the study was obtained from the responses of the fore mentioned respondents to the questionnaires.

4.2 RESPONSE RATE

The study comprised of interviews and questionnaires. Seventeen (17) interview guides and thirty-five (35) questionnaires. All the thirty-five (35) questionnaires were responded to but for

the interview guides, fifteen (15) were retrieved from the seventeen (17). The questionnaires were self-administered by hand and in all fifty (50) were received. The response rate acquired from the interview and questionnaires was 96.1% representing more than half of the total data instruments developed.

4.3 MUNICIPAL ASSEMBLY CONTRACTORS INTERVIEW GUIDE

4.3.1 Years of Experience

Table 4.1 below shows the total number of years respondents have been practicing in the municipal assembly. From the data obtained it is shown that four (4) respondents constituting 26.6% of the total responses have been with the Municipal Assembly for five years or less, 8 (i.e. 53.3%) of the respondents have been practicing actively in the Municipality for six (6) to ten (10) years, 3 (20%) have also been practicing with project teams for 11 – 15 years, and none of the respondents have been with the Municipality for more than fifteen years. Comparing the number of years of the staff to that of the contractors in terms of the years of experience, it is noted that a significant number of both the staff and the active contractors have been with the Assembly for 6 years to 10 years. This shows that the staff of the

Municipality are in better positions to access the performance of the active contractors. *Table 4.1: Years of Experience*

<i>Years of experience</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Valid percent</i>	<i>Cumulative Percentage</i>
<i>Up to 5 years</i>	4	26.6	26.6	26.6
<i>6-10 years</i>	8	53.3	53.3	79.9
<i>11-15 years</i>	3	20	20	100.0
<i>16-20 years</i>	0	0	0	
<i>Over 20 years</i>	0	0	0	
<i>Total</i>	<i>15</i>	<i>100.0</i>	<i>100.0</i>	

4.3.2 Level of Education

The purpose of this question was to identify the highest level of education of the respondents because the level of education of the respondent affects the quality of responses they provide. Figure 4.1 indicates the maximum level of education of the respondents. 14% indicated they held postgraduate certificates (MSc), whilst the majority of the respondents constituting 70% indicated they also held university certificates (BSc). However, the remaining 16% of the respondents had completed polytechnics (HND).

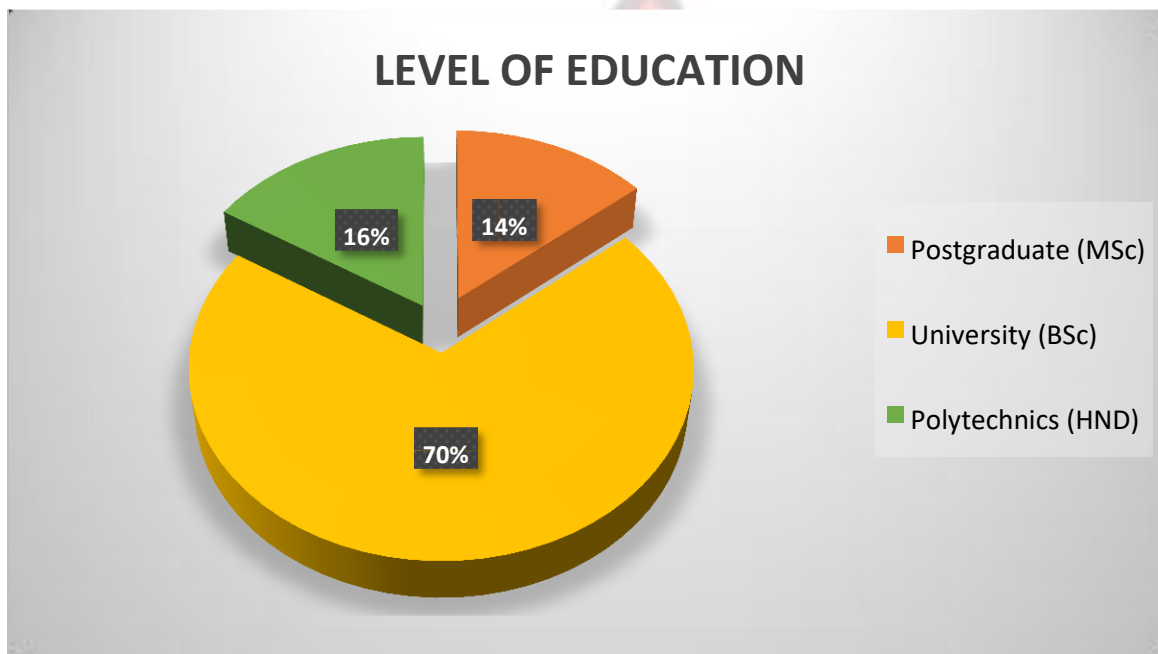


Figure 4.1: Level of Education of Respondents

4.3.3 Professional Bodies

Respondents were asked to indicate which professional bodies they were affiliated to in the construction industry. However, majority of respondents representing 40% indicated they were affiliated to GhIE whilst 6.7% indicated GhIS. The Institute of Industrial Engineers recorded 13.3%. 2 of the respondents constituting 13.3% belonged to the Ghana Institute of Construction. The remaining 20% of respondents also indicated they were affiliated to CIOB.

