

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF ARCHITECTURE AND PLANNING

DEPARTMENT OF BUILDING TECHNOLOGY

**PERFORMANCE OF METROPOLITAN, MUNICIPAL, AND DISTRICT ASSEMBLY
CONTRACTORS ON CONSTRUCTION PROJECTS BASED ON ISO 9000 QUALITY
MANAGEMENT SYSTEMS**

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

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DECLARATION

I declare that I have wholly undertaken the research reported herein under supervision.

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I declare that I have supervised the student in undertaking the research reported herein and I confirm that the student has effected all suggested corrections by the examiners.

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DEDICATION

This report is dedicated to the Almighty God who steered me through, even when the going was tough, to my dear wife Mavis and lovely children, Joshua and Caleb who have had to endure with me through the turbulent period and to my mum and siblings whose prayers and diverse support have brought me this far.

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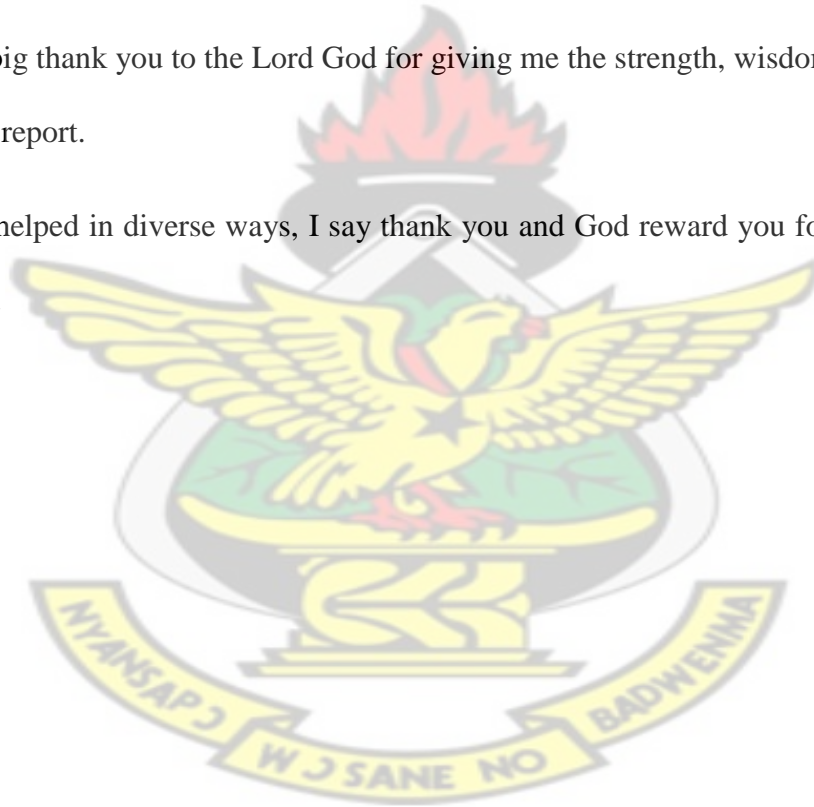
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To all the respondents, without whose voluntary participation, this study would not have been possible; I am greatly indebted to you all.

Finally, I say a big thank you to the Lord God for giving me the strength, wisdom and motivation to complete this report.

And to all who helped in diverse ways, I say thank you and God reward you for everything you lost for my sake.



ABSTRACT

The subject of performance in recent time has being of interest to all. However, the performance of project contractors at the Metropolitan, Municipal and District Assembly (MMDA) level in Ghana has not been thoroughly investigated. Most of the quality problems faced by the client can be attributed to the contractor who is the final manufacturer or constructor of the development project. To ensure the development of the MMDAs, quality delivery of project by the contractor should be of paramount importance to the MMDA client. The objective of this study was to assess the performance of MMDA project contractors based on ISO 9000 Quality Management standards. This was achieved by the adoption of roles of building contractors developed by Nduro, (2010). Questionnaires were administered to a sample of 102 MMDAs using stratified random sampling approach; by post and in person with a response rate of 52.94%. An incremental scale was developed, system of weights and rating were used to assess the importance of each role.

Results showed that MMDAs consider quality of final construction product, client satisfaction, and standard of workmanship, prompt correction of defects and period of construction (delivery on schedule) as the most important roles of contractors. Additionally, the MMDAs were of the view that the contractors performed to their satisfaction on factors such as, standard of workmanship, quality of final construction product, client satisfaction, and prompt correction of defects. The contractors however trailed on factors such as effectiveness of communication, employee development, equipment holding, operational base of contractors and attention to site welfare and safety, according to the MMDAs. The respondent therefore generally rated the overall performance of the contractors based on performance factors from Nduro (2010) after analysis at 53.58%; an average performance of the contractors. Results also showed that of the documented

benefits of ISO 9000 quality management standard (QMS) implementation, increased quality awareness in the firms, better documentation procedures, improved quality of products and customer service, improved efficiency in quality system and increased accuracy of project budget estimation were considered very important by the MMDAs to the MMDA contractors. However, with exception of minimizing project risk and saving cost which had no different and insignificant deference respectively when the actual and the expected benefits of ISO 9000 QMS to the contractors were compared, all the remaining expected benefits were higher than the actual benefits of ISO 9000 the MMDAs derive from the contractors.



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CHAPTER ONE

INTRODUCTION TO THE RESEARCH

1.0 INTRODUCTION

This proposal presents an overview of the research with regards to the background of the study, with emphasis on the importance of the construction industry to the economy, and the importance of the contractor to the construction industry. The problem statement which is the fulcrum of the research is presented and is followed by the relevance of study. In furtherance, the aim, objectives and scope of the study are presented followed by a summary of the research methodology adopted, and the chapter is then concluded with highlights of the organization of the study.

1.1 BACKGROUND

The Macmillan English dictionary (2002) defined contractor as a person or company whose job is to provide goods or do work for another person, organization, company at a specified price.

It is globally recognized that for example, the wells and bore holes where human beings get water as a source of life, the buildings where we live and work, the roads and bridges we drive on, the utility distribution systems we use, the railways, airports, ferries and harbours we travel and trade from, dams and power lines that give us electricity, are all products of the construction industry (Basheka and Tumutegereize, 2011; Owusu-Sechere, 2008). For these reasons Ali & Rahmat (2010) reported that the construction industry had often acted as a catalyst and engine of growth in many economies.

Basheka and Tumutegereize (2011) purported that the construction industry accounts for a significant portion of the worlds' gross domestic product (GDP). This was confirmed in the ISSER (2008) that between 2006 and 2007, the construction industry contributed 0.7% and 1.0% respectively to Gross Domestic Product (GDP) of Ghana. In the developing world, Basheka and Tumutegereize (2011), Owusu Tawiah, (1999) postulated that the construction sector provides a substantial source of direct and indirect employment to majority of citizens all over the world. In this sense, the sector serves as a fulcrum for many economies with its activities hinging on the contractor who serves as the final producer of all these infrastructural project. Hence the importance of identifying contractors' quality performance is evident throughout the economies worldwide, and the consequences of which are, to attract highly qualified employees (Kagioglou *et al.*, 2000).

Despite the immense contribution of the industry with regards to the assets and employment, there have been constant criticisms of the poor performance in terms of quality project delivery of the major players, particularly contractors (Ali and Rahmat, 2010). These criticisms have in

the recent past resulted to quit a number of studies that focused on assessing the factors affecting contractor performance. For instance, qualitative evidence provided by Edmonds and Miles (1984) and Ofori (1984) about three decades ago 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.(cf.Amoah et al.,2011). Also, Layea, (2010) using similar qualitative method concluded that financial, political, organizational and economical are the main factors endangering the contractors. In furtherance, Amoah et al., (2011), using factor analysis summarized the numerous factors affecting construction performance especially with respect to the small scale building contractors (SSBCs) into fiscal policies and managerial challenges. The managerial aspect had been confirmed by most unpublished dissertation such as Boating *et al.*, (2008); Owusu Tawiah (1999), who summarized the factors as cost, time, and quality among others.

Notwithstanding the significance of the above studies, the Government of Ghana (GoG) through the Ministry of Finance and Economic Planning (MFEP) in 2007 set up a five person task force to submit recommendations that would subsequently help to improve upon the general performance of the construction industry (Taskforce Report, 2007). And between January, 2008 and March 2008, the Taskforce with support from Ministry of Finance and Economic Planning (MFEP) held about eight awareness meetings with the stake holders in the industry such as consultants, client organizations, and contractor associations, in both the northern and southern sectors of the country. Remarkably amongst the concerns stipulated at the stakeholders' awareness meetings was the quality performance and the negative perceptions people had developed on the Ghanaian contractor (Taskforce Report, 2007). Again, there is the perception

that the development of the country's infrastructure cannot be well executed without the participation of the foreign contractors (Taskforce Report, 2007).

In this regards, the Taskforce, in their report proposed some recommendations such as the introduction of a contractor performance rating mechanism of the Ghanaian construction industry. In their perspective, stakeholders (government, non-governmental organizations, and private client,.) are in a better position to benefit from the introduction of this rating mechanism, in that it will help provide an objective and consistent means to assess contractor performance on factors such as quality of work, efficiency and cost effectiveness, hence providing the client value for money.

Thus, this study is based on the argument that to help assess the quality of performance and erase the negative perceptions of the Ghanaian contractor, (poor workmanship, unable to meet project cost and time budget among others) there is the need for an adoption of ISO 9000 quality management system as the basis for assessing the performance of contractors, among which are those who works for the local government. Ali & Rahmat (2010) postulated that the improvement of performance in the construction industry has necessitated the adoption of ISO 9000 quality management series by most countries to ensure regularity.

Latham (1994) was of the view that Quality Management System (QMS) comprises list of guidelines, disciplines and processes that together aimed at achieving customer satisfaction and continuous improvement and therefore its implementation could minimize errors induced by a system. Among various QMSs available is the ISO 9000 Quality Management set of standards, which is applicable to different sectors of industry and business. According to the ISO action plan for developing countries (2011-2015), ISO aims at providing standards to help the developed and developing countries to adopt and improve on quality in all sectors. Although

certification is not compulsory, it gives a sound bases for assessing quality standard in most industry of which construction cannot be left out.

The Small-Scale Building Contractors (SSBCs), who Amaoh *et al.* (2011) described as Class D3/D4 and K3/K4 contractors, and constitute over 90% of the contractors' job market are most often left out of the sampling frame of most research. However, although these firms are classified as small, in financial terms, they collectively contribute considerably to overall construction GDP, especially in the development of decentralized and local government areas (cf. Amoah *et al.*, 2011). And in furtherance, Amoah *et al.* (2011) purported that the SSBCs consumes 50% (cost-wise) of all building materials, and provides nearly 80% of all short-term employment in the Ghanaian economy.

1.2 STATEMENT OF THE PROBLEM

Meeting customer demands, conforming to statutory and other regulatory requirements and remaining competitive in today's global economy has become a real challenge for most organizations worldwide (Adhikari, 2010).

From the background information presented, it is evident that the importance of the construction industry to the Ghanaian economy is very immense. However, the industry's activities highlighted will never achieve it final product without the contractor. The small-scale contractors who according to Ganesan, (1983) *cited in* Amaoh *et al.* (2011) constitute the larger percentage of the classes of contractors, all though with financial constraints, according to Amaoh *et al.* (2011), research on them is very minimal. Most researches had focus on the challenges faced with the contractors (Owusu-Tawiah, 1998; Ahadzie, 1995; Laryea, 2010; Amoah *et al.*, 2011;

Marx, 2012) with less attention on the performance of the contractors with respect to quality standards expected of them as contractual obligation. The recent collapse of structure across the major cities in Ghana; (Melcom building at Achimota-Accra, November 7, 2012; Grace Methodist Church collapse, September 24, 2013; Two-storey building collapsed at Krofrom, a suburb of Kumasi, October 04, 2013) has call for an investigation into the quality standards expected of contractors. One may argue that most of such buildings are privately owned and were constructed by private contractors, without considering the fact that, it is most of the same contractors who after registering with the Register General (RG) and the Ministry of water Resources, Works and Housing (MWRWH) who embark on development project for the MMDAs. For example Dumolga *et al.*, (2013) in an attempt to assess the performance of local contractors on government projects in the akuapem north municipal assembly concluded that even though local contractors were supervised regularly, they performs poorly due to the use of inferior materials. This was also confirmed in a recent Ghanaian Times front page banner headline on November 12, (2013), that the Metropolitan Chief Executive (MCE) rejects school block due to shoddy construction at Komenda-Edina-Eguafo-Abrem (KEEA) Municipal Assembly. For these reasons and others, Ali & Rahmat (2010) postulated that some local building authorities, in an effort to ensure quality project delivery has made ISO 9000 certification obligatory for all contractors who tender for public sector projects.

Section 10 of the Local Government Act 462 of 1993 task MMDAs in Ghana to be the highest political and administrative body in the Districts responsible for the overall development of the Districts. Precisely, MMDAs are to, among other things, initiate and monitor to completion, the execution of basic infrastructural projects. It is to answer some of these questions that quest a proposal to elicit the perspective of the construction professional at the MMDAs on the quality

performance standards they envisage from the contractors which they engages in construction projects.

1.3 RELEVANCE OF STUDY

All the activities and processes of the construction industry end on the contractors and their failure always will render any project useless. This study attempted to investigate the quality performance standard of contractors based on ISO 9000 Quality management standard. It was contended that the research would give the construction professional at the MMDAs a firm bases for assessing the contractors that they work with. On the other hand, the result of the study would also be of value to the MMDA contractors in Ghana who wished to appreciate their deficiencies for continual improvement in their capacity. Again, it would also help the MMDA contractors to understand the perception of professionals at the MMDA about their work as contractors. Finally, it would add to the existing literature and serve as a bases for further research in the area of construction and contractors quality performance in general.

1.4 AIM

The aim of this study was to evaluate the Performance of contractors on Metropolitan, Municipal and District Assembly (MMDA) construction project using ISO 9000 Quality Management System.

1.5 OBJECTIVES

The study sought to assess the overall satisfaction of MMDAs with the quality performance of contractors based on ISO 9000 Quality Management Systems (QMS) by undertaking the following assessments:

1. The most important roles of contractors to the MMDAs on construction projects.
2. The quality performance of contractor on construction projects.
3. The opinion of MMDAs construction professionals on the benefits of ISO 9000 QMS to contractors.

1.6 RESEARCH QUESTIONS

The study sought to find answers to the following research questions:

1. Which roles of contractors are most important to MMDA clients?
2. How have MMDA project Contractor performed on MMDA construction projects?
3. Are the expected benefits of ISO 9000 QMS implementation and the actual benefits MMDAs derive from contractors the same?

1.7 SCOPE OF STUDY

The study focused on the MMDAs of Ghana's perspective with the focus on the contractors who embark on MMDA projects in general.

1.8 RESEARCH METHODOLOGY

The process adopted for this research involved an initial preliminary survey of an informal interviews with experienced construction staff of Assin Central Municipal Assembly and Ga South Municipal Assembly. From this, the problem and the scope of the study was defined. A credible theoretical framework for evaluation was also identified through literature after which the research was designed, data collected, analyzed and interpreted.

The study focused on the contractors of MMDA projects and adopted postal mail and face to face administration of the questionnaire for the research.

A system of relative weights representing the importance of the evaluation criteria to MMDAs and scores representing performance of contractor were adopted to ascertain the performance of contractors.

1.9 ORGANIZATION OF THE DISSERTATION

The thesis was planned in five chapters as follows:

Chapter one was covered with the general introduction of the study, problem statement, aims, and objectives of the research, research questions, significance and scope of the study, and the research methodology adopted.

Chapter two was devoted to the literature search and/or review and touches on performance measurement, quality standards, the district assembly concept, contractors and construction in general.

The research design; population, sample and sampling procedure, sources of data, data collection instruments and data analysis which form the methodology of this study were captured in chapter three.

Chapter four was made of the analysis of data collected, as well as discussion on the findings.

Chapter five dealt with the conclusions of the study and recommendations based on the findings of the study.

