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**COLLEGE OF ARCHITECTURE AND PLANNING**

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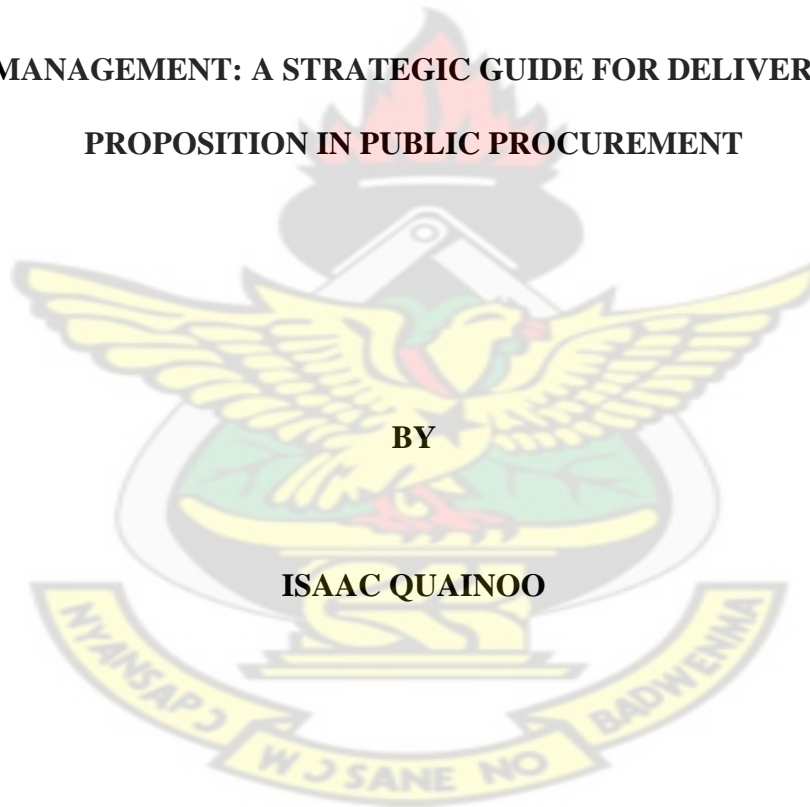
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**QUALITY MANAGEMENT: A STRATEGIC GUIDE FOR DELIVERING VALUE**

**PROPOSITION IN PUBLIC PROCUREMENT**

**BY**

**ISAAC QUAINOO**



**NOVEMBER, 2014**

**QUALITY MANAGEMENT: A STRATEGIC GUIDE FOR DELIVERING VALUE**

**PROPOSITION IN PUBLIC PROCUREMENT**

**(A STUDY WITHIN CAPE COAST METROPOLITAN ASSEMBLY)**

**KNUST**

**BY**

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**A Thesis Submitted to the Department of Building Technology, Kwame Nkrumah  
University of Science and Technology in partial fulfillment of the requirement for the  
degree of**

**MASTER OF SCIENCE**

**Procurement Management**

**NOVEMBER, 2014**

## DECLARATION

I the undersigned declare that, the project research study is my own work. With the exception of specific quotations and ideas which were obtained from specific sources, this dissertation has not been presented anywhere for the award of a degree.

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## **DEDICATION**

This dissertation is dedicated to God Almighty who has enabled me to get this far and also my Father and my Late Wife Juliana Bernice Quainoo. I appreciate the support and encouragement given me by Evangelist Kofi Essuman of Lord-Done Ministry and Foundations Cape Coast in pursuing this course.