Table 4.2: Professional Body Affiliations of Respondents

Professional Body	Frequency	Percentage	Valid percent	Cumulative Percentage
<i>GhIS</i>	1	6.7	6.7	6.7
<i>GhIE</i>	6	40.0	40.0	46.7
<i>GIA</i>	1	6.7	6.7	53.3
<i>GIOC</i>	2	13.3	13.3	66.7
<i>CIOB</i>	3	20.0	20.0	86.7
<i>IIE</i>	2	13.3	13.3	100.0
Total	15	100.0	100.0	

4.3.4 Contractor Category

The type of contractor category determines if the contractor belongs to a small firm or a large firm. Eyiah and Cook (2003) identified financial class 1 contractors in Ghana (made up mainly of foreign firms) as large contractors. They note that although classes D2K2, D3K3 and D4K4 contractors are different, based on financial capabilities, they possess similar characteristics in terms of managing their businesses hence they could all be categorised as small and medium scale enterprises. The Table below shows that the AsokoreMampong Municipality employs the services of contractors in good standings who can undertake various projects from inception to completion.

Table 4.3: Category of Contractors

Contractor Category	Frequency	Percentage	Valid percent	Cumulative Percentage
<i>Class D1K1</i>	3	20.0	20.0	20.0
<i>Class D2K2</i>	8	53.3	53.3	73.3
<i>Class D3K3</i>	4	26.7	26.7	100.0
<i>Class D4K4</i>	0	0	0	
Total	15	100.0	100.0	

4.3.5 Permanent Skilled Professionals

Active Contractors in the municipality were asked to provide whether they use the service of skillful professionals on site. This question was asked to ascertain the level of validity of information provided by workers in the Municipal Assembly (with regards to the competency of the labour they use). To this particular item, all the contractors responded “yes”. This response can be linked to the reason why data from the participants “Incapable to compete with foreign owned firms” ranked 31. To the contractors, they were in every position to compete with foreign based firms.

4.3.6 Visit by Officials to Site

Data collected from the interview of the active contractors showed that the Municipality officials rarely came to visit the site when projects were on-going. The officials only came to site when they were invited by the contractors. From the data of the staff in the municipality, Table 4.6 Showed that “Inadequate supervision” was one of the major factors affecting the performance of the contractors. Inadequate supervision ranked 4th making the item a very significant consideration by the officials.

4.3.7 Access to Plants and Equipment

The active contractors interviewed for the purposes of the study in the municipality indicated that they have access to plants and equipment when required. The reason for this is that most of them owned the plants and equipment used on projects. Their major problem was with the delivery of construction materials when projects were on-going.

4.3.8 Duration of Project and Actual Time taken to complete

Most of the contractors (62%) used in the study were given less than a year to complete their projects which was indicated from their data gathered. When asked how long it took contractors

to complete the projects, 20% indicated that they used six months, 42% used more than one year while the remaining 38% used two years.

4.3.9 Access to Funds for Projects

70% percent of the contractors said “NO” when asked if funds were readily available for projects. The important reason given for not being able to access funds for project is “delay in payment”. Most of the works, comprising construction, maintenance and refurbishment are from the public sector. Consequently, they are likely to be greatly affected by the state of the country’s economy because of, for example, changes in the government’s expenditure policy (Ruddock, 1992:93) and differentiation of prices. As most government agencies experience financial problems, there are delays of payments to contractors – with a consequent adverse effect on the contractor’s cash flow (Ofori, 1991). This then affects the operation of the contractor, ultimately hindering the projects from being delivered as required. Contractors further stated that they contract loans from the banks to undertake the projects with its own attending problems.