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1.10 SUMMARY

The background of the study including the problem statement, aim and objectives and research methodology have been presented. The next chapter which is the second chapter presents a review of performance measurement in the construction industry generally, the contractor, Quality standard, and the local government system in Ghana.

CHAPTER 2

LITERATURE REVIEW

2.0 INTRODUCTION

This section is the second of the document, and attempt to review the relevant and related literature in the areas of performance, quality standards, and the district assembly system in Ghana.

The first section commences with the review of performance, and performance measurement by attempting to define and explain these terms. The section then continues to consider other terms such as performance measures and indicators, given different perspectives of some of the researchers and the dimensions. The importance of performance measurement and evaluation are looked as catalyst for changing the nature of work, increase competition among others. Trends in performance measurement such as success-meeting objective and subjective are also considered. Performance evaluation in construction industry and construction project are also not left out.

The second section continues to consider the quality standards such as ISO 9000 quality series, how the ISO 9000 is structured, guidelines for performance improvement, the quality management principles in the ISO 9000 document, and the benefits for implementation of such standards in the construction industry. The section continues to look at quality management in the construction industry in general such as improvement on quality and effective planning among others and the drawbacks to the implementation of the ISO 9000 series.

The third section is structured to encompass the local government system, and attempt to consider the historical background, the intention for the establishment of the district assemblies (DAs), the major composition, structure, and functions of the DAs are considered. Project implementation with regards to the selection of contractors and the law backing the District Assembly Common Fund (DACF) are considered.

The section is climaxed considering performance measurement frameworks and then, it ends with a summary of the chapter.

2.1 BACKGROUND

The subject of performance evaluation is increasingly becoming interesting in both academia and managerial circles (Sabah, 2011). This, according to O'Mara et al (1998), is as a result of the enlargement of spectrum of performance obligation by the contemporary competitive environment and the new production paradigm. According to Sabah (2011), the rationale behind this thinking is the need to improve an organization's performance both internally and externally within its respective marketplace. From the background information presented in the previous chapter, it is very obvious that the construction industry is an important part of every economy hence the performance of the stake holders, especially the contractor is the key to the achievement of national socio-economic goals.

The contractor, once entered into contract with the client is shrouded with risk such as health and safety of workmen, non-availability of certain specified material, under budgeting and so on. Therefore, contractor's quality assurance system is essential in preventing such problems and also prevent the reoccurrence of such problems. And when such system is adopted, the contractor assures the client of quality product delivery (Bubshait and Al-Atiq, 1999). In order to safeguard the interest of clients and promote efficiency within the industry, Sabah (2011) purported that performance evaluations are necessary to ensure that projects meet clients' expectations in terms of cost, time and quality.

District Assemblies in Ghana were set up to initiate and execute programs and projects for the development of basic infrastructure in their areas (Sabah, 2011; Banful, 2009). The District Assembly Common Fund (DACF) according to Banful (2009) is the main source of funding for Metropolitan, Municipal, and District Assemblies (MMDAs) and ranges between 80% and 90% of an assembly's annual expenditure. Even though there are guidelines, MMDAs are at liberty to use the funds as they wish as long as the intended use is within the budgets furnished to the

DACF Administrator prior to disbursements. The total endowment of the fund is determined annually by Ghana's Parliament and by law, but cannot be less than 5% of the total revenues of Ghana (Banful, 2009). This implies that infrastructural budget concerning contract would have to be inculcated in such budget for approval by the DACF administrator. Therefore, it is dependent on the construction professionals at the MMDAs to monitor and ensure quality delivery of the contractors to ensure accountability to the state as a whole.

The ISO 9000 Quality Management System (QMS) seeks to continually improve product and services quality with regard to requirements, and improve the quality of operations to continually meet customers and stakeholders explicit and implicit needs.

2.2 PERFORMANCE AND PERFORMANCE MEASUREMENT

The term "performance" According to Sabah (2011) can be considered in different dimensions depending on the context in which it is being used. "Traditionally, it has been used to measure the effectiveness (doing the right thing) and efficiency (doing the right thing right)" (Sabah, 2011). Also, Neely (1999) defined performance measurement system (PMS) as the set of metrics used to quantify both the competence and effectiveness of an activities. Again, Artley (2001) defined performance measurement (PM) as constant monitoring and evaluation of program to completion, towards pre-established goals, and is mostly conducted by program or agency management. Artley (2001) stressed that, "Performance measures may address type or level of program activities conducted (process), the direct products and services delivered by a program (outputs), and/or the results of those products and services (outcomes). Furthermore, Mbugua et

al. (1999) established that PM is a continuous evaluation of the inputs and outputs in manufacturing operations or construction activity to enhance continuous improvements.

Also, Cordero, (1990) classifies performance measurements on the basis of method of measurement and areas of measurement. Cordero, (1990) classified PM as technical performance, commercial performance and the overall performance. In furtherance, he proposed a model of performance measurement in terms of output and resources to be measured at different levels. Cordero, (1990) therefore measured outputs to determine whether they help to accomplish objectives, and resources were measured to determine whether a minimum amount of resources is used in the production of outputs. However, Cordero (1990) in his model failed to recognize the interest of stakeholders; their needs and expectation. For this reason and others, Love and Holt, (2000) proposed that if construction organizations are to remain competitive in the long run, they need to develop and understand their relations with their customers, suppliers, employees, lenders and the wider community in which they operates.

This means that, performance assessment cannot be comprehensive when the interest of the stakeholders is neglected. Therefore, Love and Holt, (2000) proposed a model known as Stakeholders Perspective Measurement (SPM) that considered relations with customers, suppliers, employees, financiers and the wider community. In an attempt to determine who an efficient contractor is, Zavadskas and Kaklauskas (1996) identified estimated cost of project, duration of construction, quality of final building product, standard of workmanship, ability to formulate practical programs, employee development relations with sub-contractors and statutory authorities, degree of co-operation with stakeholders, among others as the criteria for determining efficient contractor.

2.3 PERFORMANCE MEASURES AND PERFORMANCE INDICATORS

Performance Measurement (PM) terminologies mostly look tricky (Artley, 2001). Artley (2001), was of the view that some people equate Performance Measures (PMs) and performance indicators (PI) as being the same, while others look at the two as being entirely different. For example, Artley (2001); Sinclair and Zairi, (1995) purported that Performance measures quantitatively talks about the products, services, and the processes that produce them and helps us understand, manage, and improve what our organizations do. On the contrary, Mbugua et al (1999) postulated that performance indicators specify the measurable evidence necessary to prove that a planned effort has achieved the desired result. In other words, when indicators can be measured with some degree of accuracy and with certainty they are called measures. However, when it became possible to obtain a precise measurement they are referred to as performance indicators. Artley (2001) again emphasized that, Effective performance measures can help us know:

- How well an institution or a firm is performing,
- If we are meeting our targeted goals and objectives,
- If our customers are satisfied,
- If our processes are in statistical control, and
- If and where improvements are necessary.

They provide us with the information necessary to help us make intelligent decisions about what we do and is composed of a number and a unit of measure. The number gives us a magnitude (how much) and the unit gives the number a meaning (what). Performance measures are always

tied to a goal or an objective (the target) (Artley, 2001). Performance measures can be represented by single-dimensional units like hours, meters, number of reports, number of errors, number of construction employees, and length of time to complete a project. They can show the variation in a process or deviation from design specifications. Single-dimensional units of measure usually represent very basic and fundamental measures of some process or products (Artley, 2001).

In response to calls for continuous improvement in performance, Mbugua et al., (1999) purported that many performance measurements have emerged in management literature; (Financial measures, Client satisfaction measures, Employee measures, Project performance measures). Furthermore, Xiao and Proverbs, (2003) defined overall contractor performance to include construction cost, time, quality and sustainable development. The idea being that the attainment of an aspect of performance should embrace all but not at the detriment of another.

Table 2.1 below is the indicators of overall contractor performance as recommended by Xiao and Proverbs. (2003);

Table 2.1 – Indicators of overall contractors’ performance

Cost	Construction Cost Cost Certainty Client satisfaction on cost
Time	Construction Time Time Certainty Client satisfaction on time

Quality	Defects Liability Period Client satisfaction on Quality
Sustainable Development	Profitability Partnership Investment in R & D and training Environment Protection Health and Safety

Source: (Xiao and Proverbs, 2003)

Again, Mbugua *et al.* (1999) postulated that the methods of measuring performance can be assessed in terms of the technical performance, commercial performance and overall performance. The areas of measurement are at the planning and design level, marketing level, manufacturing level, and the overall performance at the level of a firm or strategic business unit.

2.4 PERFORMANCE DIMENSIONS

Toni and Tonchia, (2001) prescribed two dimensions of Performance; Cost performances and Non-cost performances;

1. Cost performances,

Bubashait and Almohawis, (1994) defined Project Cost Performance as the degree to which the general conditions promote the completion of a project within the projected budget including the production costs and the productivity. Cost is not only confined to the tender sum, it is the overall cost that a project incurs from inception to completion, which includes any costs that arises from variations and modifications during construction period (Chan and Chan, 2004).

2. Non-cost performances

According to Toni and Tonchia, (2001) non-cost performances involves the time and quality delivery of the project. The non-cost performances are normally measured by non-monetary units of measure, and as long as they effect the economic and financial performances (net income and profitability), the link with them cannot be calculated in an exact manner as compared to cost performances.

De Toni *et al.* (1995) also grouped performances concerning quality into four categories; these are: Produced quality, Perceived quality, In-bound quality (the quality of the suppliers), and Quality costs.

2.5 IMPORTANCE OF PERFORMANCE MEASUREMENT AND EVALUATION

CURT (2005), and Osborne and Gaebler (2005), were in agreement that failure to measure and evaluate results implies a distinction cannot be made between success and failure, and if success is not achieved, it cannot be rewarded. Implicitly, success is only rewarded when it is achieved and an inability to recognize failure means it cannot be amended. But if results can be demonstrated, then, improvement can be achieved. Neely (1999) highlighted seven reasons why performance management has now become so important. These are:

1. The changing nature of work;
2. Increasing competition;
3. Specific improvement initiatives;
4. National and International awards;
5. Changing organizational roles;
6. Changing external demands;

7. The power of Information Technology

Neely (2002) was of the view that the use of performance measurement is to establish accountability so that stakeholders in the construction industry can assess what programmes have been achieved with the resources provided and also help stakeholders develop and justify budget proposals in support of strategic planning and goal-setting. In other words, Performance measurement helps or assists stakeholders in determining effective use of resources. This again point to the fact that if the contractors in developing countries such as described by Laryea (2010) and Amoah et al. (2011) can adopt performance measurement system, their endangered challenges could be reduced if not solved. This is confirmed in Hatry, (2006) that if managers can adopt performance measurement system, it will enhance their decision making process as to how they enhance their ability to get the job done with whatever resources at their disposal. This will again bring improvement of customer service and satisfaction. Also, Greiner, (2007) was of the view that performance measurement gives a basis for rating the outcomes and competitiveness of programmes or activities. Again, Nassar (2009) purported that the importance of performance measurement in the construction industry is believed to accrue to the major stakeholders in the industry; the client, consultant and the contractor.

The client enhances his value for money since the project stands the chance of being delivered on schedule and to quality standards stipulated in the specifications. Also, performance measurement provides the client with an objective and consistent means of implementing pre-qualification process since performance information of the competing contractors would be available for comparison and selection (Nassar, 2009).

Nassar (2009) again mentioned that, performance evaluation 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, hence providing the consultant with reliable, accurate and consistent means to assess contractor performance.

To the contractor, Nassar (2009) mentioned that performance evaluation will provide the contractor with an objective assessment of strength and weaknesses, help him realize areas which need to be strengthened in order to improve performance, increase the quality of work at a reduced cost and efficient operations.

2.6 TRENDS IN PERFORMANCE MEASUREMENTS

Elattar and Sabry (2009) identified three trends of measuring performance; Project success-meeting objectives, Project success-global approach, and Project success-beyond project.

2.6.1 Project success-meeting objectives

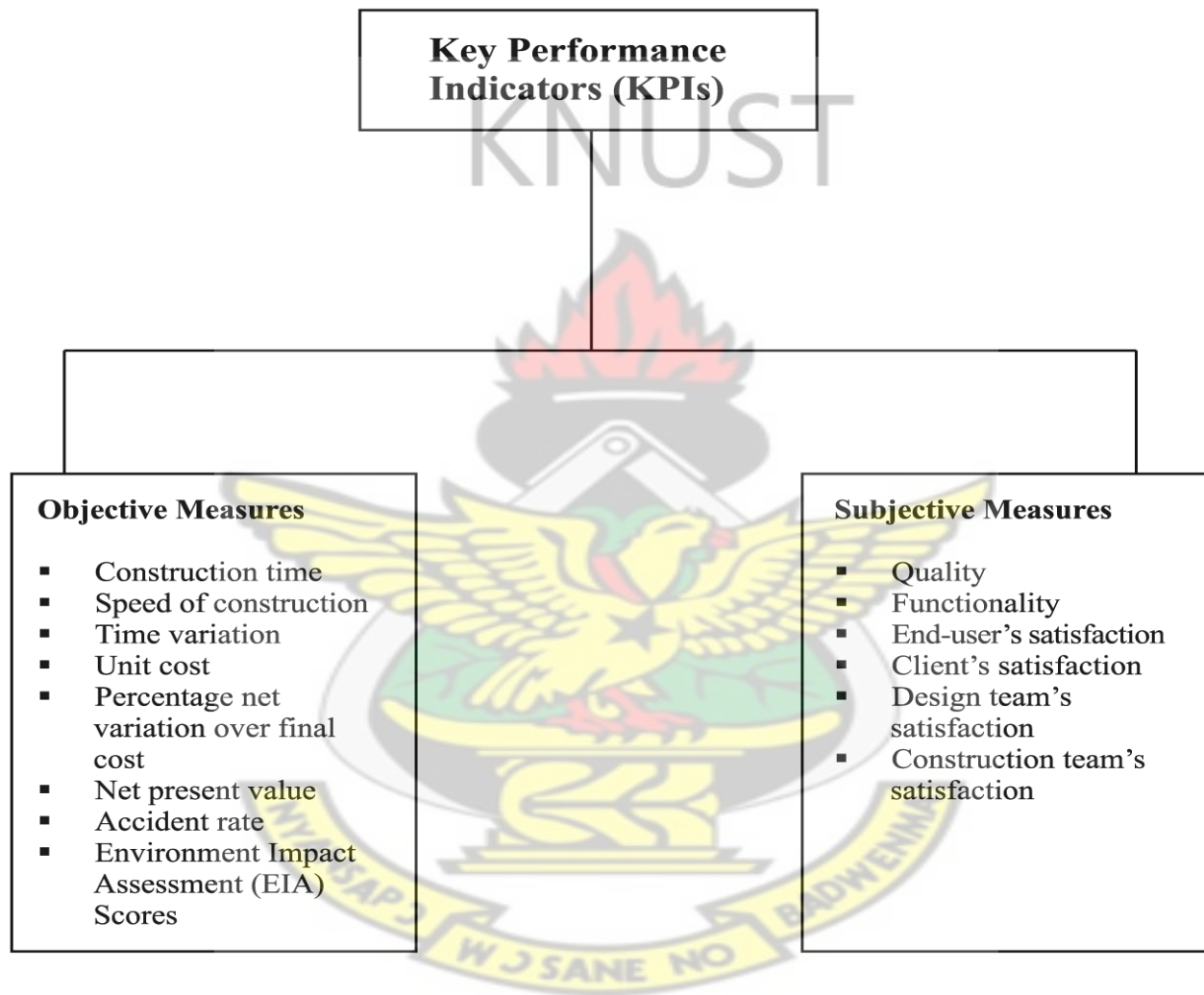
According to Elattar and Sabry (2009), these trend assumes that all projects emanate from what the client want. Thus, the objectives of a client in terms of cost, quality, and time. Therefore, when these objectives are met, it becomes obvious that the project is successful.