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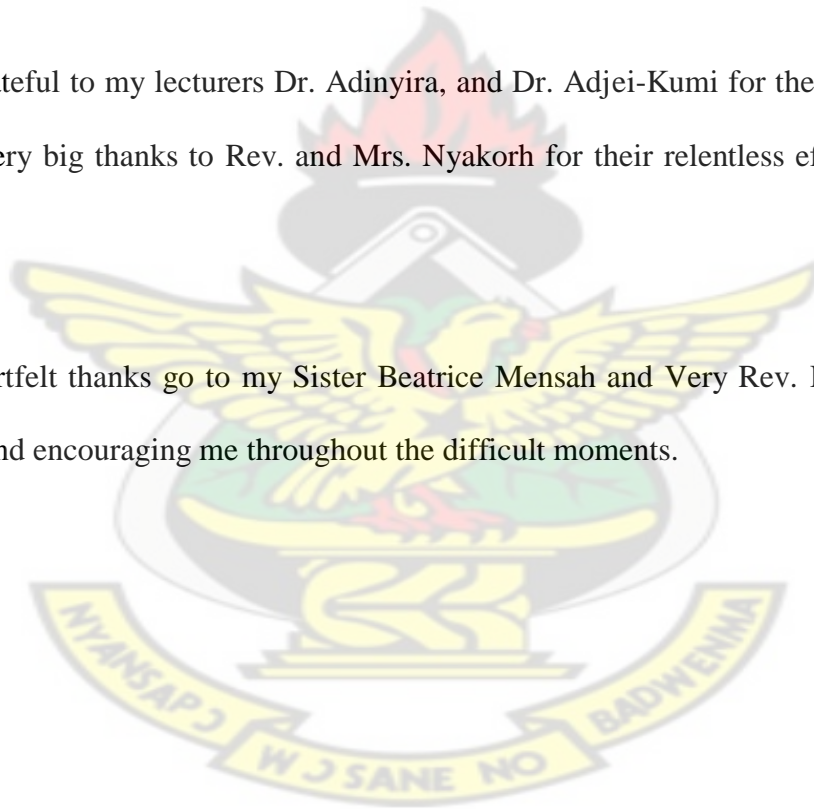
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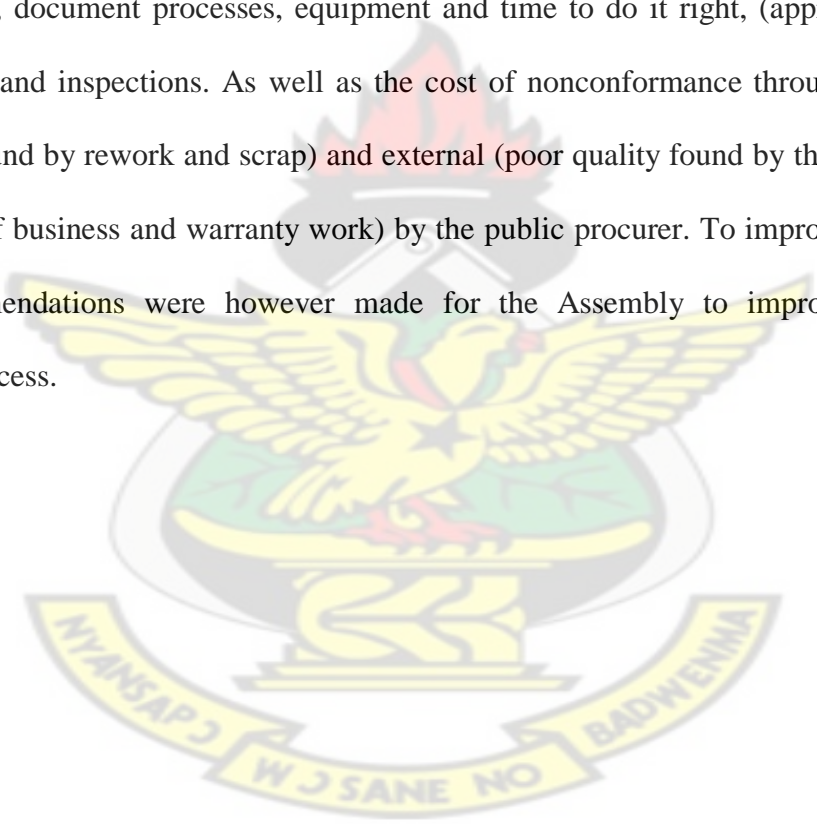
Finally, my heartfelt thanks go to my Sister Beatrice Mensah and Very Rev. Kwabena Appiah for supporting and encouraging me throughout the difficult moments.



## **ABSTRACT**

Quality Management in the Public Procurement Process is one of the key elements that require effective and efficient integration and management in providing public infrastructure development as well as procuring public goods and or services. Procurement quality management includes the processes and activities of the procurement entity that determine quality policies, objectives, and responsibilities so that the procurement project will satisfy the needs for it was undertaken. Procurement Quality Management uses policies and procedures to implement, within the project's context, the entity's quality management system and, as appropriate, it supports continuous process improvement activities as undertaken on behalf of the Assembly. Implementing value for money and ensuring that scarce public funds are well spent and that important public projects are carried out in qualitative and quantitative manner require quality management within the public procurement process. Procurement Quality Management works to ensure that the project requirements, including products requirements, are met and validated for the Assembly. The objective of this study was to find out, challenges, relevant elements and effects of quality management in the public procurement process within Cape Coast Metropolitan Assembly: A sample size of sixty, (60) from the sample frame were used for which questionnaires as research instrument were used to collect data for analysis. The data were analyzed using descriptive statistic, frequency distribution and one sample t-test for data presentation and interpretations. It has been found from the study that CCMA often faces challenges such as frequent change of specifications, lack of accountability, inadequate competition and acceptance of goods of inferior quality, defective formulation of specification resulting in frequent change of specifications after invitation of bids, inefficient system of technical evaluation which normally leads to single source selection, improper financial