4.4 QUESTIONNAIRE FOR THE ASSEMBLY STAFF

4.4.1 Years of professional practice of Respondents

This question was asked in order to identify the years of professional practice of the respondents from the municipality. The data obtained revealed that out of the thirty-five (35) respondents, twelve (34.3%) had 6-10 years of experience, about 31.4% also attested to the fact that they had less than 5 years of experience, while 25.7% of the respondents also said they had 11-15 years of experience, and finally 8.6% of the respondents confirmed that they had 15-16 years of experience. The experience of the respondents in the context of this research is determined as the number of years of professional practice and active involvement in construction work. The idea here is that a person’s years of experience is likely to have a direct influence on his

knowledge on the factors affecting the performance of contractors and therefore based on Figure 4.2 those who responded to the survey are sufficiently experienced in the area to provide credible data. The results are illustrated in the figure below;

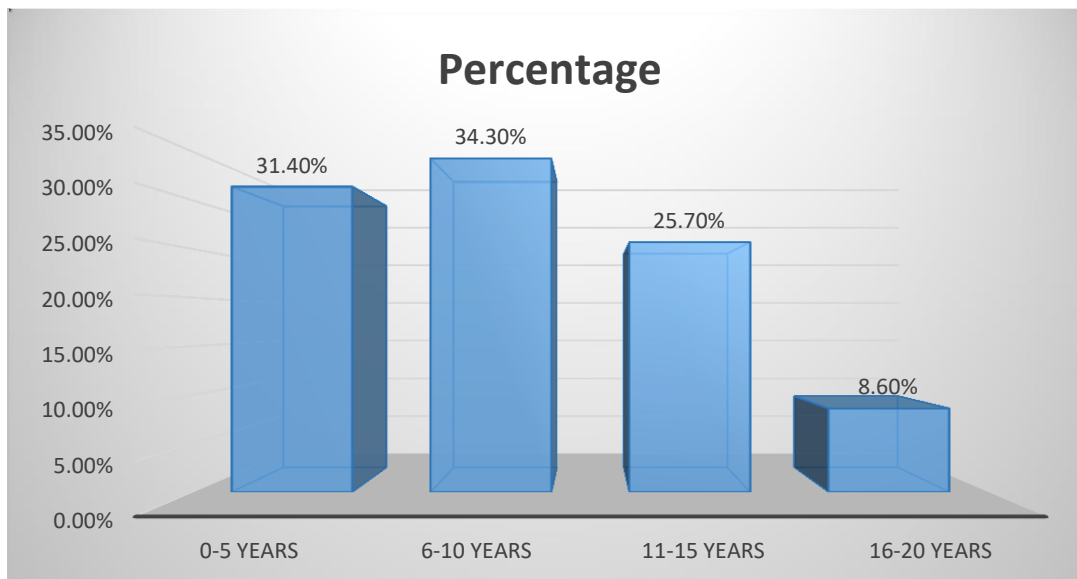


Figure 4.2: Years of Professional experience

4.4.2 Level of Education of Respondent

Table 4.4 summarizes the level of education of the respondents. Respondents were asked to indicate the level of their education. 71.4% indicated that they had Bachelors degree, 11.4% indicated they had professional diploma, whereas 17.1% indicated they had master/PGD degree and none had doctorate degree making 100% of the whole sample.

Table 4.4: Level of Respondents Education

<i>Type</i>	<i>Professional Diploma</i>	<i>Bachelor Degree</i>	<i>Master/PGD Degree</i>	<i>Doctorate</i>	<i>Total</i>
<i>% response</i>	11.4	71.4	17.1	0	100
<i>Number</i>	4	25	6	0	35

Source: Field survey (2015)

4.4.3 Performance Level of Contractors

Table 4.5 indicates the performance level of the contractors (3 performance levels) in terms of mean responses to a range „highly“ (1) to „least“ (5). The mean score ranges between 1 and 5 which is 2.5. The performance was general in terms of quality of work output, delivery time limits of clients and delivery within budgeted cost.

Table 4.5: Performance Level

PERFORMANCE LEVEL	MEAN	STANDARD DEVIATION	RANK
Quality of work output	2.00	0.452	1st
Delivery time limits of clients	2.20	0.720	2nd
Delivery within budgeted cost	2.83	0.614	3rd

Source: Field survey (2015)

From Table 4.5, level of quality of work output had a mean of 2.00 and standard deviation of 0.452 and was ranked 1st, Level in delivery time limits of clients had a mean of 2.20 and a standard deviation of 0.720 and was ranked 2nd, Level of delivery within budgeted cost had a mean of 2.83 and a standard deviation of 0.614.

Also from the Table it can be reckoned that level of delivery within budgeted cost agrees with the assertion that every project works with a set of objectives and such determines the project's performance, Dissanayaka and Kumaraswamy (1999) posited that, mostly performances are related to the time and cost indicators of a project. Contractors within the municipality worked between the time limits of clients but however exceed the budget allocated to the contract. This however, indicates that there is a lot of benefits that we accrue when performance level is within the budgeted cost. The rest of the benefits had their means below 2.5 indicating that these benefits are significant but cost is a factor that needs to be looked at.