2.6.2 Project success-global approach

Several classifications of the performance measures have evolved to achieve a global approach. One classification establishes a conceptual framework for measuring construction project success

from both objective and subjective points of view (Elattar and Sabry2009, and Chan and Chan, 2004).

Fig 2.1 KPIs for project success



Source: Chan and Chan (2004)

2.6.3 Project success-beyond project

Apart from considering the goal attainment of project success, more emphasis is placed on the assessment of the positive effects brought about by the project to judge success. The success of a

project can be assessed along by four distinct dimensions; project efficiency, impact on the customer, direct and indirect business success, and preparation towards the future. Project success means different things to different people in each industry's project team and/or individuals have their own definition of success (Chan and Chan 2004). Project success is seen to be one of the uncertain project management concepts (Ndure, 2010; Chan and Chan, 2004). Individuals or project teams executing a project have different requirements and outlooks. This therefore makes different team gives the interpretation of project success in their own way of understanding (Cleland and Ireland, 2004). Lim and Mohammed (1994) postulated that those involve with project measures project success as an achievement of some pre-conceived project goals. However, the public normally have different opinions usually established on user satisfaction. A typical example is the Sydney Opera House Project Thomsett (2002) *cited in* Ndure (2010), which was reported to have exceeded its budget and duration sixteen and four times respectively than originally scheduled. However, according to Thomsett (2002) *cited in* Ndure (2010), the final impression that the project made was very huge that nobody remembered the original missed goals. In the opinion of the project management, the project was a failure, but the public saw it as success. Contrary to this, the Millennium Dome in London was a project completed on schedule and within budget but the public view was that it was a failure since its final impact could not be felt (Cammack, 2005 *cited in* Ndure, 2010). In addition, attainment of such goals as satisfaction, absence of conflicts, professional image, aesthetics, and educational, social, and professional aspects are considered indicators of project success (Elattar and Sabry, 2009).

2.7 PERFORMANCE EVALUATION IN THE CONSTRUCTION INDUSTRY

The common assessment of the success of construction projects is that they are delivered on time, to budget, to technical specification and meet client expectation (Momani, 2000). However, criteria for success are in fact much wider, incorporating the performance of stakeholders, evaluating their contributions and understanding their expectations (Atkinson et al., 1997). Construction projects potentially have six sets of stakeholders; namely the client, consultants, contractor, suppliers, end-user and the community (Takim and Akintoye, 2002). Wang (1994), reported that construction is becoming more complex, hence more sophisticated approach is necessary to deal with initiating, planning, financing, designing, approving, implementation and completion of project. The level of success achieved on construction projects will depend heavily on the quality of the managerial, financial, technical and organisational performance of the stakeholders; taking into cognizance the associated risk, the business environment, and economic and political stability (Takim and Akintoye, 2002).

According to Huang, (2011), Construction contractors have major influences upon projects and its successes. Therefore, it is quite critical to select a qualified contractor in the process of construction management and project delivery. A competent construction contractor is one of the indispensable conditions of a proper process and completion of a construction project. (Huang, 2011)

Ward et al. (1991) stipulated that in assessing the performance of contractors, a common approach is to evaluate performance on the extent to which client objectives like cost, time and quality were achieved. On the international scene, especially in the well advanced countries such as the UK, USA and Japan those are seen as the three traditional indicators of performance. This is confirmed in Kog et al (1999) that the current construction environment requires timely completion, and within budgetary allocation as the critical factors to client requirement in order

to attain ‘first in the market’ advantage over competitors. The development of construction project involves numerous stake holders and processes with the objective of bringing the project to a successful conclusion. According to Atkinson, et al., (1997), successful construction project performance is achieved, when stakeholders meet their requirements, individually and collectively. However, Ali (2010) identified functionality as the most significant construction project performance criterion and considered, time and cost performances as the least important.

2.8 PERFORMANCE INDICATORS FOR CONSTRUCTION PROJECTS

Key Performance Indicators (KPI) are factors critical to success (UK KPIs Handbook, 2006). Distinct firms and clients adopt different indicators for measuring success (Takim and Akintoye 2002). The UK construction Industry KPIs Handbook (2006) identified ten parameters for benchmarking projects in general, in order to achieve a good performance. These consist of seven project performance indicators and three company performance indicators. The project performance indicators are:

- Construction cost
- Construction time
- Cost predictability
- Time predictability
- Defects
- Client satisfaction with the product
- Client satisfaction with the service

And the Company performance indicators identified are:

- Safety
- Profitability
- Productivity

2.9 ISO 9000 SERIES

The ISO in ISO 9000 was derived from the Greek word "isobar" meaning, a line on a weather map which connects areas where the air pressure is all the same. ISO operates from a small office in Geneva, Switzerland, with its core function to coordinate the activities of all the Technical Committee (TC) and Sub Committees (SC) and publish all the completed standards assign to the committees (Goult, 2009; Adhikari 2010).

The International Organization for Standardization (ISO) 9000 was founded in 1946 to promote voluntary, manufacturing, trade & communication standards (Kulkarni et al., n.d; Adhikari 2010)

The ISO 9000 series of quality management & assurance standards were issued and approved in 1987 by 35 countries. By 1994, 80 countries had adopted the ISO 9000 standards as a national standard (Kulkarni et al., n.d). According to Chow-Chau et al. (2003), the ISO seeks to promote standardization and the development of related activities worldwide to facilitate the international exchange of goods and services, and cooperation in the spheres of intellectual, scientific, technological and economic activities. Also, according to ISO/TC 176 (2009), ISO has a membership from large and small countries, industrialized and developing, throughout the world. ISO develops voluntary technical standards which add value to all types of business operations by contributing to the dissemination of technology and good business practice. Again, ISO supports the development, manufacturing and supply of more efficient, safer and cleaner products and services, and also enhance trade between countries. This is achieved by providing

easier and fairer ISO standards to safeguard users and consumers, and make many aspects of their lives simpler (ISO/TC 176, 2009).

2.10 DEVELOPMENT OF ISO STANDARDS.

ISO Technical Committees (TC) and Sub-committees (SC) are involved in the international standard development process that through these six-steps (ISO, 2010; Adhikari, 2010):

2.10.1 Proposal Stage:

This is the inception stage and requires a confirmation that there is the need for a particular international standard and the proposal of its development is presented for approval by the members of relevant Technical Committee (TC) or Sub Committee (SC).

The proposal is approved if majority of the permanent members of the TC/SC approve and at least five permanent members commit to actively participate in the project.

2.10.2 Preparatory Stage:

This is the second and requires, a working group of experts from the TC/SC to prepare a working draft under the supervision of the project leader and prepare several working drafts until the one with best technical solution is settled. The draft is then forwarded to the parent committee of the working groups for the consensus building phase.

2.10.3 Committee Stage:

This is the third stage and at this stage, the first committee draft is registered and circulated for comments and recommendations by the ISO Central Secretariat. Consensus for the technical content is reached if successive committee drafts are presented and finally the text is finalized as a draft international standard (DIS) for submission.

2.10.4 Enquiry Stage:

This is the fourth stage. Within the period of five months, the draft international standard (DIS) is circulated among all ISO member bodies for remarks and approval. It is considered approved if a two-thirds majority of the permanent members of TC/SC cast their vote in favor and not more than one-quarter of the total votes cast are against the draft. The draft is sent back to the originating TC/SC for revision if the approval criteria are not met. Once the draft is approved, it becomes final draft international standard and proceeded for submission.

2.10.5 Approval Stage:

This is the fifth stage. At this stage, the final draft international standard (FDIS) is circulated to all ISO member bodies for final Yes/No vote and this takes place within two months period. The comments received at this stage are not entertained, but are registered for consideration during a future revision. The draft has to be approved by two-thirds majority of the permanent members of TC/SC with not more than one-quarter of the total votes cast in against. In case the draft is not approved, it is sent back to the originating TC/SC for revision.

2.10.6 Publication Stage:

This is the final and the sixth stage. After the approval, the final draft international standard is sent to the ISO Central Secretariat for publication. ISO member bodies review all international standards at least once after three years of publication and every five years after the first review. The fate of confirmation, revision or withdrawal is decided by the majority of the permanent members of TC/SC.

2.10 OBJECTIVES OF ISO 9000 SERIES

Evans and Lindsay, (2008) purported that ISO 9000 standards Series were created to meet five objectives;

- I. Achieve, maintain and seek to continually improve product quality and services in tandem with requirements;
- II. Improve the quality of operations to continually meet customers and stakeholders stated and implied needs;
- III. Provide confidence for internal management and other employees that quality requirements are being fulfilled and that improvement is taking place;
- IV. Provide confidence to customers and other stakeholders that quality requirements are being achieved in the delivered product;

V. Provide confidence that quality system requirements are fulfilled.

It is important that all the processes affecting quality and compliance are documented to enhance continual improvement (Evans and Lindsay, 2008).

2.11 STRUCTURE OF ISO 9000:2009 STANDARD

According to the official website; www.iso.org ISO 9000 standards focus on developing, documenting and implementing procedures for promoting consistency of operation and performance and in production and service delivery process. The standard consists of three documents. These are:

2.11.1 ISO 9000 – Fundamental and vocabulary.

This provides fundamental background information and establishes definitions of key terms used in the standards.

2.11.2 ISO 9001 - Requirements.

This document provides the specific requirements for quality managements system by providing confidence in the organization and also, the capacity to provide products that fulfil customer needs and expectations. The requirements are organized into five main sections namely:

- Overall requirements for the quality management system and documentation
- Management responsibility, focus, policy, planning and objectives

- Resource management and allocation
- Product realization and process management, and
- Measurement, monitoring, analysis and improvement

2.12 ISO 9004 - GUIDELINES FOR PERFORMANCE IMPROVEMENT.

ISO 9004 recommends a guide for organizations whose top management desires to extend the benefits of ISO 9001 in the quest for a systematic and continual improvement of the organization's overall performance. ISO 9004 again proposes a guidance towards a wider range of objectives of a quality management system than does ISO 9001, especially in managing the long-term progress of an organization.

Recently, many countries have either embraced ISO 9000 or used it as the basis of their national quality certification systems (Chow-Chua et al, 2003). A typical example is the BS 5750 which is an adoption of the ISO 9000. Ali and Rahamat (2010) in an attempt to measure the performance of construction projects managed by ISO-certified contractors in Malaysia, concluded that client satisfaction is the second most important to the adoption of ISO 9000 series, it was concluded that the client becomes satisfied if the product meets its function. However, Evans and Lindsay (2008) were of the view that meeting ISO standards is becoming a requirement for international competitiveness. The Ghana Standard Board is a member of the ISO and subscribes to the ideals and principles of the ISO 9000 series (Sabah, 2011; GSA, 2012)

2.13 ISO 9000 QUALITY MANAGEMENT PRINCIPLES

According to the official website of ISO www.iso.org, there are eight quality management principles that the adopting firms of the standard must adhere to. These principles are Customer focus, Leadership, Involvement of people, Process approach, System approach to management, continual improvement, Factual approach to decision making, and Mutually beneficial supplier Relationships.

2.13.1 Principle 1: Customer Focus

Organizations survival depends on their customers and therefore should understand current and future customer needs, and also endeavor to exceed customer expectations. This will enhance revenue, increase market share and customer satisfaction, leading to more future job. For this to be achieved, the document prescribed the following;

- Researching and understanding customer needs and expectations
- Ensuring that the objectives of the organization are linked to customer needs and expectations
- Communicating customer needs and expectations throughout the organization
- Measuring customer satisfaction and acting on the results
- Systematically managing customer relationships
- Ensuring a balanced approach between satisfying customers and other interested parties (such as owners, employees, suppliers, financiers, local communities and society as a whole).

2.13.2 Principle 2: Leadership

Leaders establish unity of purpose and direction of the organization and are expected to create and maintain the internal environment in which people can become fully involved in achieving the organizations' objectives. The benefits that will be attained includes:

- The understanding and the motivation people will derive towards the organization's goals and objectives,
- Evaluation, alignment and implementation of activities in a unified manner,
- Minimization of miscommunication between levels of the organization.

2.13.3 Principle 3: Involvement of People

People at all levels are the core of an organization, hence their total patronage enables their abilities to be harnessed for the organization's benefit.

2.13.4 Principle 4: Process Approach

The desired outcome is achieved more efficiently when activities and related resources are managed as a process.

Key benefits of a process approach are as follows:

- Lower costs and shorter cycle times through effective use of resources;
- Improved, consistent and predictable results;
- Focused and prioritized improvement opportunities.

2.13.5 Principle 5: System Approach to Management

System approach to management implies identifying, understanding and managing interrelated processes as a system contributes to the organization's effectiveness and efficiency in achieving its objectives.

Key benefits of a systems approach include:

- Amalgamation and alignment of the procedures that will best achieve the desired results;
- Ability to focus effort on the key processes;
- Providing confidence to interested parties as to the consistency, effectiveness and efficiency of the organization.

2.13.6 Principle 6: Continual Improvement

Continual improvement of the organization's overall performance should be a stable objective of the organization.

Key benefits: associated with this principle are:

- Performance advantage through improved organizational capabilities;
- Alignment of improvement activities at all levels to an organization's strategic intent;
- Flexibility to react quickly to opportunities.

2.13.7 Principle 7: Factual Approach to Decision Making

Effective decisions are based on the analysis of data and information.

Key benefits of having a factual approach to decision making include:

- Making informed decisions;
- An enhanced ability to demonstrate the effectiveness of past decisions through reference to realistic records;
- Increased capability to review, challenge and change opinions and decisions.

2.13.8 Principle 8: Mutually Beneficial Supplier Relationships

An organization and its suppliers are interdependent and a mutually beneficial relationship enhances the ability of both to create value.

Key benefits of having mutually beneficial supplier-relationship include:

- Increased ability to create value for both parties;
- Flexibility and speed of joint responses to changing market or customer needs and expectations;
- Optimization of costs and resources;

2.14 BENEFITS OF IMPLEMENTING ISO 9000 SERIES IN CONSTRUCTION

Aside the numerous benefits that the ISO 9000 series document highlighted, in a recent research by Iwaro and Mwashia (2012) on the effects of ISO 9001 certification on organization workmanship performance using the construction industry as a case study revealed that there was a direct correlation among ISO certification, organization workmanship performance, and improvement in workmanship factors. Iwaro and Mwashia (2012), therefore concluded that ISO certification improves workmanship performance substantially. Also, one of the most recent research by Santos (2013) revealed that what motivates the implementation of ISO 9001 are improvement of quality product and service, improved corporate image, commercial advantages,

efficiency, marketing and political reasons. Santos (2013) further highlighted the main benefits of certification as improvement and standardization of working procedures, improved company image, enhanced confidence in the quality of the company, improved customer satisfaction, profitability, political benefits, and improved commercial image. (Bubshait (1999) postulated that most of contractors believe that the ISO 9000 standards are applicable to the construction industry and will be beneficial to their companies. Therefore, (Bubshait (1999) reported that the contractors rejected none of the 'ISO 9000 series' clauses of the standards. Ali Rahamat (2010), in a quantitative research to examine the benefits of implementing ISO 9000 standard to construction companies and the criteria used for measuring project performance, concluded that effective implementation of ISO 9000 can benefit organizations via the enhancement of management control, efficiency, productivity and customer services. Kantner (1997) also reported that the two common benefits reported in the literature are increase in productivity and access to overseas markets. And that most companies experiences growth in their entire sales after certification. Again, implementation of the ISO 9000 yielded better quality systems, customer satisfaction, competitive advantage and reduction of quality problems (Calingo et al., 1995). Haversjo (2000) also reported that ISO 9000 certified companies have better rates of return on their investment than similar non-certified companies, basically due to improved sales. Also, 65 per cent of the certified companies have experienced high levels of internal (human resources management, operations management), external (customer satisfaction, less complaints, enhanced sales), and financial benefits (market shares, sales per employee, return on sales and return on assets) (Casadesus and Gimenez 2000). Contrary to the financial benefit postulated by Casadesus and Gimenez (2000), Santos (2013) was of the view that certification to the ISO 9000 standards may not increase or decrease a firm's market share or profits. Hence we

can deduced that certification reduces administrative lapses, improve quality delivery and enhances the corporate image of the company.