evaluation and frequent misuse of special procedures among others which does create value. From the study, variables such as materials and processes in project implementation, level of competitiveness among bidders in providing quality tenders and works, people and skills for project implementation, training and methods in implementing the project quality and review of the Annual Procurement Process, has been found to play integral part in quality management in the public procurement process. It has been found from the study that the CCMA are affected by cost of poor quality (cost of conformance) e.g. build a quality procurement project or product through training, document processes, equipment and time to do it right, (appraisal costs) e.g. through testing, and inspections. As well as the cost of nonconformance through both internal (poor quality found by rework and scrap) and external (poor quality found by the public through liabilities, lost of business and warranty work) by the public procurer. To improve performance, various recommendations were however made for the Assembly to improve their public procurement process.



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# **CHAPTER ONE**

## **BACKGROUND OF STUDY**

### **1.1 Introduction**

The quality of procurement in most district and municipal assemblies in Ghana continue to indicate poor project performance, which is as result of corruption, poor risk control and assessment, lack of transparency in the procurement process despite the Act 663 that guides the procurement process. There is a great need to improve public works project performance, so that the public works can adequately contribute to the country's socio-economic development. Current conditions indicate that public clients should encourage the lowest price awarded contractor to meet minimum requirements of contract specification, since unqualified awarded contractors have poor risk control ability, making it hard to achieve project minimum requirement. Therefore, public clients should open accessibility and give more opportunity to the “qualified participants” in public works procurement. This calls for a contractor quality assurance mechanism (Kenneth, 2003).

In today's global markets, organizations missing implementation and integration of quality management in their project implementation eventually lose competitive edge. The prevailing quality management systems used in procurement currently are traced back to the 1950s when quality peers, such as Deming and Juran, first established the quality paradigm (Kenneth, 2003). Procurement quality assurance mechanism is viewed as concepts, principles, or practices, within which prescriptive views and empirical facts play roles in public procurement (Larasati and

Watanabe 2010). Essentially, the concepts of quality management share three principles, i.e. customer focus, continuous improvement, and the central role of people (Kenneth, 2003). Currently, demonstration of quality helps to ensure public procurers achieve superior competitive value for clients Massoud (2010). Consequently, the introduction of ISO 9001, Total Quality Management (TQM), has become a prerequisite for certain sectors and markets and for that matter public procurement a means for survival once the position is established Massoud (2010). Continuous improvement is one of the management principles shared by international standards that are mostly accepted and adopted in public procurement Massoud (2010). According to Womack and Jones (1996), the pursuit of perfection, meaning avoidance of all waste, though is like infinity, trying to get there is actually impossible, but the effort to do so provides inspiration and direction essential to making progress along the path. From public procurement point of view quality management are viewed from; quality of design, quality of specification and or conformance quality in the procurement process which enviably create value for the Assembly.

## **1.2 Statement of the Problem**

The public procurements in CCMA suffer from serious delays, indecisiveness, and frequent change of specifications, lack of accountability, inadequate competition and acceptance of goods of inferior quality. Procurements suffer from defective formulation of specification resulting in frequent change of specifications after invitation of bids, inefficient system of technical evaluation which normally leads to single source selection, improper financial evaluation and frequent misuse of special procedures like emergency procurements. The integration of quality in the public procurement process involves choosing a future procurement entity according to the “best quality practice”, not just the lowest price (Kenneth, 2003). Poor utilization of an integrated past performance information system into procurement within the Assembly has led to

poor quality of work as most works done are poorly constructed and documented as well as low value proposition for the assembly. Such challenge has posed the need to investigate whether procuring entity considered quality as strategic guide in delivering value for money for the Assembly in meeting PPA objectives.

### **1.3 Aim and Objectives**

#### **1.3.1 Aim**

The main aim of the study is to explore quality management, guide for delivering value proposition in Public Procurement: A study within Cape Coast Metropolitan Municipal Assembly (CCMMA)-Ghana.

#### **1.3.2 Objectives**

- a) To determine relevant quality elements that creates value for money in procurement process.
- b) To find out challenges in quality management in public procurement practices
- c) To explore the effects of integrating quality in public procurement process.

### **1.4 Research Questions**

- a) What are some of the relevant quality element in creating value for money public procurement process?
- b) What are the challenges in quality management in public procurement practices?
- c) What are the effects of integrating quality in public procurement practices?