4.5 PROBLEMS AFFECTING CONTRACTOR PERFORMANCE

From Table 4.6, it can clearly be seen that the ten (10) most significant problems that affect contractors' performance (in the order of importance) are as follows;

- (i) **Incompetent designers/contractors:** This could be if some engineers from the consultant's side do not have enough experience in design practices. Problems of design can also not be found until the contractor inquires about them in the construction. It takes extra time for the municipality to approve new design solutions, for instance which could affect the contractor's performance by causing delay in the construction project.
- (ii) **Personal issues** e.g. Motivation and experience of staff.
- (iii) **Changes in scope of works:** Change is not made without inconvenience, even from worse to better (Pickavance, 2005). When changes are introduced prior, during or after construction work has been executed, the synergistic effects of these changes can dramatically affect project performance. Identifying and quantifying the cause and effect relationships between changes in order to mitigate or avoid their impact is vitally important to the construction industry. Change in scope of works in the municipality might be due to design deficiencies, changes in scope directed by the owner, differing site conditions etc.
- (iv) **Inadequate supervision:** Inadequate supervision can lead to serious injuries and death. Experienced, trained site supervisors should oversee implementation of the works, providing technical advice for contractors, interpreting the construction design specifications on site and ensuring good-quality construction. Good supervisors can also help identify and address problems such as a lack of skills

among contractors and laborers, unclear design specifications, incorrect choice of construction methods and equipment. The quality of site supervision has a major influence on the overall performance and efficiency of construction project.

- (v) **Unreliable material supply:** Collaboration and co-operation with suppliers is one of the keys to improve efficiency in production and it is impossible to cut costs unless suppliers cut costs (Liker, 2204). Pinch (2005) states that if one actor fails to take on the responsibility that has affects the overall project performance. Construction projects normally include client, general contractor and subcontractors which all have its own suppliers of material. Therefore the material supply chain is more complex than for other manufacturing industries hence thorough organization and planning of materials delivery is required. A late delivery or delivery of incorrect quantity often affects the time plan in a project and Ala-Risku and Kärkkäinen (2006) state that 8-25% of non-complete activities are due to delivery deviations.
- (vi) **Differentiation of current prices:** Normally this is a factor that cannot be attributed to the fault of any of the stakeholders of a construction project. The various stakeholder of a project do not influence the current prices in the economy. In as much as this is true, management and contractors through proper project planning can minimize the impact differential prices have on projects.
- (vii) **Poor preparation for projects:** The ability of contractor to foresee problems ahead of time is extremely important for damage control measures on site.
- (viii) **Complexity of projects:** Construction projects are often referred to as being complex; however there seems to be no universally accepted definition of the term project complexity in the construction industry. It is a commonly held opinion that the reason for the poor performance is the design and construction processes being

particularly complex. It is a common statement that the construction process is one of the most complex and risky businesses undertaken, Baccarini (1996) states that the construction process may be considered the most complex undertaking in any industry, however the construction industry has developed great difficulty in coping with the increasing complexity of major construction projects. Therefore an understanding of project complexity and how it might be managed is of significant importance.

- (ix) **Delay in payment:** The delay in payment by the clients could also affect the performance of the contractor. According to Assaf et al (1995), the main causes of delay according to contractors are design modifications and changes, payments by clients, and approval and preparation of design drawing.
- (x) **Poor budgeting and time control:** In Saudi Arabia, Assaf and Al-Hejji found that only 30% of construction projects were completed within the scheduled completion dates and that the average time overrun was between 10% and 30%. In Nigeria, Ajanlekoko (1997) observed that the performance of the construction industry in terms of time was poor. Odeyinka and Yusif (1997) have shown that seven out of ten projects surveyed in Nigeria suffered delays in their execution. Failure to achieve targeted time, budgeted cost and specified quality result in various unexpected negative effects on the projects.

Normally, when the projects are delayed, they are either extended or accelerated and therefore, incur additional cost.