2.15 QUALITY MANAGEMENT IN THE CONSTRUCTION INDUSTRY

In the construction industry, quality can be defined as satisfying the requirements of the designer, constructor and regulatory agencies as well as the owner (Arditi and Gunaydin, 1997). The construction industry in many parts of the world suffers from problems such as defective product, time, and cost overrun. Therefore the need for change is unavoidable to be able to improve the condition of the construction industry (Harrington and Voehl 2012). Quality management is increasingly gaining acceptance for curbing these problems in the attempt to meet the needs of the clients (Wong, 1998). Hence Arditi and Gunaydin (1997) state that there is a potential for quality improvement in the construction sector and that the industry has no excuse to misuse time and resources, due to reworks and delays. Arditi and Gunaydi, (1997) indicated that commitment of the construction industry to Quality Management is minimal as compared to the manufacturing industry. However, they admitted that the concept is gaining grounds.

In Osei Assibey (2005) towards the Implementation of Total Quality Management (TQM) for DACF projects at the pre contract stage listed the following as the outcome of Quality Management Systems (QMS) on projects.

- There is a proven test of commitment and pursuit to which the product or service has been subjected to;
- Results in better designs;

- Ensures effective planning;
- Improves quality;
- Results in fewer delays and disruptions;
- Cost effective way of obtaining a product of known quality, recognized performance and value for money;
- Efficient handling of problems;
- Increases project performance;
- Results in fewer delays and repair works;
- Provision of feedback for continues development;

2.16 DRAWBACKS OF ISO 9000 CERTIFICATION

Even though there are enormous benefits of ISO 9000 implementation, there are lingering disadvantages/drawbacks purported to be associated with ISO 9000-certified quality systems. For example, Bubshait et al (1999) revealed the following as the drawback towards the implementation of the ISO 9000 standards:

- High cost, especially initial cost;
- Resistance to change at various levels in the organization;
- Loss of productivity of the workforce due to the effort exerted in learning the new system and implementation, besides their regular duties;
- Management interference;
- Limited ability of personnel;

- Dispersed job sites, making it hard to control and track the quality system implementation in all sites;
- Communication problems between personnel because of language differences;
- Cultural differences within the workforce.

Chileshe (1996) postulated that most organizations in the construction industry were reluctant to implement Quality Management (QM) because they did not want to subject their employees to ‘cultural shock’, and that there were other pressing issues to consider, such as survival. In addition, Love (2000) noted that organizations in the construction industry have abstained from implementing QM practices because they feel that the short-term benefits are relatively minimal.

Kwok (1997) reported that some criticize the implementation of ISO 9000 in construction as costly and time-consuming, hence discouraging small companies from choosing this route. Also, training, employee turnover, keeping documents up to date, more paperwork and additional costs are the other disadvantages of ISO 9000-certified quality systems (Kwok, 1997). Implementing a quality system is a long-term exercise and may require 5-8 years for employees to accept as part of their routine (Bradley, 1998). Considering the normal project cycle, very few projects last for that length of time. That coupled with the high turnover of workers on construction projects make implementation of ISO unattractive in the construction sector.

2.17 THE LOCAL GOVERNMENT SYSTEM IN GHANA

The Colonial Government issued the Municipal Ordinance to the Cape Coast and its neighborhoods way back in the 1850s which introduced public service in the then Gold Coast (Osei-Assibey, 2005). However, the government and leader of Ghana’s independence, Kwame

Nkrumah, dismantled all structures of local government as part of the move to outlaw all political activity (Banful, 2009). Nkrumah government then introduced the Local Government Act 54 in 1961 to decentralise governance in Ghana, however, implementation could not commence before his overthrow. The Mills-Odoi Commission on Decentralization in 1967 suggested a decentralized system of governance like the one being practiced today. Again, neither the National Liberation Council nor the Second Republic of Ghana that followed could implement such recommendation. The recommendations of the Mills –Odoi Commission were implemented by the Acheampong regime in 1974 setting up 65 District Assemblies but with limited capacity. In 1988, the PNDC Law 207 was passed to have an enhanced decentralization of governance. In furtherance, this law was strengthened by the Local Government Act 462 of 1993 which established the DAs in the Forth Republic of Ghana repealing previous laws (Botchway, 2000).

As of 2011, there were 170 Metropolitan, Municipal and District Assemblies across Ghana. However, the number increased to 216 as of 2012 by legislation.

2.18 INTENTION FOR THE ESTABLISHMENT OF DISTRICT ASSEMBLIES

Article 240 of the 1992 constitution of Ghana enshrines the Local government system, and Article 35(5d) requires the state ‘to take appropriate measures to ensure decentralization in administrative and financial machinery of government and to give opportunities to people to participate in decision-making at every level in national life and government’. The Constitution also establishes the District Assemblies’ Common Fund (DACF) and provides that not less than

5% of the total revenues of Ghana are paid into the DACF for use in district assembly capital works (www.clgf.org.uk).

According to Osei-Assibey (2005), over two thirds of the population of Ghana live in rural areas. Hence, for prudent administration and development of these areas, there was the need to decentralise governance to enhance the participation of the locals in governance and improve on the development of the district as a whole.

The District Assembly is thus an entity for legal recognitions, administration, local political activity, policy formulation at the district level, development planning and budgeting and plan implementation (Botchway, 2000; Banful, 2009).

2.19 COMPOSITION OF DISTRICT ASSEMBLIES

District Assemblies are composed of not less than 11 decentralised departments (Botchway, 2000; Banful 2009).

These are:

- Education;
- Social Welfare and Community development;
- Works department;
- Physical planning department;
- Finance Department;
- Natural and Resource Conservation;
- Central Administration;

- Trade and Industry;
- Disaster Prevention Department;
- Health Department;
- Department of Agriculture.

Sabah (2011) reported that there are Project Implementation and Monitoring committees composed of personnel from different departments to monitor projects. Also, a background check on some few assemblies confirmed positive.

2.20 STRUCTURE OF THE DISTRICT ASSEMBLY

All MMDAs are composed of elected and nominated members. Two- thirds of members are elected by popular vote from the various zones of the district while one third are appointed by government and a presiding member elected from and among the assembly members. The District assembly is headed by the District Chief Executive which is an executive position appointed by the President of the Republic of Ghana and approved by the assembly members. Key administrative personnel in the MMDA concept are the District Coordination Director, Finance Officer, Planning Officer and Project Officer. An executive council is responsible for the day to day administration of the Assembly (Banful 2009).

2.21 FUNCTIONS OF DISTRICT ASSEMBLIES

The MMDA is the highest political and administrative body in the district with legislative and executive functions. Sections 10 of Act 462 (1993) list the functions of the District Assemblies as:

- Ensuring that the development plans and budget of the district are worked out for approval by the Ministry of Finance;
- Formulating and executing plans and programmes and strategies for the effective mobilization of resources;
- Promoting and supporting productive activity and social development in the district and eliminating any obstacles to initiative and development;
- Initiating program for the development of basic infrastructure and provide municipal works and service in the district;
- Promoting and encouraging other persons or bodies to undertake projects under approved development plans;
- Monitoring the execution of projects under approved development plans, assess and evaluate their impact on the development in the local, district and national economy.

2.22 PROJECT IMPLEMENTATION AT THE DISTRICT ASSEMBLY

In line with the MMDAs responsibility of developing its area, projects are identified or proposed by the MMDA, local communities or government. Projects are either executed by Works Department of the MMDA or by an agents of the MMDA (contractors) depending on the size, cost, duration of the project, manpower and skill required (Botchway, 2000).

2.23 SELECTION OF CONTRACTORS

The MMDAs, like any public organization are expected to select their contractors based on the provisions of the Public Procurement Law, Act 663 via competitive tendering.

2.24 THE DISTRICT ASSEMBLIES COMMON FUND

The DACF was created by Section 252 of the 1992 Constitution of Ghana. Act 455 of 1993 states that not less than 5% of the total government revenue is to be paid into the DACF for development of the Districts across the country. The DACF is the most important source of funding for DAs and covers between 80 - 90% of an assembly's annual expenditure (Banful, 2009). While there are broad regulatory guidelines, DAs are free to use the funds as they wish if the intended use is in their budgets furnished to the DACF Administrator prior to disbursements (Banful, 2009).

The DACF provides finance for development in the areas of health and sanitation, education, potable water, residential and office accommodation, rehabilitation of roads and provision of community facilities (Osei Assibey, 2005; www.clgf.org.uk). However, erratic payment by government and the huge competing needs put a lot of pressure on the Common Fund. Additionally, due to the near absence of technically competent and experienced staff in the district, utilization and management of Common Fund projects have been shrouded with problems (Osei-Assibey, 2005).

2.25 PERFORMANCE MEASUREMENT FRAMEWORKS

A chunk of establishments in the early 20th Century applied frameworks in an effort to define a set of criteria that could be used in assessing their performance. A typical example is the DuPont pyramid of financial ratios which presented a variety of financial ratios to return on investment. Again, the pyramid of financial ratios presented an unambiguous hierarchical structure relating measures at different company levels (Kennerley and Neely, 2002).

Also, the European Foundation for Quality Management (EFQM) Excellence Model is a self-assessment framework for measuring the strengths and areas for improvement of an organisation across all of its activities. Although it originated from the private sector, public and voluntary sector organisations can also benefit from using the Excellence Model. It is non-prescriptive and does not involve strict adherence to the set of rules or standards, but provides a broad and coherent set of assumptions about what is required for a good organisation and its management (Evans and Lindsay, 2008). This was confirmed in Tanner (2004) *cited in* Jayamaha et al. (2011), that Business excellence (BE) models, particularly the Baldrige Criteria for Performance Excellence (BCPE) and the European Foundation of Quality Management (EFQM) Excellence Model, are being adopted by organisations around the globe for self-assessment, benchmarking, sharing of best practices and assessing organisations for national quality and BE awards.

There are nine main criteria in the EFQM Model that attempt to cover all an organizations' activities, and are separated into Enablers and Results. The Enabler criteria are concerned with how the organisation conducts itself, how it manages its staff and resources, how it plans its strategy and how it reviews and monitors key processes. They are:

1. Leadership
2. People

3. Policy and strategy

4. Partnerships and resources

5. Processes

The organizations' Results are what it achieves. These encompass the level of satisfaction among the organizations' employees and customers, its influence on the wider community and key performance indicators. They are:

1. People results

2. Customer results

3. Society results

4. Key performance results (www.bqf.org.uk/ex_framework.)

The BCPE model according to Jayamaha et al. (2011) is based on Organizational Profile such as Environment, Relationships, and Challenges and with emphasis on the following seven criteria: Leadership; Strategic Planning; Customer and Market Focus; Measurement, Analysis, and Knowledge Management; Workforce Focus; Process Management; and result.

Neely (1999) echoed that numerous other quality awards have since been introduced, although the two with the highest profile are the BCPE, which is available in the USA, and the EFQM Award.

Neely (1999) was of the view that acceptance of these awards is evidenced by the fact that there are over 385,000 references to the EFQM award on the World Wide Web. Neely (1999) again highlighted on one of the first award models as the Deming Prize, which was introduced in Japan in 1950, named after W. Edwards Deming's preeminence in the field of quality management. To

apply for the Deming Prize, Neely (1999); Evans and Lindsay (2008). Purported that firms have to submit detailed data on:

1. Policy;
2. Organisation and its management;
3. Education and dissemination;
4. Collection, dissemination and use of information on quality;
5. Analysis;
6. Standardization;
7. Control;
8. Quality assurance;
9. Results;
10. Planning for the future.

Also, Bubshait et al. (1999) reported the following as the ISO 9001 clauses which they adopted in an exploratory research for evaluation of the quality systems of 15 construction contractors in Saudi Arabia.

Table 2.2 ISO 9001 clauses

CLAUSE	HEADING
4.1	Management Responsibility
4.2	Quality system
4.3	Contract review

4.4	Design control
4.5	Document and data control
4.6	Purchasing
4.7	Purchaser supplied product
4.8	Product identification and traceability
4.9	Process control
4.10	Inspection and testing
4.11	Inspection measuring and test equipment
4.12	Inspection and test status
4.13	Control of nonconforming product
4.14	Corrective and preventive action
4.15	Handling, storage, packaging, and delivery
4.16	Quality records
4.17	Internal audits
4.18	Training
4.19	Servicing
4.20	Statistical techniques

Source: Bubshait et al. (1999)

In the Ghanaian context, one major project, which a thorough search of the literature revealed was Ndure (2010) who adopted the balance scorecard of Kaplan and Norton (1992) to develop a frame work based on four main perspectives (Financial, Customer, Learning and Growth, and Internal Business Processes).

TABLE 2.3 PERFORMANCE CRITERIA BASED ON FOUR PERSPECTIVES

Financial Perspective	Customer Perspective	Learning & Growth Perspective	Internal Business Process Perspective
Financial Stability	Client satisfaction	Labour relations	Quality
Estimated cost	Degree of cooperation	Site welfare, health & safety	Practical programmes
Risk management	Duration of construction	Correction of defects	Workmanship
Equipment holding	Relations with sub-contractors	Creative and innovative ability	Site management
	Operational base of contractors	Employee development	Communication
			Environmental management

Source: Nduro (2010)

Nduro (2010) using one sample T-test therefore concluded on ten set of criteria for assessing the performance of contractors in Ghana from the perspective of consultants; architects, quantity surveyors and engineers/project managers in both Accra and Kumasi. The ten set of standard proposed by Nduro (2010) are:

1. Quality of final building product;
2. Standard of workmanship;

3. Site management practices;
4. Labour relations at site;
5. Relations with subcontractors and statutory authority;
6. Appropriateness of organizational structure;
7. employee development;
8. Client satisfaction;
9. Equipment holding and
10. Financial stability.

2.26 SUMMARY

This section was the second of the document, and attempted to review the relevant and related literature in the areas of performance, quality standards, and the district assembly system in Ghana.

The first section commenced with the review of performance, and performance measurement by attempting to defined and explain these terms. The section then continued to consider other terms such as performance measures and indicators, given different perspectives of some of the researchers and the dimensions. The importance of performance measurement and evaluation were looked at as a catalyst for changing the nature of work, increase competition among others. Trends in performance measurement such as success-meeting objective and subjective were also considered. Performance evaluation in construction industry and construction project were not left out.

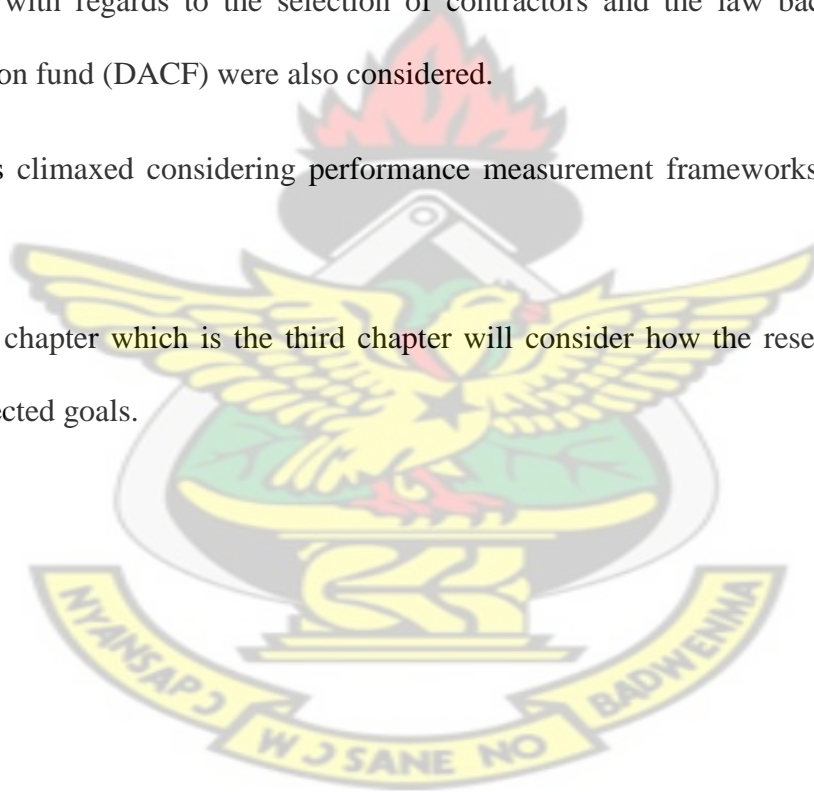
The second section continued to consider the quality standards such as ISO 9000 quality series, how the ISO 9000 is structured, guidelines for performance improvement and the quality

management principles in the ISO 9000 document, and the benefits for implementation of such standards in the construction industry. The section continued to look at quality management in the construction industry in general such as improvement on quality and effective planning among others and the drawbacks to the implementation of the ISO 9000 series.