### **1.5 Significance of the Study**

- i. The findings of the study will specifically help within Cape Coast Metropolitan Assembly of Ghana in their procurement activities if they are to improve on supplies.
- ii. The study will also help policy makers to formulate ways on how to improve sustainable procurement practices and policy formulation for the economic.
- iii. The study will also act as a basis for further research to other researchers in the field of public service delivery and procurement in Ghana.

### **1.6 Scope of Study**

The scope of the study has been limited theoretically to quality management in public procurement and the roles of stakeholders in promoting quality procurement for the provision of value for money as indicated by the Public Procurement Act of Ghana, Act 663, 2003 among others has been explored contextually in this research. Relevant issue such as process improvement, total quality management, standardization, value for money among others has been explored. Furthermore, the delimitation of the study has been public procurement sector in Ghana, with specific focus on Cape Coast Metropolitan Assembly of Ghana.

### **1.7 Research Outline**

The research was made up of five major chapters; with chapter one comprising of the background of the study, statement of the problem, the objectives of the study, hypothesis / research questions, scope and delimitations of study and the significance of study.

Chapter two as made up of literature review with a look at conceptual to theoretical aspect of quality in public procurement. Furthermore, the research methodology was devoted to chapter three, in which the data collection and presentation procedures have been examined. Chapter



four was made up of analysis of the various data gathered based on the responses from the respondents. The data captured from the respondents has been analyzed using Microsoft Excel applications and t-test for interpretations and analysis. Finally, summary of major findings, recommendations and conclusions were treated in chapter five.

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## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter provides the review of literature quality on public procurement management. It provides a brief history of procurement, definition of procurement, procurement processes, Quality in procurement policy, conceptual and theoretical framework, and methodological issues among others from various authors have been discussed.

#### **2.2 Previous Relevance Studies and Research Work**

##### **2.2.1 Definition of variables and concepts**

The term “quality” is being defined in many ways. Quality according to Webster’s new World Dictionary, is a physical or non-physical characteristic that constitutes that basic nature of a thing or is one of its distinguishing features. Demin Juran defined it as “customer satisfaction and loyalty” and “fitness for use” and Phil. Crosby referred to it as conformance to requirements. ISO 9000 finally referred to it as “degree to which a set of inherent characteristics fulfill requirements” (Kenneth, 2003).

The above definitions are popular and they define quality in generic terms. As can be seen from these definitions, the quality has physical and non – physical dimensions (Howard, et al. 2009). This can be best illustrated by an example: When the definition: “fitness for use” and “conformance to requirements” according to Demin, Juran. The questions are who defines the requirements and who decides that the product procure are/ is fit for use? The answer obviously

is the customer in our case the public that benefit from the project. Demin Juran defines the customer as: “Any one who is affected by the service, product or process” (Peter Baily, et al. 2008). The customer will include both an external customer and internal customer. External customers include those ultimate users (current and potential) and also intermediate processors, as well as the retailers. All these constituents ultimately determine how various procurement decisions are to be made if the entity fails to involve them in product or service specification and design and or conformance to quality (Peter Baily, et al. 2008). The other hidden customers are those who may not purchase the product but may have some connection with it. They include government and regulatory authorities, suppliers, partners, media and general public, and others. The internal customers are those, who are part of the process (belong to the company) that procure the works, goods or services. Example: When the purchasing department in a manufacturing company receives specifications for the component that needs to be purchased from engineering department, purchasing department will be the internal customer to the engineering department Peter Baily, et al. 2008. Similarly, when the purchasing department makes available the components to assemble / production department, then assembly/ production assumes the role of internal customer. The internal and external customers are sometimes referred as “Stake holders” which include customers, project team, project manager etc. External customers are clearly of primary importance (Howard, et al. 2009). These (customers) stakeholders quality definition become very vital especially when it comes to the public procurement on issues of following the right processes, compliance procedures and regulations to be responsive in meeting PPA objectives (PPA, Act 663 2003). The common denominator for all these constituents is that the quality management within the public procurement process is dear to all (Peter Baily, et al. 2008; Kenneth, 2003).

The level of perception and expectation of public procurement activities are in line with the degree to which the work or the item procure meets the public expectation. Quality has no specific meaning unless related to a specific function and / or object (Peter Baily, et al. 2008). Quality is a perceptual, conditional and somewhat subjective attribute (Peter Baily, et al. 2008; Kenneth, 2003). Therefore, quality management is the ability to satisfy the public or the customer by fully meeting their needs and expectations through proper compliance with the procurement process in creating value proposition. It is also the totality of features and characteristics of works (product / project), service, process or entity bears on its ability to satisfy stated or implied needs (Howard, et al. , 2009). It may also be defined in term of the processes required to ensure that the project will satisfy the needs for which it was undertaken (Howard, et al. 2009).