Table 4.6: Problems affecting Contractor's performance

PROBLEMS	RATING						ΣW	Mean	RII	Rank
	1	2	3	4	5	Total				
Incompetent designers/contractors	1	9	6	17	6	35	115	3.29	0.92	1st
Personal issues	1	1	11	19	3	35	127	3.63	0.73	2nd
Changes in scope of works	1	3	10	15	6	35	127	3.63	0.73	3rd
Inadequate supervision	3	2	9	13	8	35	126	3.60	0.72	4th
Unreliable material supply	1	4	8	17	5	35	126	3.60	0.72	5th
Differentiation of current prices	1	2	13	13	6	35	126	3.60	0.72	6th
Poor preparation for projects	3	3	6	17	6	35	125	3.57	0.71	7th
Complexity of projects	2	2	13	16	2	35	119	3.40	0.68	8th
Delay in payment	4	3	4	24	0	35	118	3.37	0.67	9th
Poor budget and time control	1	5	16	8	5	35	116	3.31	0.66	10th
Improper techniques and tools	1	7	11	13	3	35	115	3.29	0.66	11th
Low technology available	1	6	10	18	0	35	115	3.29	0.66	12th
Risk and uncertainty with projects	1	2	19	12	1	35	115	3.29	0.66	13th
Poor site management	3	7	8	13	4	35	113	3.23	0.65	14th
Breakdown of equipment	2	3	17	11	2	35	113	3.23	0.65	15th
Improper construction methods	1	11	5	16	2	35	112	3.20	0.64	16th
Lack of credit facilities	1	6	15	11	2	35	112	3.20	0.64	17th
Project fraud and corruption	2	14	1	13	5	35	110	3.14	0.63	18th
Mistakes in construction works	2	12	8	13	5	35	102	2.91	0.58	19th
Subcontractors and nominated suppliers' non-performance	4	6	16	19	0	35	100	2.86	0.57	20th
Poor communication	5	9	12	9	0	35	95	2.71	0.54	21st
Materials cost during construction	1	11	20	3		35	95	2.71	0.54	22nd
Site condition problem	2	8	24	1	0	35	94	2.69	0.54	23rd
Discrepancies in contract documentation	4	14	13	4	0	35	87	2.49	0.50	24th
Unavailability of resources	4	16	11	4	0	35	85	2.43	0.49	25th
Unrealistic target setting	7	14	7	7	0	35	84	2.40	0.48	26th
Number of disputes between owner and project parties	6	16	8	4	1	35	83	2.37	0.47	27th
Revision of BOQ during project implementation	7	12	13	3	0	35	82	2.34	0.47	28th
Over-reliance on old construction method	11	6	15	3	0	35	80	2.29	0.46	29th
Competitive bidding process	9	14	8	3	1	35	78	2.23	0.45	30th

Incapable to compete with foreign owned firms	19	6	5	5	0	35	78	2.23	0.45	31st
Dependency on imported materials	3	21	11	0	0	35	78	2.23	0.45	32nd
Transportation of materials problem	9	14	11	1	0	35	74	2.11	0.42	33rd

The study sought to find out from the respondents the problems affecting contractors' performance. Table 4.6 shows the results. From the analysis of the results, it can be seen that the item where majority of respondents ranked first is Incompetent designers or contractors. According to Ibbs (1997), there have been much research on project change, most of it been qualitative due to the difficulties in obtaining accurate and consistent quantitative data (Ibbs 1997). Ibbs goes further to note in the same paper that other researchers such as Diekmann and Nelson (1985) have been able to categorize by percentages all changes into errors and omissions (65%), design changes (30%), and unforeseen conditions (5%). Edmonds and Miles (1984) and Ofori (1984) revealed chronic delay in the payments of contractors for work done, lack of credit facilities for firms, poor communication structures and an unreliable material supply base. Using quantitative data, Ahadzie (1995) also reported evidence of lack of finance and credit facilities for contractors, delay in payment of contractors for work done, design changes and/or variations, low morale and motivation of craftsmen, poor planning, supervision and low mechanization, as some of the important factors affecting construction performance (see also Owusu-Tawiah, 1998). Stojcetovic et al. (2014) suggested that the contractor is the major stakeholder when it comes to the implementation of the project and the satisfaction of the contractor also affect the performance of the project. He also suggested that, unrealistic duration of the project can lead to pressure on the contractor to crash the programme of works for the project which might lead to either changes in the scope of the project, reworking due to defective works or abrupt halt of project. These factors identified are also variables which tend to affect the time, quality and cost indicators of project performance. More also external

environment, the procurement system, the characteristics of a project, the client representation, and the contractors themselves form part of the factors affecting project performance (Dissanayaka and Kumaraswamy, 1999).

4.6 CRITICAL SUCCESS FACTORS FOR IMPROVING CONTRACTOR PERFORMANCE

Table 4.7 indicates the critical success factors (26 factors) in terms of mean responses to a range „never“ (1) to „always“ (5). The minimum acceptable mean scale is 2.5.

Table 4.7: Critical success factors for improving contractor performance

FACTORS	MEAN	STANDARD DEVIATION	RANK
Adoption of TQM	4.54	0.762	1 st
Utilizing up to date technology	4.52	0.863	2 nd
Introduction of health and safety programs	4.50	0.839	3 rd
Comprehensive contract document	4.06	0.793	16
Contractor commitment	4.20	0.808	5 th
Communication among project stakeholders	4.20	0.782	6 th
Contractor experience and resources	4.20	0.756	7 th
Management capabilities	3.90	0.974	18
Financial stability	4.12	0.824	12
Taking inflation and economic crisis in financial programming	3.94	1.018	17
Partnering approach between clients and contractor	4.20	0.833	8 th
Ability to brief the project objective clearly	4.24	0.981	4 th
Skillful and experience workers	4.16	0.510	9 th
Control of subcontractors	4.08	0.634	13
Transparency in the procurement process	4.16	0.650	10
Involvement to monitor the project progress	4.08	0.695	14
Top management support	3.80	0.756	20
Early supplier involvement	4.12	0.799	11
Early and continuous involvement in project development	3.86	0.670	19
Workplace improvement	3.70	0.839	23