The third section was structured to encompass the local government system, and attempted to consider the historical background, the intention for the establishment of the district assemblies (DAs), the major composition, structure, and functions of the DAs were considered. Project implementation with regards to the selection of contractors and the law backing the district assembly common fund (DACF) were also considered.

The section was climaxed considering performance measurement frameworks available in the literature.

The succeeding chapter which is the third chapter will consider how the research is design to achieve the expected goals.



CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The last two Chapters were devoted to defining the research objectives and review of earlier works. This chapter is the third chapter of this document and discusses the research methodology adopted in detail with emphasis on the target population for the study which is the construction professional at the MMDA level who are tasked to ensure the quality delivery of construction project by the contractor. The data collection instrument adopted, questionnaire and sample design, how the questionnaire will be administered and the data analysis approach are also considered in this chapter.

3.2 POPULATION

The construction professionals at the MMDA level who are in charge of supervising the operations of contractors who embarks on project at the assembly level, are the target population for the study.

3.3 QUESTIONNAIRE DEVELOPMENT

Questionnaires were used as data collection tools in this research due to the number of respondents involved. Therefore, the questionnaires are designed to address the study concerns. It is vital to establish the facts to be gathered so that relevant questions are framed for the purpose (Nachimias and Nachimias, 1996). Once the survey questionnaires are drafted, it will be pre-tested (piloting) on a small number of respondents having characteristics, similar to those of the target group of respondents. This would help in avoiding ambiguity and also help to focus the questionnaires, making it more consistent to achieve the desired outcome.

3.4 CONTENT OF QUESTIONNAIRES

Being able to recognize the respondents for the questionnaires and their characteristics, the next line of action is to concentrate on the design of the actual questions that would be asked to elicit the requisite information for the study. The way in which survey questions are presented would affect the quality of the responses and therefore it is important to safeguard that the right questions are asked, well understood and asked in the right way (Wahab, 1996). The questionnaire is structured and constitutes of close ended questions with three main divisions or parts.

Part 1 is to solicit information about the profile and characteristics of the District Assemblies.

Part 2 is in two sections. The first section seek the respondents' rating of different roles of a contractors in the process of project execution on a scale of 1 to 5. The criteria used in this section were based on an evaluation framework developed by Nduro (2010) in an attempt to assess the performance of contractors on construction project in Ghana.

The second section seek to determine MMDAs assessment of the contractors' performance, using a scale of 1-5 with 1 being the least and 5 being the highest.

Part 3 of the questionnaire seek MMDAs views on the importance of the documented benefits of the ISO 9000 QMS to them, adopted from Santos (2013); Saba (2011); Magd (2006) and comprise of two sections. The first section seek MMDAs views on the documented benefits of ISO 9000 QMS and asked them to rate the importance of the benefits to their organisations on a scale of 1-5. The second section also seek to determine from MMDA on a scale of 1-5, the perceived benefits to their organisation of the documented benefits of ISO 9000 QMS as a result of their contractual association/relation with their contractors.

The questionnaire was pre-tested on pilot base, with experienced engineers at the assembly level in Assin Central, Adansi South and Ga south and their comments, and criticism, considered and included in the final design to avoid ambiguity in the wording et al.

3.5 RESEARCH DESIGN AND PROCESS

According to Burns and Grove (1987), *cited in* Al-Hallaq (2003) research design is considered in two dimensions; one school of thought suggest that the entire strategy for the study, commencing from identifying the problem to find plans for data collection is the research design, while others limit design to well outline structural framework within which the study is implemented. Research process on the other hand discusses data collection instruments, methods, and procedures. It provides detailed explanations to each of the methods employed and how the methods adopted are used to address the aims, objectives and research questions (Oppenheim, 1996).

This research charts a quantitative strategy and adopts survey questionnaire which is also preceded by comprehensive literature review. A survey questionnaire is adopted due to the thorough knowledge of the population. Therefore, an adoption of probability sampling method according to Leedy and Ormrod (2005), would allow for the use of statistical tools such as SPSS software for the analysis, making it possible for generalization of the final outcome.

3.6 DETERMINATION OF THE SAMPLE SIZE

The stratified random sample is adopted to enhance equal representation of the MMDAs in the sample frame. However before this is undertaken, it is important to establish the appropriate sample size needed to be drawn. The determination of the sample size is therefore based on the Kish formula: $n = n' / (1 + (n'/N))$

Where:

n = the minimum sample size

$$n' = S^2 / V^2$$

S = maximum standard deviation of the population sample calculated as: $S = P (1 - P)$, P = Being the proportion belonging to the specified category (in this case $P = 50\%$ in applying the simple majority rule).

Therefore

$$S^2 = 0.5 (1 - 0.5) = 0.25$$

V = Standard error of sampling distributions

$V = 0.05$ for a confidence level of 95%

$$V^2 = 0.0025$$

$$n' = 0.25 / 0.0025$$

$$n' = 100$$

$$n = n' / (1 + (n'/N))$$

N = the total population. In this case it is the list obtained from the local government website www.ghanadistricts.com being 216 MMDAs.

$$n = 100 / (1 + (100/216))$$

$$n = 100 / (1 + 0.46296) = 68.35 = 68$$

Using the above parameters from the above equation gave a sample size of 68 MMDAs.

Drawing on typical response rates to surveys undertaken in Ghana, for example Ahadzie (2007), a non-response rate of 50% is assumed to increase the number to 102. Thereafter, proportional representation is used to allot the questionnaires to the MMDAs in order to ensure equal representative. The sample proportion obtained is detailed in Table 3.1 below.

Table 3.1 SAMPLE FRAME OF THE MMDAs

STRATA OF MMDAs	POPULATION(N)	PERCENTAGE	SAMPLE(n)
Metropolitan	6	2.78	3
Municipal	49	22.68	23
District	161	74.54	76

TOTAL	216	100	102
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Source: Sample Design

3.7 ADMINISTERING OF QUESTIONNAIRES

In order to enhance the response rate, despite the dispersed nature of the MMDAs, some of the questionnaires will be administered to the respondents by post via the current addresses available at the official website www.ghanadistricts.com. Each envelop will contain the questionnaire, and a stamped self-address return envelope so that the respondent can easily return the filled questionnaire without hitches. Furthermore, those who might find the postal approach as uncomfortable will be encouraged to get an electronic copy from a special mail created for the purpose with the password given, fill the questionnaire electronically and submit to the same mail. Also, other assemblies which are close and easily assessable will be visited and the questionnaire administered personally.

3.8 DATA ANALYSIS

The first part of the questionnaires involving the profile of the MMDAs and respondents will be analysed using percentages.

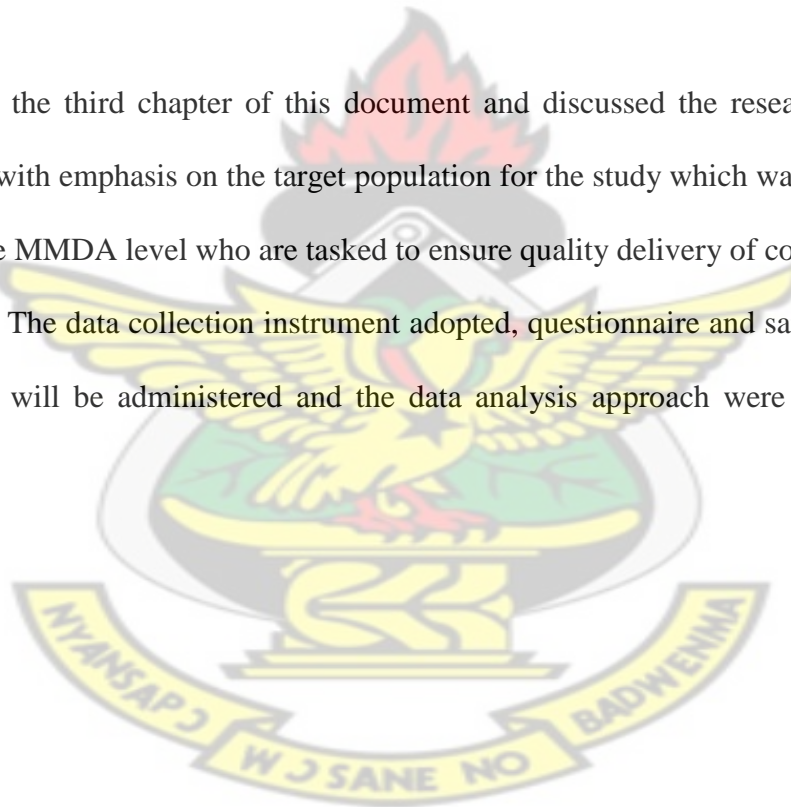
The second part of the questionnaire involving the determination of the relative importance of the evaluation criteria and performance of contractors will also be analysed using a combination of mean weights derived from the raw scores which is used to construct an incremental scale from the mean weights and mean ratings.

The third part of the questionnaire will also be analysed by comparing the values of the expected benefits and the actual benefits, as in Ng, (2005); Sabah, (2011) that clients' satisfaction can be portrayed by comparing the mean values of the expected and actual benefits.

KNUST

3.9 SUMMARY

This chapter was the third chapter of this document and discussed the research methodology adopted in detail with emphasis on the target population for the study which was the construction professional at the MMDA level who are tasked to ensure quality delivery of construction project by the contractor. The data collection instrument adopted, questionnaire and sample design, how the questionnaire will be administered and the data analysis approach were discussed in this chapter.



KNUST

CHAPTER FOUR

ANALYSIS AND DISCUSSION

4.0 INTRODUCTION

The aim of the study was to assess the performance of MMDA project contractors in their role as contractors and also establish whether there was the need for ISO 9000 certification of contractors in Ghana. This chapter presents the results and discussion of the data from the respondents. The results are analysed in three parts. The first part is on the profile of the respondents and their respective assembly, the second part is evaluation of contractors on their roles and the third part on respondents' view on the benefits of ISO 9000 QMS to the contractors.

4.0.1 QUESTIONNAIRE DISTRIBUTION AND RESPONSE

In all one hundred and two questionnaires were distributed to the respondents using stratified random sampling. Seventy two of the questionnaire were posted to the respondent via the

addresses available at the official website, www.localgovernmentghana. Thirty of the remaining were distributed personally to respondents in Greater Accra, Ashanti, and few of the MMDAs in Eastern regions of Ghana. The response were as shown below:

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Table 4.0.1 QUESTIONNAIRE DISTRIBUTION AND RESPONSE

Mode of Distribution	Number distributed	Number received	% received
Postal distribution	72	24	33.33
Personal distribution	30	30	100
Total	102	54	52.94

Source: field survey 2014

Out of the seventy two of the questionnaire posted, twenty four were filled and returned via post. Also, the personal distributed questionnaires were all retrieved. Hence the total response rate was 52.94%.

4.1 THE ASSEMBLY AND THE RESPONDENTS' PROFILE

The aim of this section was to assess the demographic information of the respondents and their respective assembly's to help determine their suitability for the study.

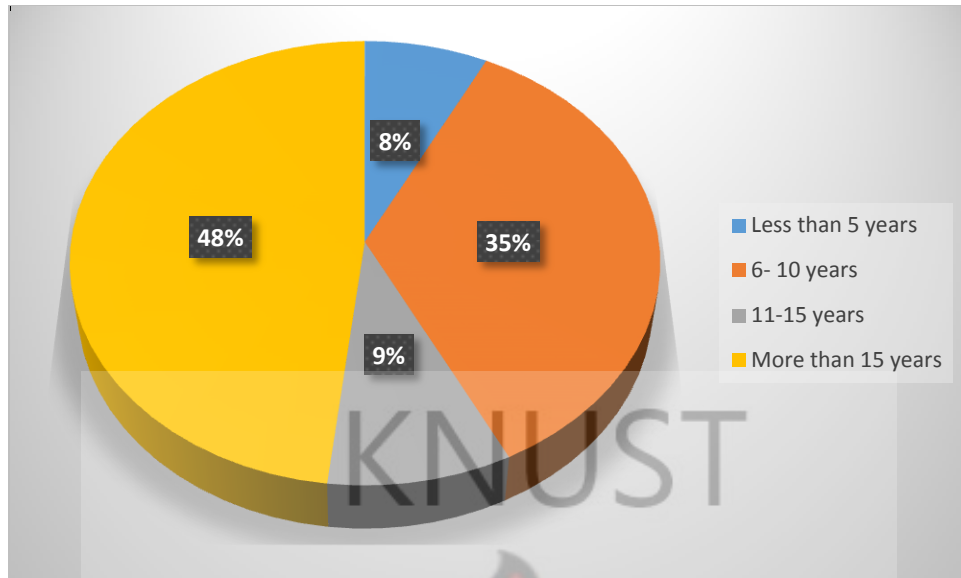


Fig.4.1.1 Period of existence of MMDAs. (Field survey, 2014)

4.1.1 PERIOD OF EXISTENCE OF MMDAS

The MMDAs in Ghana have been in existence for varying periods. Hence it was considered imperative to know the period of existence of MMDAs who participated in the study.

From Fig. 4.1.1 above, 48% of the MMDAs in the study had existed for more than 15 years, followed by those who had existed between 6 and 10 years (35%). Thus majority of MMDAs has existed for over five years, a period long enough to have engaged the services of contractors.

4.1.2 POSITION OF RESPONDENTS

Each questionnaire was responded by a construction professional working in the Assemblies on behalf of the Assembly. Therefore it was considered necessary to know the positions of the respondents who actually completed the questionnaire to be able to ascertain the viability of the

information provided on the contractors. Fig 4.1.2 below displays the positions of individuals who completed the questionnaire.

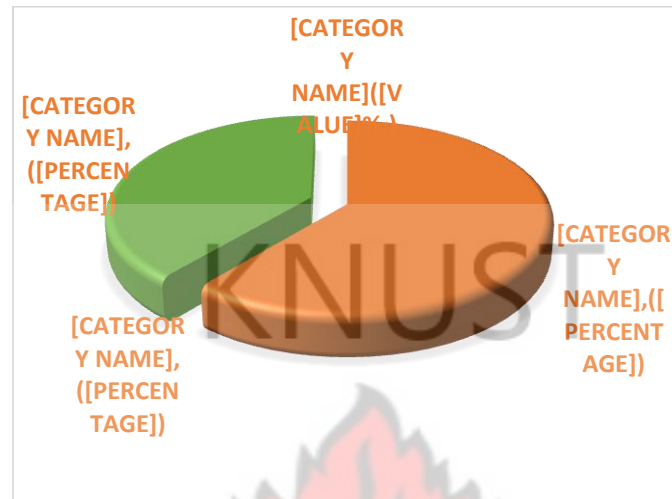


Fig 4.1.2 position of respondent. (Field survey, 2014)

From fig. 4.1.2 above, Sixty one percent (61%) and 39% of the questionnaires were completed by District Works Engineers and quantity surveyors respectively. Indeed, these are the top officials at the MMDAs directly involved in construction works and invariably work directly with contractors who are contracted MMDAs. Therefore, it can be inferred that, respondents who completed the questionnaires were in a good position to provide reliable and accurate information on contractors' performance.

4.1.3 EDUCATIONAL QUALIFICATION OF RESPONDENT

In the attempt to ascertain the background information of the respondents there was the need to know the educational level, Fig. 4.3 depicts the respondents' level of education.