Early contractor involvement	4.06	0.793	15
Incremental implementation of best practices	3.70	0.886	24
Management and workforce development	3.72	0.730	22
Involvement to monitor project budget	3.56	0.837	25
Shift in contractor selection process	3.76	0.847	21
Clients and owners characteristics	3.26	0.828	26

Source: Field survey (2015)

From Table 4.7, Adoption of TQM had a mean of 4.54 and standard deviation of 0.762 and was ranked 1st, Utilizing up to date technology had a mean of 4.52 and a standard deviation of 0.863 and was ranked 2nd, Introduction of health and safety programs had a mean of 4.50 and a standard deviation of 0.839 and was ranked 3rd, Ability to brief the project objective clearly had a mean of 4.24 and a standard deviation of 0.981 and was ranked 4th, Contractor commitment had a mean of 4.20 and a standard deviation of 0.808 and was ranked 5th, Communication among project stakeholders had a mean of 4.20 and a standard deviation of 0.782 and was ranked 6th, Contractor experience and resources had a mean of 4.20 and a standard deviation of 0.756 and was ranked 7th, Partnering approach between clients and contractor had a mean of 4.20 and a standard deviation of 0.833 and was ranked 8th, Skillful and experience workers had a mean of 4.16 and a standard deviation of 0.510 and was ranked 9th and Transparency in the procurement process had a mean of 4.16 and a standard deviation of 0.650 and was ranked 10th.

From the table the respondents agreed with the Associated General Contractors of America (1992) with their advocacy on Total Quality Management (TQM) as an approach to improving overall performance of contractors. TQM ensures continuous improvement in health and safety, productivity, quality, and employee and client satisfaction. The TQM mission in construction is to construct a quality product – an error-free one – for the customer by preventing errors in the construction process. TQM is the linkage of the processes, which deal with health and safety, productivity, quality and satisfaction, with the real benefit being the

synergy between them (Levitt and Samelson, 1993). This however, indicates that since the rest of the factors had their means above 2.5 they are all fairly significant to the study.

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CHAPTER FIVE

RECOMMENDATIONS AND CONCLUSION

5.1 INTRODUCTION

Chapter five concludes and discusses recommendations to the study. The objectives of the study were to examine the performance level of contractors in AMMA; to critically examine the factors affecting contractor performance in AMMA and to determine the critical success factors for improving contractor performance.

A total of 52 questionnaires were administered to a number of professionals in the Asokore Mampong Municipal Assembly. 15 of the questionnaires were administered to the contractors while the rest (37) were sent to the various staff of the department in the Assembly who one way or the other have influence in construction projects. 35 of them responded. The chapter follows the following structure: a summary of how the key objectives were satisfied and discussions on the achievement of the research objectives are provided to highlight the contributions of the research to knowledge. The chapter concludes with recommendations for further research that can be deduced based on the conclusions and limitations of the study.

5.2 ACHIEVING THE RESEARCH OBJECTIVES

The aim of the research was to determine the factors affecting contractor performance in AMMA. In order to achieve the stated aim, three objectives were set. Objective 1 was achieved mainly through an interview conducted with the active contractors in the municipality. Structured questionnaires were also used conducted to achieve objective 2 and objective 3.

5.2.1 Objective 1:

To examine the performance level of contractors in AsokoreMampong Municipal Assembly

The performance levels of contractors were examined through the preparation of questionnaires for staff members of the municipality in other departments. Staff members were asked to access the performance level of contractors based on contractors ability to meet time limits, delivering projects within budgeted cost and quality of their work output to the clients of the assembly. Concerning objective 1, contractors in the municipality were asked how often officials visited the project sites. This was done to ascertain the level of supervision of the construction project undertaken by the Assembly. Duration given for the completion of projects; how long it took them to complete the projects and if funds were readily available when needed to continue the project were some other question asked to access performance in terms of duration and cost.

5.2.2 Objective 2:

To critically examine the factors affecting contractor's performance in Asokore Mampong Municipal Assembly.

Subsequently, key problems affecting performance were identified from literature and respondents were asked to rank them on the basis of it being always affecting or never affecting. From the thirty-two problems that were identified to be affecting the performance of contractors the results indicates that Incompetent designers/contractors was identified as the key problem to contractors performance even though change in scope of works, inadequate supervision, unreliable materials supply and poor preparation for projects were deemed relevant.

5.2.3 Objective 3:

To determine critical success factors for improving contractor's performance.