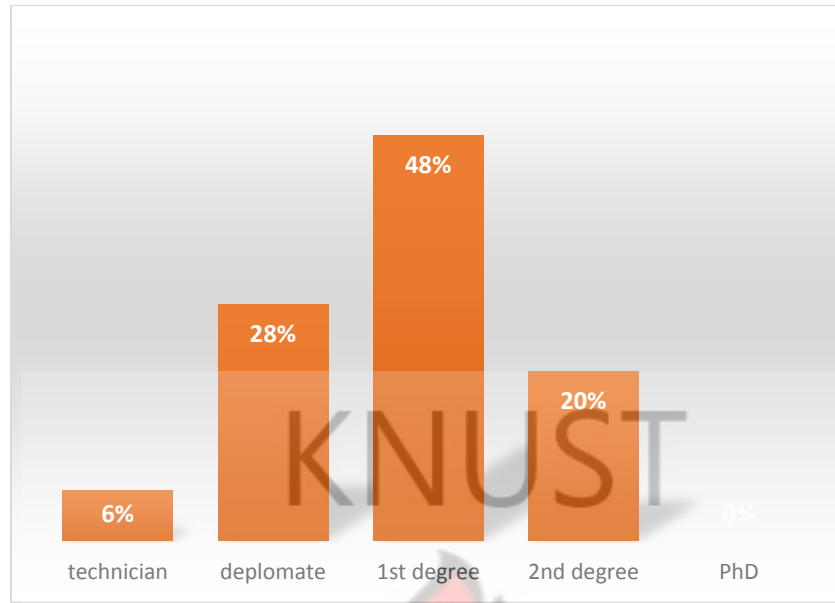


Fig.4.1.3 Respondents' Edu. Qualification. (Field survey, 2014)

From Fig. 4.1.3 above, 48% and 20% of the respondents were first and second degree holders respectively, and 28% were diploma holders. An indication that majority of the respondents were at least degree holders and are in a better position to assess the contractors.

4.1.4. EXPERIENCE OF RESPONDENTS

In addition to the position and educational qualification of the individual respondents, it was considered important to determine the length of time the respondents had been involved in project management. It is extensively known that officials gain more experience on the job as the length of their service increases. Table 4.1 gives the years of experience of the individual respondents.

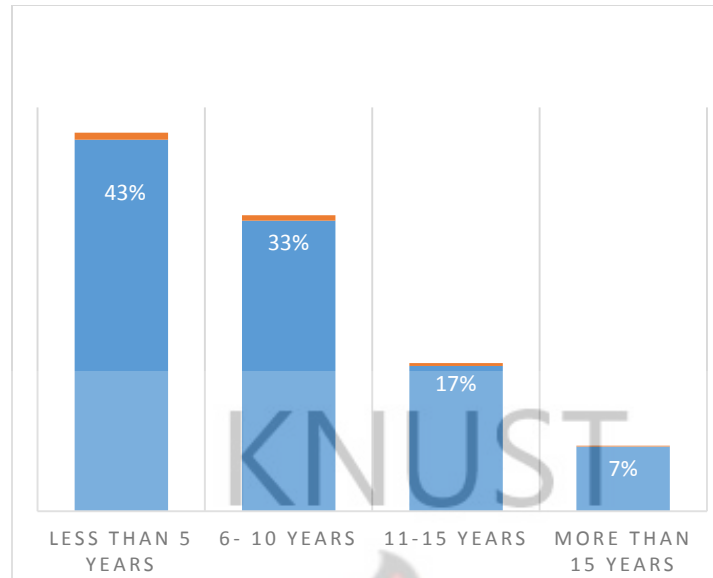


Fig. 4.1.4. Experience of Respondents (field survey, 2014)

From Fig. 4.1.4 above, over 50% of the respondents had over five years working experience in Construction Management at the MMDA level, hence were very likely to have the knowledge, skills and expertise to decipher good and poor performance of the contractors.

4.1.5 SOURCE OF FUNDING FOR DEVELOPMENT PROJECT.

Available literature such as Banful (2009); Amoah et al (2010) reported that the main source of funds for the MMDAs development projects is the District Assembly Common fund (DACF). However a pilot survey of the questionnaire reviewed that the assemblies have other sources of fund. Therefore, it became necessary to ask the respondents to list in order of reliability the funding sources of the MMDAs.

Table 4.1.5 source of funding for MMDAs development projects

Ranking Funding Source	1 st	2 nd	3 rd	4 th	5 th	total	mean	Position
GET Fund		4	9	8	6	27	1.2	5 th
District Assembly Common Fund(DACF)	17	18	10	7	2	54	3.76	1 st
Internally Generated Fund(IGF)	6	7	17	14	4	48	2.61	3 rd
District Development Fund(DDF)	18	16	3	1		38	3.06	2 nd
Urban Development Grant(UDG)	10	5	3		3	21	1.52	4 th
Community Water & Sanitation Agency (CWSA)			2	3	1	6	0.24	7 th
International Donor Agencies (IDA)			5	2	5	12	0.44	6 th
local Government capacity support project(LGCSP)			1	1	1	3	0.11	9 th
Mining Royalties(MR)			1	1	2	4	0.13	8 th

Source: field survey 2014

Table 4.1.5 above shows reliability weights of the funding source developed from the highest to the lowest. Since all respondents were given equal chances to list in order of reliability, the mean was calculated from respondents ranking of each criterion as shown below:

Mean score = $(5n_1 + 4n_2 + 3n_3 + 2n_4 + 1n_5) / (54)$ where n_1, n_2, n_3, n_4 and n_5 are the number of respondent who ranked a, b, c, d, and e respectively.

The result indicated that the main source of funding for the MMDAs development projects in order of reliability are;

- District Assembly Common Fund (DACF),
- District Development Fund (DDF),

- Internally Generated Fund (IGF), and
- Urban Development Grant (UDG).

This confirms Banful (2009); Amoah et al (2010); Sabah (2011) that the MMDAs main source of funding is the DACF.

4.1.6 REASONS FOR ENGAGING THE SERVICES OF CONTRACTORS.

Most MMDAs permanently have trades men for their projects. Hence there was the need to find out why they prefer engaging the services of contractors, instead of using the assembly personnel.

Table 4.1.6 Reasons for using contractors for MMDA projects

Reason	1 st	2nd	3rd	4th	5th	6th	Total	Mean	Psitn.
value of project	3	14	19	12	6	0	54	3.93	3 rd
Funding Source	8	24	13	6	3	0	54	4.52	1 st
Level of expertise required for the project	3	4	11	17	16	3	54	3.11	4 th
Government Regulation	26	4	6	7	5	6	54	4.38	2 ^{sd}
Work Load	3	5	1	18	7	20	54	2.5	5 th
Lack of Capacity	2	4	2	3	16	27	54	2	6 th

Source: field survey 2014

From table 4.1.6 above, the three main reasons why the MMDAs employ the services of contractors are funding source, Government Regulations such as public procurement Act, and the value of project.

4.1.7 FACTORS THAT AFFECT CONTRACTOR SELECTION FOR PROJECTS

The MMDAs like any public organization, in most case are obliged to select contractors for development project based on competitive tendering. However to ensure value for money, the tender review committee use certain criteria in their review. Therefore it was found important to find out which of the factors are ranked higher.

4.1.7 Factors that affect contractor selection for projects

Factors	1st	2nd	3rd	4th	5th	Total	Mean	Position
Certification requirement (tax clearance, VAT, etc.)	30	13	11	0	0	54	4.35	1st
Political influence	14	16	5	7	12	54	3.24	5th
Quality track record based on prev. works	14	21	10	6	3	54	3.69	4th
Capacity of the contractor	15	18	18	3	0	54	3.83	3rd
Lowest evaluated tenderer	25	19	6	1	3	54	4.15	2nd

Source: field survey 2014

From table 4.1.7 above, the three highest ranked factors were; Certification requirement (tax and VAT clearance), lowest evaluated tenderer and the capacity of the contractor. This is in line with the usual tender evaluation procedure where by a contractor is disqualified when he fails to any of the criteria at the preliminary stage of the evaluation.

4.1.8 CLAUSE IN MMDAs CONTRACTS WITH CONTRACTORS ON PERFORMANCE EVALUATION

All the respondents answered yes, a positive sign that the MMDAs have intention to evaluate the performance of their contractors

4.1.9 PROJECT PERFORMANCE EVALUATION

For any development project to be successfully delivered, there should be a periodic review of performance of the contractor. Therefore attempt was made to find out if any of such measures were in place.

The survey reviewed that all the fifty-four (54) MMDAs who responded to the questionnaire have a clause in their contract document on Project Performance Evaluation (PPE) as part of their contract with the contractors since they all responded positive.

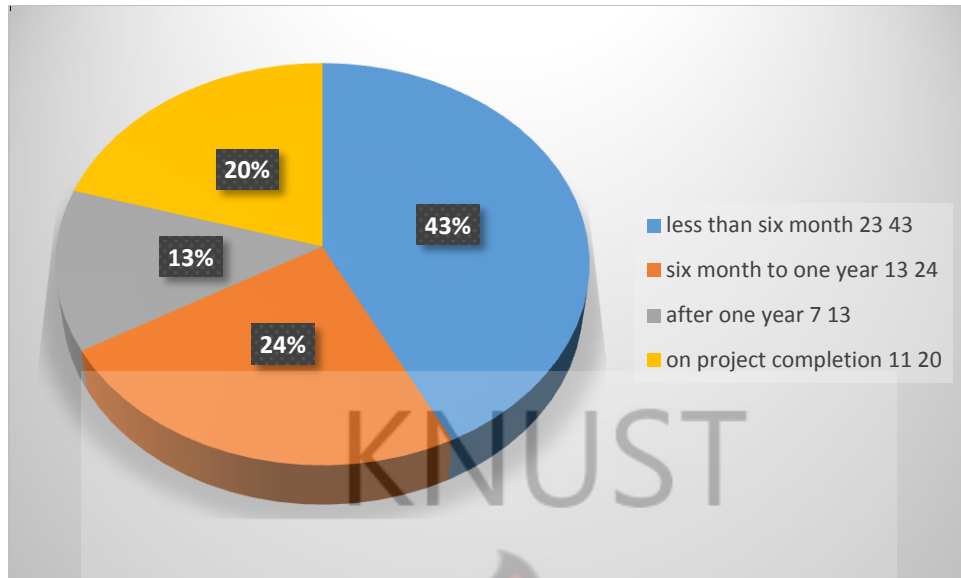


Fig.4.1.9 period for PPE. (Field survey, 2014)

4.1.10. REASONS FOR NONE EVALUATION OF PROJECT

This was a follow up question to those MMDAs who might not have been evaluating their contractors. However, since all the respondents responded positive to question eight (8), there was no response to question ten (10); a follow up question to the respondents who may have responded negative to question eight (8).

4.1.11 RESPONDENTS KNOWLEDGE ON ISO 9000 QMS

As the ISO 9000 QMS is a relatively unexploited standard in Ghana, an effort was made to determine respondents' understanding and level of knowledge of the ISO 9000 standards. Table 4.1.11 below is a summary of respondents' knowledge of the ISO 9000 standard.

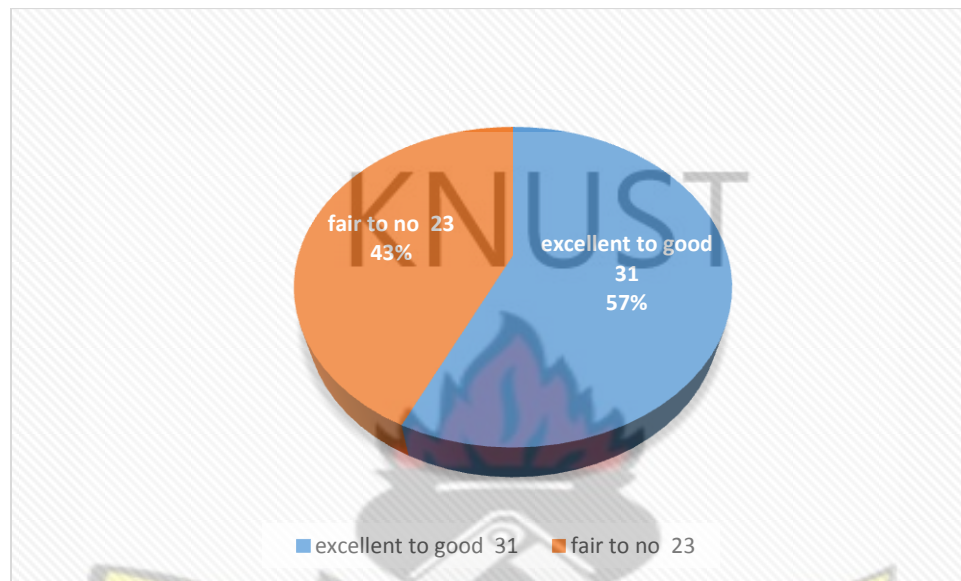


Fig 4.1.11. Level of knowledge on ISO 9000, (Field survey, 2014)

57% of officials who participated in the study on behalf of the MMDA had excellent to good knowledge of ISO 9000 QMS, contrary to Sabah (2011). This might be due to the higher level of educational qualification and long years of experience as reflected in questions three (3) and Five (5) respectively.

4.1.12 RECOMMENDATION FOR THE ADOPTION ISO 9000 QMS FOR CONTRACTORS

This was to find out the perspective of the respondent towards the adoption of ISO 9000 QMS for managing the activities of contractors they engage for MMDA development project.

From table 4.1.12 below, 74% of the respondents recommended the adoption of ISO 9000 QMS for MMDA construction contractors' project management, a clear signal that ISO 9000 QMS could be adopted by MMDAs.

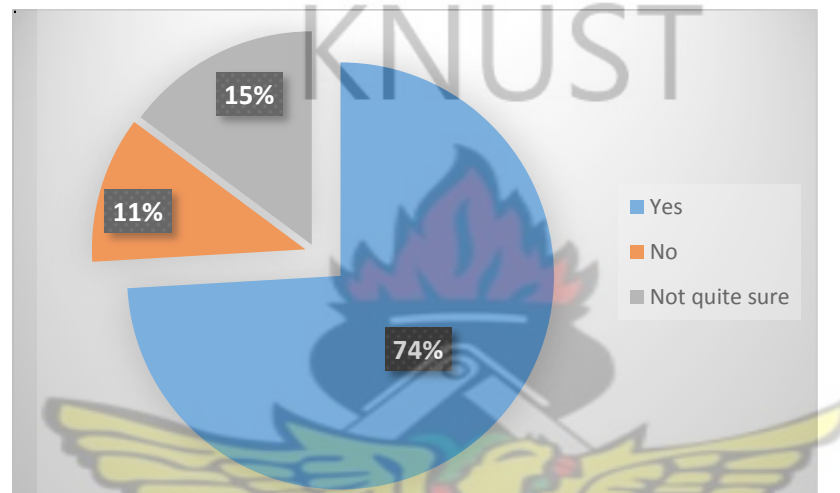


Fig. 4.1.12 Recommendation for ISO 9000 QMS. (Field survey,2014)

4.2.1 PERFORMANCE EVALUATION OF CONTRACTORS

This part reports the MMDA rating of contractors' roles and amalgamates their raw scores to obtain a score for their performance.

4.2.1 Importance of Roles of Contractors

Fig. 4.2.1 below shows relative weights of the evaluation criteria developed from the lowest and highest mean importance. The mean importance was calculated from respondents ranking of each criterion. The mean score was calculated as shown below:

Mean score = $(5n_1 + 4n_2 + 3n_3 + 2n_4 + 1n_5) / (n_1 + n_2 + n_3 + n_4 + n_5)$ where n_1, n_2, n_3, n_4 and n_5 are the number of respondent who chose rankings of 1, 2, 3, 4 or 5 respectively.

The highest mean importance was 4.52 and the lowest was 2.93 giving a difference of 1.59. This difference was divided into five to give the incremental scale of 0.32 and the weight. Mean importance from 4.52 to 4.20 were assigned a weight of 5; 4.19 to 3.87 were assigned a weight of 4; 3.86 to 3.54 were assigned a weight of 3; 3.53 to 3.21 were assigned a weight of 2 and 3.20 to 2.93 were assigned a weight of 1.

Table 4.2.1 Important Roles of Contractors

EVALUATING CRITERIA		RANKING					Total	Mean	Weighting	Position
		very high	high	low	very low	not important				
		5	4	3	2	1				
1	Quality of final construction product	31	20	3	2		54	4.52	5	1st
2	Period of construction (Delivery on schedule)	17	12	22	3		54	3.8	3	5th
3	Capability to formulate and sustain practical programmes		21	21	8	4	54	3.09	1	14th
4	Standard of workmanship	19	24	11			54	4.15	4	3 rd
5	Site Management Practices (effective quality control system on site)	9	24	19	2		54	3.74	3	6 th
6	Labour relations at site	3	23	21	4	3	54	3.35	2	12 th
7	Relations with sub-contractors and statutory authorities	6	25	17	6		54	3.57	3	8 th
8	Attention to site welfare and safety	15	13	16	10		54	3.61	3	7 th
9	Degree of co-	7	29	15	3		54	3.74	3	6 th

	operation with stakeholders									
10	Appropriateness of organizational structure in managing the Project	3	14	25	8	4	54	3.07	1	14 th
11	Effectiveness of communication		40	6	6	2	54	3.56	3	9 th
12	Employee development	4	9	30	2	9	54	2.94	1	15 th
13	prompt correction of defects	11	30	10	3		54	3.91	4	4 th
14	Creative and innovative ability in executing the project	7	13	17	15	2	54	3.15	1	13 th
15	Effective risk management	1	26	22	3	2	54	3.39	2	11 th
16	Environmental management	3	24	20	7		54	3.43	2	10 th
17	Client satisfaction	29	15	10			54	4.35	5	2 nd
18	Financial stability (i.e. access to credit)	12	19	20	3		54	3.74	3	6 th
19	Operational base of contractor	7	9	20	9	9	54	2.93	1	16 th
20	Equipment holding	10	6	33	5		54	3.39	2	11 th

Source: field survey 2014

From the above table 4.2.1, in evaluating the roles of MMDA contractors, respondents rated the following roles as very important:

- Quality of final construction product;
- Client satisfaction;
- Standard of workmanship;
- Prompt correction of defects; and
- Period of construction (Delivery on schedule).

This is consistent with Sabah (2011) that among other factors that the MMDA values, quality of final product is of importance.

Respondents also rated the under-listed as the least important of the role of contractors:

- Operational base of contractor (a well set out office accommodation);
- Employee development;
- Appropriateness of organizational structure in managing the Project;
- Capability to formulate and sustain practical programmes;
- Creative and innovative ability in executing the project.

These roles, perceived as not so important are input base factors of the contractors' organization which need to be managed properly by the contractor to achieve those output factors which the MMDAs expects. Again it tells that the MMDAs are only concern about product outcome, with less emphasis on input, process before output.

4.2.2 CONTRACTORS QUALITY PERFORMANCE AS RATED BY MMDAs

Table 4.2.2 below shows the mean rating of contractors by respondents for each criterion. The mean rating was calculated as shown below:

Mean rating = $(n_1 + 2n_2 + 3n_3 + 4n_4 + 5n_5) / (n_1 + n_2 + n_3 + n_4 + n_5)$ where n_1 , n_2 , n_3 , n_4 and n_5 are the number of respondent who chose rankings of 1, 2, 3, 4 or 5 respectively.

Table 4.2.2 CONTRACTORS PERFORMANCE AS RATED BY MMDAs

Contractors general performance	Rating	To	Mean	Wei
---------------------------------	--------	----	------	-----

		0-20	21-40	41-60	61-80	81-100	tal		ghti ng
		1	2	3	4	5			
1	Quality of final construction product	4	3	14	18	15	54	3.69	5
2	Period of construction (Delivery on schedule)	3	14	22	10	5	54	3	3
3	Capability to formulate and sustain practical programmes	1	15	26	9	3	54	2.96	3
4	Standard of workmanship		4	17	23	10	54	3.72	5
5	Site Management Practices (effective quality control system on site)	2	14	20	8	10	54	3.19	4
6	Labour relations at site	4	8	28	11	3	54	3.02	3
7	Relations with sub-contractors and statutory authorities		18	20	11	5	54	3.06	3
8	Attention to site welfare and safety	1	26	18	6	3	54	2.7	2
9	Degree of co-operation with stakeholders		16	14	19	5	54	3.24	4
10	Appropriateness of organizational structure in managing the Project	3	12	29	10		54	2.85	3
11	Effectiveness of communication	1	9	28	12	4	54	2.43	1
12	Employee development	11	17	19	6	1	54	2.24	1
13	prompt correction of defects		9	23	16	6	54	3.35	4
14	Creative and innovative ability in executing the project	5	8	28	12	1	54	2.93	3
15	Effective risk management	3	13	22	15	1	54	2.96	3
16	Environmental management	3	12	29	7	3	54	2.91	3
17	Client satisfaction		3	20	23	8	54	3.67	5
18	Financial stability (i.e. access to credit)	2	7	21	22	2	54	3.28	4
19	Operational base of contractor	10	10	24	9	1	54	2.65	2
20	Equipment holding	4	22	20	6	2	54	2.63	2

Source: field survey 2014

From table 4.2.2 above, the contractors performed very well in the under-listed project related roles:

- Standard of workmanship;
- Quality of final construction product;
- Client satisfaction; and
- Prompt correction of defects.

However, the result also shows that the contractors performed abysmally on the under listed factors;

- Effectiveness of communication;
- Employee development;
- Equipment holding;
- Operational base of contractor; and
- Attention to site welfare and safety.

This confirms how the SSBCs employ workmen casually without making effort to maintain them for future job.

Table 4.2.3 CONTRACTORS EVALUATED PERFORMANCE

EVALUATION OF CONTRACTORS PERFORMANCE		Rating (a)	Weight (b)	Weighted score (a*b)
1	Quality of final construction product	3.69	5	18.45

2	Period of construction (Delivery on schedule)	3	3	9.00
3	Capability to formulate and sustain practical programmes	2.96	3	8.88
4	Standard of workmanship	3.72	5	18.60
5	Site Management Practices (effective quality control system on site)	3.19	4	12.76
6	Labour relations at site	3.02	3	9.06
7	Relations with sub-contractors and statutory authorities	3.06	3	9.18
8	Attention to site welfare and safety	2.7	2	5.40
9	Degree of co-operation with stakeholders	3.24	4	12.96
10	Appropriateness of organizational structure in managing the Project	2.85	3	8.55
11	Effectiveness of communication	2.43	1	2.43
12	Employee development	2.24	1	2.24
13	prompt correction of defects	3.35	4	13.36
14	Creative and innovative ability in executing the project	2.93	3	8.79
15	Effective risk management	2.96	3	8.88
16	Environmental management	2.91	3	8.73
17	Client satisfaction	3.67	5	18.35
18	Financial stability (i.e. access to credit)	3.28	4	13.12
19	Operational base of contractor	2.65	2	5.30
20	Equipment holding	2.63	2	5.26
	Total		63	199.3

Source: field survey 2014

Table 4.2.4 OVERALL SATISFACTION OF MMDAS FROM CONTRACTORS

Score	Summary
Maximum	372
Received	199.3
% Score received	53.58%

Source: field survey 2014

From Table 4.2.4, an amalgamating the weights and mean scores of each criterion together, the percentage scored by the contractors on general performance was 53.58. Hence the performance of contractors on construction projects can be described as very little above average.

This again is a confirmation that the MMDAs pays less attention to the internal activities of the contractor, and to ensue effective continuous quality performance delivery of the final product, the MMDAs must pay more attention to these factors as suggested by Artley, 2001; Mbugua et al., 1999 that input, process and output are the ingredients for performance. Quality output will not be assured if for example, the workmen are not properly train and maintain by the contractor.

4.3.1 BENEFITS OF ISO 9000 QMS TO MMDAS

Table 4.3.1 below give respondents views on the importance of the benefit of ISO 9000 implementation. Mean scores for each stated benefits is calculated as follows:

Mean score = $(n_1 + 2n_2 + 3n_3 + 4n_4 + 5n_5) / (n_1 + n_2 + n_3 + n_4 + n_5)$ where n_1, n_2, n_3, n_4 and n_5 are the number of respondent who chose of 1,2, 3, 4 or 5 on the benefits score scale respectively.

Table 4.3.1 Respondents Assessment of expected Benefits of ISO 9000 QMS

The expected benefits of ISO 9000 QMS		Scores					Total	Mean
		1	2	3	4	5		
1	Enhancing organisations quality image	22	12	17	3		54	3.98
2	Improving quality of construction	19	9	24	2		54	3.83
3	Environmental improvements	7	20	22	4	1	54	3.52
4	Promoting better communication with client and stake holders	4	25	23	2		54	3.57
5	Saving cost	9	15	18	12		54	3.39
6	Improving workmanship performance	14	19	18	3		54	3.81
7	Effective communication among employees	10	17	20	7		54	3.56
8	Increasing accuracy of project budget estimation	8	29	16	1		54	3.81
9	Increasing reliability and on time project delivery	9	20	19	6		54	3.59

10	Meeting client deadline	15	14	18	4	3	54	3.63
11	Better definition and standardization of working procedures	10	20	18	6		54	3.63
12	Improving the management of sub-contractors	9	17	21	5	2	54	3.48
13	Removing road block to quality supplies	12	14	22	6		54	3.59
14	Minimizing project risk	11	12	19	4	8	54	3.26
15	Achieving continuous improvements	15	15	17	7		54	3.7
16	Improved staff motivation	12	8	32	2		54	3.56
17	Clear job responsibilities	12	18	19	5		54	3.69
18	Improved supplier relations	9	11	25	9		54	3.37
19	Increased sales	9	16	19	10		54	3.44
20	Improved profitability	4	18	26	3	3	54	3.31
21	Decline in business costs	9	9	23	13		54	3.26
22	Greater competitive advantage	19	9	18	8		54	3.72
23	Increased market share	6	12	26	9	1	54	3.24
24	Reduced customer complaints	16	12	14	6	6	54	3.48
25	Winning more contracts	11	16	20	7		54	3.57
26	Reduced defective rate and wastes	15	15	19	3	2	54	3.7
27	Improved the quality of incoming materials	18	10	21	5		54	3.76
28	Clear working instructions or procedures	15	13	20	6		54	3.69
29	Improved the quality of products and customer service	12	23	15	4		54	3.8
30	Increased quality awareness in the firms	19	20	14		1	54	4.04
31	Better documentation procedures	24	13	9	8		54	3.98
32	Improved the efficiency of the quality system	15	19	14	6		54	3.8
33	Positive cultural change	9	12	20	9	4	54	3.24

Source: field survey 2014

The table 4.3.1 above indicate that the MMDAs were of the opinion that all the potential benefits of ISO 9000 QMS implementation were important. They considered the under-listed more important:

- Increased quality awareness in the firms
- Better documentation procedures

- Improved the quality of products and customer service
- Improved the efficiency of the quality system
- Increasing accuracy of project budget estimation

Table 4.3.2 Respondents Assessment of the actual Benefits of ISO 9000 QMS

Actual Benefits of ISO 9000 QMS		Scores					Total	Mean
		1	2	3	4	5		
1	Enhancing organisations quality image	5	16	19	14		54	3.22
2	Improving quality of construction	3	11	29	8	3	54	3.06
3	Environmental improvements	3	3	36	10	2	54	2.91
4	Promoting better communication with client and stake holders	3	19	24	5	3	54	3.26
5	Saving cost		30	13	10	1	54	3.33
6	Improving workmanship performance	6	20	16	12		54	3.37
7	Effective communication among employees	7	8	27	9	3	54	3.13
8	Increasing accuracy of project budget estimation		9	32	13		54	2.93
9	Increasing reliability and on time project delivery		12	30	8	4	54	2.93
10	Meeting client deadline	8	7	25	11	3	54	3.11
11	Better definition and standardization of working procedures	2	10	26	16		54	2.96
12	Improving the management of sub-contractors		17	19	15	3	54	2.93
13	Removing road block to quality supplies	3	16	23	12		54	3.19
14	Minimizing project risk	8	13	18	15		54	3.26
15	Achieving continuous improvements	9	15	18	10	2	54	3.35
16	Improved staff motivation		18	16	17	3	54	2.87
17	Clear job responsibilities	3	8	30	11	2	54	2.98
18	Improved supplier relations		14	28	12		54	3.04
19	Increased sales		10	22	18	4	54	2.7
20	Improved profitability	2	12	23	16	1	54	2.96
21	Decline in business costs	3	5	21	19	6	54	2.63
22	Greater competitive advantage	6	6	30	10	2	54	3.07
23	Increased market share	3	5	30	16		54	2.91
24	Reduced customer complaints	3	15	23	10	3	54	3.09
25	Winning more contracts		8	26	19	1	54	2.76
26	Reduced defective rate and wastes	2	10	20	22		54	2.85

27	Improved the quality of incoming materials	3	7	29	12	3	54	2.91
28	Clear working instructions or procedures		12	24	18		54	2.89
29	Improved the quality of products and customer service	1	8	20	21	4	54	2.65
30	Increased quality awareness in the firms	3	19	18	14		54	3.2
31	Better documentation procedures	2	11	28	13		54	3.04
32	Improved the efficiency of the quality system		18	18	17	1	54	2.98
33	Positive cultural change		9	20	13	12	54	2.48

Source: field survey 2014

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Table 4.3.3 is a summary of the scores for expected and actual benefits.

Benefits of ISO 9000 QMS		Expected Mean(a)	Actual Mean(b)	Difference (a-b)
1	Enhancing organisations quality image	3.98	3.22	0.76
2	Improving quality of construction	3.83	3.06	0.77
3	Environmental improvements	3.52	2.91	0.61
4	Promoting better communication with client and stake holders	3.57	3.26	0.31
5	Saving cost	3.39	3.33	0.06
6	Improving workmanship performance	3.81	3.37	0.44
7	Effective communication among employees	3.56	3.13	0.43
8	Increasing accuracy of project budget estimation	3.81	2.93	0.88
9	Increasing reliability and on time project delivery	3.59	2.93	0.66
10	Meeting client deadline	3.63	3.11	0.52
11	Better definition and standardization of working procedures	3.63	2.96	0.67
12	Improving the management of sub-contractors	3.48	2.93	0.55
13	Removing road block to quality supplies	3.59	3.19	0.4
14	Minimizing project risk	3.26	3.26	0
15	Achieving continuous improvements	3.7	3.35	0.35
16	Improved staff motivation	3.56	2.87	0.69
17	Clear job responsibilities	3.69	2.98	0.71
18	Improved supplier relations	3.37	3.04	0.33
19	Increased sales	3.44	2.7	0.74
20	Improved profitability	3.31	2.96	0.35
21	Decline in business costs	3.26	2.63	0.63
22	Greater competitive advantage	3.72	3.07	0.65
23	Increased market share	3.24	2.91	0.33
24	Reduced customer complaints	3.48	3.09	0.39
25	Winning more contracts	3.57	2.76	0.81
26	Reduced defective rate and wastes	3.7	2.85	0.85

27	Improved the quality of incoming materials	3.76	2.91	0.85
28	Clear working instructions or procedures	3.69	2.89	0.8
29	Improved the quality of products and customer service	3.8	2.65	1.15
30	Increased quality awareness in the firms	4.04	3.2	0.84
31	Better documentation procedures	3.98	3.04	0.94
32	Improved the efficiency of the quality system	3.8	2.98	0.82
33	Positive cultural change	3.24	2.48	0.76

Source: field survey 2014

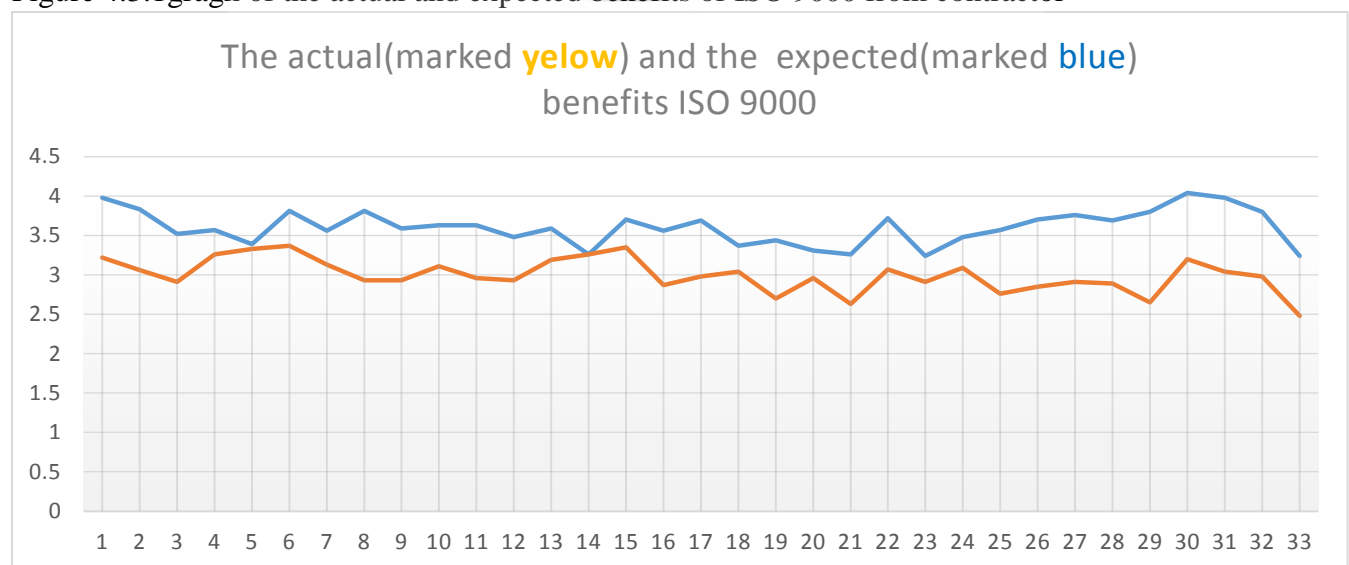
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4.3.1 EXPECTED AND ACTUAL BENEFITS.