Objective 3 was examined through the use of structured questionnaire. Twenty-six critical success factors were indicated on the questionnaire. The success factors were obtained from relevant literature from previous studies. After the data analysis, it was observed that, Adoption of TQM; Utilizing up to date technology; Introduction of health and safety; Ability to brief the project objective clearly; Contractor commitment; Communication among project stakeholders; Contractor experience and resources, Partnering approach between clients and contractor; Skilful and experience workers and Transparency in the procurement process emerged as the top 10 critical success factors toward enhancing contractor's performance

5.3 CONCLUSION

This research work was designed to determine the factors affecting contractor's performance in the Asokore Mampong Municipal Assembly. In conclusion the study identifies that contractors are not able to access funds readily due to delay of payment. This makes contracting loans from the banks to undertake a projects risky. Lack of supervision by project officials is greatly affecting the performance levels of contractors. Moreover the adoption of TQM, Using up to date technology and introduction of Health and Safety are the key factors which will enhance contractor's performance.

5.4 RECOMMENDATIONS

With reference to the above conclusion and findings the following recommendations are proposed for review and improvement.

- The Municipal Assembly should try as much as possible to make payments on time to the local contractors so as to prevent delays in the execution of projects.
- Contractors must engage themselves in proper supply chain management. Proper planning of materials delivery would enable contractor know their lead times in order to prevent any delay/unreliable supply of construction materials.

- Project objectives should be well spelt out in order to prevent future changes in construction work as variations can affect project performance.
- Project designs and specifications must be clear to the various stakeholders of the project to prevent future complexities during the construction activities.
- Construction project planning and control should be encouraged amongst the contractors. Scheduling of construction activities will enable the contractors to really control activity times.

5.5 LIMITATIONS OF STUDY

Time available for this research was not enough to adequately exhaust all issues available.

That notwithstanding the researcher put in all effort to collect a lot of information as possible.

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APPENDICES

INTERVIEW GUIDE

ASSESSMENT OF FACTORS AFFECTING PERFORMANCE OF CONTRACTORS IN THE CONSTRUCTION INDUSTRY: CASE STUDY OF ASOKORE MAMPONG MUNICIPAL ASSEMBLY

Preamble

My name is Kwadwo Ofori Gyimah an Msc Construction student from Department of Building Technology at Kwame Nkrumah University of Science and Technology, Kumasi. This interview has been designed to solicit views from Contractors, based on their experience and high profile work undertaken in their capacity as construction professionals as practiced in Ghana. It is aimed at:

1. Examining the performance level of contractors in AMMA,
2. Critically examining the factors affecting contractor performance in AMMA and
3. Determining critical success factors for improving contractor performance. The implication of the findings is for the future development of the construction industry in Ghana and any information provided will be treated with the highest confidentiality. I would like to convey my appreciation for your cooperation in completing these questions. If you have any questions and contributions about this research, please mail at gyimahkwadwoofori@yahoo.com or call on 0244998333.

Thank you in advance for your participation and assistance with this study.

SECTION A - DEMOGRAPHICS

1. Gender: Male ☐ Female ☐
2. Age of respondent: 20- 29 ☐ 30 – 39 ☐ 40 – 49 ☐ 50 and above ☐
3. Please indicate your level of education: Professional Diploma ☐ Bachelor Degree ☐

- ☐ Master/PGD Degree ☐ Doctorate ☐
4. Which contractor category best describes your firm?
- Class D1 & K1 ☐ Class D2 & K2 ☐ Class D3 & K3 ☐ Class D4 & K4 ☐
5. Which of the following professional bodies do you belong to?
- Ghana Institute of Surveyors (GhIS) ☐ Ghana Institution of Engineers (GhIE) ☐
- Ghana Institution of Architects (GIA) ☐ Ghana Institution of Construction (GIOCI) ☐
- Chartered Institute of Building (CIOB) ☐ Institute of Industrial Engineers (IIE) ☐
6. Are your permanent professionals skillful or not? Yes ☐ No ☐

SECTION B

7. For how long have you been in professional practice?
- Up to 5years ☐ 6-10 years ☐ 11-15years ☐ 16-20 years ☐
- Over 20 years ☐
8. How often do Officials of the Assembly visit the project site?
9. Do you have access to plants and equipment which enable you to deliver projects on time?
- Yes ☐ No ☐
10. What was the duration given for the completion of your previous project?
- 6 month ☐ 1 year ☐ 2 years ☐ 3 years ☐ above 3 years ☐
11. How long did it take you to complete the project?
- 1 year ☐ 2 years ☐ 3 years ☐ above 3 years ☐
12. Were funds readily available as and when needed to continue with the project?
- Yes ☐ No ☐
- If No why?
-

QUESTIONNAIRES

**ASSESSMENT OF FACTORS AFFECTING PERFORMANCE OF CONTRACTORS
IN THE CONSTRUCTION INDUSTRY: CASE STUDY OF ASOKORE MAMPONG
MUNICIPAL ASSEMBLY**

Preamble

My name is **KwadwoOforiGyimah** an **MSc Construction Management** student from Department of Building Technology at Kwame Nkrumah University of Science and Technology, Kumasi.