A comparison of the two means; expected and actual benefits as shown in table 4.3.3 above revealed that apart from variable 14 and 5 (Minimizing project risk and Saving cost), which had no difference and insignificant difference respectively, all the remaining expected were higher than the actual benefits the MMDAs derives from the contractors. This is an indication that, the benefits derived from contractors are lower than MMDAs expectation. Figure 4.3.1 further illustrates graphically, the values of the expected and actual benefits.

The blue represents the expected benefits and the yellow depicts the actual benefits the MMDAs derives from the contractors.

Figure 4.3.1 graph of the actual and expected benefits of ISO 9000 from contractor



Source: field survey 2014

4.3.4 SUMMARY

The aim of the study was to assess the performance of MMDA project contractors in their role as contractors and also establish whether there was the need for ISO 9000 certification of contractors in Ghana. This chapter presented the results and discussion of the data from the respondents. The results was analysed in three parts. The first part was on the profile of the respondents and their respective assembly, the second part was an evaluation of contractors on their roles and the third part on respondents' view on the benefits of ISO 9000 QMS to the contractors.



CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

The chapter which is the concluding part of the study presents the review of the main research questions and the objectives follow by the conclusion of the study. Finally recommendation for further research is also highlighted.

5.2 CONCLUSION

This section is the summary of the main findings for this report in line with the research questions posed in the first chapter of this report. Below are the answers to each specific research questions.

5.2.1 DEMOGRAPHIC INFORMATION

The first part of the questionnaire attempted to find out the background information and a brief look at the main source of funding for MMDA project, why contractors are engaged and the factors that affect the contractors' selection.

The revelations were that:

- The main sources of funding for MMDA projects in order of reliability are;
 - A. District Assembly Common Fund (DACF),
 - B. District Development Fund (DDF),
 - C. Internally Generated Fund (IGF), and
 - D. Urban Development Grant (UDG).
- The three main reasons why the MMDAs employ the services of contractors are;
 - A. funding source,
 - B. government regulations such as public procurement Act, and
 - C. the project value.

- The three highest ranked factors that influence the selection of contractor for project execution were;
 - A. certification requirement (tax and VAT clearance),
 - B. lowest evaluated tenderer and
 - C. the capacity of the contractor.

5.2.2 RECOMMENDATION FOR THE ADOPTION OF ISO 9000 QMS FOR MMDA CONTRACTORS

74% of the respondents recommended the adoption of ISO 9000 QMS for MMDA construction contractors' project management, a clear signal that ISO 9000 QMS could be adopted by MMDAs.

5.2.3 RESEARCH QUESTION ONE

The first research question was to investigate the roles of contractors which are most important to the MMDAs on construction projects.

The research revealed that the MMDAs deem the following factors as very relevant:

- Quality of final construction product;
- Client satisfaction;
- Standard of workmanship;
- Prompt correction of defects; and

- Period of construction (Delivery on schedule).

5.2.4 RESEARCH QUESTION TWO

The second question was to find out how the MMDA project Contractors had perform on MMDA construction projects.

Base on the findings, the MMDA contractors achieved an overall grading of 53.58% on project related quality performance of contractors. The general performance of MMDA contractors on construction project can be described as average. Therefore, it can be concluded from the study that the MMDAs were not satisfied with the overall performance of their project contractors. Also, the least performed roles of the Contractors were;

- Employee development;
- Effectiveness of communication;
- Attention to site welfare and safety;
- Operational base of contractor; and
- Equipment holding.

5.2.5 RESEARCH QUESTION THREE

The third question was to find out if the expected benefits of ISO 9000 QMS implementation and the actual benefits MMDAs derive from contractors are the same.

The findings demonstrated that apart from Minimizing project risk and Saving cost, which had no difference and insignificant deference respectively, when the actual and the expected benefits of ISO 9000 QMS to the contractors were compared, all the remaining expected benefits of ISO 9000 QMS to the contractors were higher than the actual benefits the MMDAs derive from the contractors. This is an indication that, the benefits derived from contractors are lower than MMDAs expectation.

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5.3 RECOMMENDATIONS FOR FURTHER STUDIES

There is the need for further research in the following areas:

- Model for predicting the performance of MMDA contractors;
- Framework for assessing the performance of MMDA contractors;
- Contractors self-assessment on quality performance; and
- Environmental performance assessment of the contractors.

5.4 SUMMARY

The chapter which is the concluding part of the study presented the review of the main research questions and the objectives followed by the conclusion of the study. Finally recommendation for further research was also highlighted.

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APENDIX A: SAMPLE QUESTIONNAIRE DITRIBUTED TO MMDAs

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

COLLEGE OF ARCHITECTURE AND PLANNING

DEPARTMENT OF BUILDING TECHNOLOGY, KUMASI

My name is Charles Asane Anhwere (0243530358/0234382003); a final year MSc. Construction Management student of the above named institution. I am embarking on a research on the topic: **PERFORMANCE OF DISTRICT ASSEMBLY CONTRACTORS ON CONSTRUCTION PROJECT USING ISO 9000 QUALITY MANAGEMENT SYSTEM.** ISO 9000 is an International standard aim at providing quality solution and achieving benefits for almost all sectors of activity. It is hoped that the study will help assess the quality delivery of contractors who embarks on construction projects at the MMDA level.

It is therefore assured that all Information solicited from you will be treated as confidential and only for academic purposes.

To ensure flexibility in submitting the filled questionnaires, three alternative means have been provided;

- You can post the completed document to the address provided on the attached envelop (**Box Wj 261 Weija-Accra**)
- You can scan and send it to the myrq13@yahoo.com or
- You can also download a soft copy of the questionnaire from myrq13@yahoo.com with password: **Knust2013**, electronically fill and submit to the same email.

General questionnaire for construction professionals at the MMDA level.

NB: You may use any means possible and convenient; ticking (√), shading ☐, etc. to indicate your choices.

1. How long has this Assembly existed?

Period in years	Please tick
Less than 5 years	
6-10 years	
11-15 years	
More than 15 years	

2. Please indicate your position

Position in the field of construction	Please tick
Works engineer	
Works superintendent	
Quantity surveyor	
Architect	

3. What is your highest educational qualification?

Educational level	Please tick
Technician	
Diplomate	
1 st Degree	
2 nd degree	
PhD	

4. How long have you held the position in question 2 above?

Period in years	Please tick
Less than 5 years	
6-10 years	
11-15 years	
More than 15 years	

5. Please list in **order of reliability** the main sources of funding for development project at the assembly.

- a. -----
- b. -----
- c. -----
- d. -----
- e. -----

6. Please rank appropriately in order of importance the reason for using contractors for the assembly project.

Reason	Please rank in order of importance (1 st -6 th)
Value of project	
Funding source	
Level of expertise required for the project	
Government regulation	
Work Load	
Lack of capacity	
Others(state)	

7. Please rank appropriately the following factors base on their effect on contractor selection for projects

Factors	Ranking				
	Very high	high	low	Very low	Not important
	1	2	3	4	5
Certification requirements (tax clearance, VAT etc.)					
Political influence (order from above, etc.)					
Quality truck records based on previous work done					
Capacity of the contractor (financial, equipment holding, labour force, etc.)					
Lowest evaluated tenderer					

8. Do you have any clause in your contract document on project performance evaluation as part of your contract with the contractors?

Yes ☐ No ☐

9. If yes, how often do you evaluate the performance of the contractors on project?

Period	Please tick
Less than six month	
Six month to one years	
After one year	
On project completion	

10. If no please state the main reasons for none evaluation of project.

- a.
- b.
- c.
- d.

11. Please what is your level of knowledge on the International Standard Organizations' quality management standard (ISO 9000)?

Excellent to good knowledge of the standard ☐ Fair to no knowledge of the st ☐

12. Will you recommend the adoption of ISO 9000 QMS for managing MMDAs construction projects?

Yes ☐ No ☐ Not quite sure ☐

13. IMPORTANT ROLES OF CONTRACTORS

Please rank the **Importance you place on the role of contractors** as listed in table 4.1 below.

Table 4.1

Nr.	Evaluating Criteria	Ranking				
		Very high	high	Low	Very low	Not important
		1	2	3	4	5
1	Quality of final construction product					
2	Period of construction (Delivery on schedule)					
3	Capability to formulate and sustain practical programmes					
4	Standard of workmanship					
5	Site Management Practices (effective quality control system on site)					
6	Labour relations at site					
7	Relations with sub contractors and statutory authorities					
8	Attention to site welfare and safety					
9	Degree of co-operation with stakeholders					
10	Appropriateness of organizational structure in managing the Project (well laid out lines of responsibility, delegation and communication at site).					
11	Effectiveness of communication (i.e. managing information flow and consultants correspondents)					
12	Employee development (i.e. qualified staff, motivation and training)					
13	Prompt correction of defects					
14	Creative and innovative ability in executing the project (i.e. ability to propose alternative constructional methods at site)					
15	Effective risk management (i.e. managing activities that can lead to financial loss and delay in delivery time)					
16	Environmental management(i.e. managing the impact of construction activities on the environment)					
17	Client satisfaction (in terms of product and service outcome)					
18	Financial stability (i.e. access to credit)					
19	Operational base of contractor (i.e. a well set out office accommodation)					
20	Equipment holding (i.e. equipment in use at site as against equipment listed during tendering)					

14. CONTRACTORS' QUALITY PERFORMANCE AS RATED BY MMDAs

Please **rank the contractors you work with based on quality performance** as in table 4.2

Table 4.2

Nr.	Performance Criteria	Ranking				
		0-20%	21-40%	41-60%	61-80%	81-100%
		1	2	3	4	5

1	Quality of final construction product					
2	Period of construction (Delivery on schedule)					
3	Capability to formulate and sustain practical programmes					
4	Standard of workmanship					
5	Site Management Practices (effective quality control system on site)					
6	Labour relations at site					
7	Relations with sub contractors and statutory authorities					
8	Attention to site welfare and safety					
9	Degree of co-operation with stakeholders					
10	Appropriateness of organizational structure in managing the Project (well laid out lines of responsibility, delegation and communication at site).					
11	Effectiveness of communication (i.e. managing information flow and consultants correspondents)					
12	Employee development (i.e. qualified staff, motivation and training)					
13	Prompt correction of defects					
14	Creative and innovative ability in executing the project (i.e. ability to propose alternative constructional methods at site)					
15	Effective risk management (i.e. managing activities that can lead to financial loss and delay in delivery time)					
16	Environmental management(i.e. managing the impact of construction activities on the environment)					
17	Client satisfaction (in terms of product and service outcome)					
18	Financial stability (i.e. access to credit)					
19	Operational base of contractor (i.e. a well set out office accommodation)					
20	Equipment holding (i.e. equipment in use at site as against equipment listed during tendering)					

15. RESPONDENTS ASSESSMENT OF THE BENEFITS OF ISO 9000 QMS

In your assessment please **rank the benefits of ISO 9000 QMS** in table 4.3 below

Table 4.3

Nr.	Benefits of ISO 9000 QMS	Ranking				
		Very high	high	fair	low	Very low
		1	2	3	4	5
1	Enhancing organisations quality image					

2	Improving quality of construction					
3	Environmental improvements					
4	Promoting better communication with client and stake holders					
5	Saving cost					
6	Improving workmanship performance					
7	Effective communication among employees					
8	Increasing accuracy of project budget estimation					
9	Increasing reliability and on time project delivery					
10	Meeting client deadline					
11	Better definition and standardization of working procedures					
12	Improving the management of sub contractors					
13	Removing road block to quality supplies					
14	Minimising project risk					
15	Achieving continuous improvements					
16	Improved staff motivation					
17	Clear job responsibilities					
18	Improved supplier relations					
19	Increased sales					
20	Improved profitability					
21	Decline in business costs					
22	Greater competitive advantage					
23	Increased market share					
24	Reduced customer complaints					
25	Winning more contracts					
26	Reduced defective rate and wastes					
27	Improved the quality of incoming materials					
28	Clear working instructions or procedures					
29	Improved the quality of products and customer service					
30	Increased quality awareness in the firms					
31	Better documentation procedures					
32	Improved the efficiency of the quality system					
33	Positive cultural change					

16. RESPONDENTS ASSESSMENT OF THE BENEFITS OF ISO 9000 QMS ACHIEVED BY MMDAs FROM CONTRACTORS.

In your assessment please rank the **benefits of ISO 9000 QMS achieved by MMDAs from contractors** in table 4.4 below

Table 4.4

Nr.	Benefits of ISO 9000 QMS	Ranking				
		Very high	high	fair	low	Very low

		1	2	3	4	5
1	Enhancing organisations quality image					
2	Improving quality of construction					
3	Environmental improvements					
4	Promoting better communication with client and stake holders					
5	Saving cost					
6	Improving workmanship performance					
7	Effective communication among employees					
8	Increasing accuracy of project budget estimation					
9	Increasing reliability and on time project delivery					
10	Meeting client deadline					
11	Better definition and standardization of working procedures					
12	Improving the management of sub contractors					
13	Removing road block to quality supplies					
14	Minimising project risk					
15	Achieving continuous improvements					
16	Improved staff motivation					
17	Clear job responsibilities					
18	Improved supplier relations					
19	Increased sales					
20	Improved profitability					
21	Decline in business costs					
22	Greater competitive advantage					
23	Increased marked share					
24	Reduced customer complaints					
25	Winning more contracts					
26	Reduced defective rate and wastes					
27	Improved the quality of incoming materials					
28	Clear working instructions or procedures					
29	Improved the quality of products and customer service					
30	Increased quality awareness in the firms					
31	Better documentation procedures					
32	Improved the efficiency of the quality system					
33	Positive cultural change					

End of questionnaire.

Please do not forget to send it by post or by mail as stated above.

Thank you.