This research questionnaire has been designed to solicit views from Professionals, based on their experience and high profile work undertaken in their capacity as construction professionals as practiced in Ghana. It is aimed at:

- Examining the performance level of contractors in AMMA,
- Critically examining the factors affecting contractor performance in AMMA and
- Determining critical success factors for improving contractor performance.

The implication of the findings is for the future development of the construction industry in Ghana and any information provided will be treated with the highest confidentiality. I would like to convey my appreciation for your cooperation in completing these questions. If you have any questions and contributions about this research, please mail at gyimahkwadwoofori@yahoo.com or call on 0244998333.

Thank you in advance for your participation and assistance with this study.

SECTION A – DEMOGRAPHICS

3. Gender Male [] Female []
4. Age of respondent: 20- 29 [] 30 – 39 [] 40 – 49 [] 50 and above []

SECTION B

5. For how long have you been in professional practice?

Up to 5years [] 6-10 years [] 11-15years [] 16-20 years []
Over 20 years []

6. Please indicate your level of education.

Professional Diploma [] Bachelor Degree [] Master/PGD Degree []
Doctorate []

7. How would you assess the performance level of contractors in terms of meeting delivery time limits of the clients of the assembly?

Highly [] High [] Average [] Low [] Least []

8. How would you assess the performance level of contractors in terms of delivering project within the budgeted cost?

Highly [] High [] Average [] Low [] Least []

9. How would you assess contractor performance level in respect of quality of the work output?

Highly [] High [] Average [] Low []

SECTION C: PROBLEMS AFFECTING CONTRACTOR PERFORMANCE

10. In your experience, which of the following problems is most likely to affect the performance of contractors? Please rank their level of influence by indicating 1 to 5; where 1=never, 2= rarely, 3= occasionally, 4= often and 5= always

Problems	Rank				
	1	2	3	4	5
1. Inability to compete in competitive bidding process					

2. Lack of capacity to compete with foreign owned firms					
3. Personal issues e.g. motivation and experience of staff					
4. Inadequate supervision of projects					
5. Poor preparation for projects					
6. Revision of BOQ during project implementation					
7. Low technology available to construction firms					
8. Delay in payment					
9. Incompetent designers/contractors					
10. Poor communication					
11. Over-reliance on old construction methods					
12. Poor budgeting and time control					
12. Improper techniques and tools					
13. Unrealistic target setting					
14. Mistakes in construction works					
15. Changes in scope of works					
16. Lack of credit facilities					
17. Unreliable material supply					
18. Complexity of projects					

19. Site condition problem					
20. Poor site management					
21. Differentiation of currency prices					
22. Unavailability of resources					
23. Number of disputes between owner and project parties					
24. Problems related to the transportation of materials to the site.					
25. The increase in materials' cost during the building's construction.					
26. Improper construction methods implemented by the contractor.					
27. Breakdown of equipment on site.					
28. Risk and uncertainty associated with projects					
29. Discrepancies in contract documentation.					
30. Non-performance of subcontractors and nominated suppliers.					
31. Dependency on imported materials					
32. Project fraud and corruption.					

SECTION D: CRITICAL SUCCESS FACTORS FOR IMPROVING CONTRACTOR PERFORMANCE

11. Which of the following would you consider as critical success factors for improving contractor performance? Please rank 1 to 5; 1=never, 2= rarely, 3= occasionally, 4= often and 5= always

Factors	Rank				
	1	2	3	4	5
1. Adoption of Total Quality Management (TQM)					
2. Partnering approach between clients and contractors					
3. Shift in contractor selection process					
4. Early contractor involvement					
5. Early supplier involvement					
6. Financial stability					
7. Contractor experience and resources					
8. Management capabilities					
9. Introduction of health and safety programs					
10. Management and workforce development					
11. Workplace improvement					
12. Incremental implementation of best practices					
13. Clients and owners characteristics					
14. Ability to brief the project objective clearly					
15. Top management support					
16. Contractor commitment					
17. Early and continuous involvement in the project development.					

18. Communication among project stakeholders					
19. Control of subcontractors.					
20. Skillful and experience workers.					
21. Involvement to monitor the project progress.					
22. Involvement to monitor project budget.					
23. Transparency in the procurement process.					
24. Comprehensive contract document.					
25. Taking inflation and economic crisis in financial programming in to consideration.					
26. Utilizing up to date technology.					

THANKYOU