Furthermore, according to PMI, project quality management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken (PMBOK 4, 2006). It implements the quality management system through policy and procedures with continuous process improvement activities conducted throughout, as appropriate (PMBOK 4, 2006). Project Management Institute further has also outlined project quality management processes which include the following: **Plan Quality:** The process of identifying quality requirements and/or standards for the project and product, and documenting how the project will demonstrate compliance (PMBOK 4, 2006). **Perform Quality Assurance:** The process of auditing the quality requirements and the results from quality control measurements to ensure appropriate quality standards and operational definitions are used (PMBOK 4, 2006). **Perform Quality Control:** The process of monitoring and recording results of executing the quality activities to

assess performance and recommend necessary changes (PMBOK 4, 2006). According to PMI, the processes interact with each other and with the other knowledge areas as well. Each process can involve effort from one or more persons or groups based on the project requirements. In mining exploration projects each process occurs at least once in every project and occurs in one or more of the project phases, if the project is divided into phases. Although the processes are presented as discrete elements with well-defined interfaces, in practice they overlap and interact (PMBOK 4, 2006).

### **2.3 Components of modern Quality Management**

According PMI, (2004) modern quality management certain components and both disciplines recognize the importance of: **Customer satisfaction:** Understanding, evaluating, defining, and managing expectations so that customer requirements are met. This requires a combination of conformance to requirements (to ensure the project produces what it was created to produce) and fitness for use (the product or service must satisfy real needs) (PMBOK 4, 2006). **Prevention over inspection:** One of the fundamental tenets of modern quality management states that quality is planned, designed, and built in—not inspected in. The cost of preventing mistakes is generally much less than the cost of correcting them when they are found by inspection. **Continuous improvement:** The plan-do-check-act cycle is the basis for quality improvement as defined by Shewhart and modified by Deming (PMBOK 4, 2006). In addition, quality improvement initiatives undertaken by the performing organization, such as TQM and Six Sigma, should improve the quality of the project's management as well as the quality of the project's product. Process improvement models include Malcolm Baldrige, Organizational Project Management Maturity Model (OPM3<sup>®</sup>), and Capability Maturity Model Integrated



(CMMI<sup>®</sup>). **Management Responsibility:** Success requires the participation of all members of the project team but remains the responsibility of management to provide the resources needed to succeed (PMBOK 4, 2006).

Procurement Management according to (Peter Baily. et al., 2008) involved the acquisition of goods, works and services. This embraces not only purchasing, that is, buying of goods, but it also includes hiring of contracts or consultants to carry out services. Standards required in procurement are high quality service, economy and efficiency and fairness in competition. Thus a procedure must be followed and is applicable to all contracts for goods and works. The Oxford Advanced Learner's Dictionary (2001) further defines Procurement Management as the process of obtaining supplies of something, especially for a government or an organization. Procurement Management can also be defined as the acquisition of goods, buying or purchase of works, hiring contractors and consultancy services (IBRD, 2004). The World Bank, (2004) and Mangan, et al., (2008) referred to it a process of identifying and obtaining works, goods and services which includes sourcing, purchasing and covers all activities from identifying potential suppliers through to delivery from supplier to the users or beneficiary. It is favorable that the goods/services are appropriate and that they are procured at the best possible "cost, quality and scope" to meet the needs of the purchaser in terms of quality and quantity, time, and location (World Bank, 2004). Chartered Institute of Purchasing and Supply Australia (2005) finally referred to procurement management as a business management function that ensures identification, sourcing, access and management of the external resources that an organization needs or may need to fulfill its strategic objectives.

It is therefore paramount to note from the above that Quality Management within Public Procurement Process concerns the acquisition of products, works and/or services that of quality

that significantly improved existing services and processes (Mangan, et al. 2008). According to (Hommen et al. 2009), this called for application of organizational innovation for the provision of existing or future products and services, by improving entity procurement procedures through integrating quality management within the procurement process right from need identification to product disposal. Innovation can be developed by the individual contractor, or a consortium of suppliers, to further developed partnership with the buyer in the supply chain (Hommen et al. 2009).

Quality Management within Public Procurement is a management process involved various stages, which required thorough planning for the provision or acquisition of goods, works and services. The study however, tries to explore the relevance of integrating quality management in public procurement. According to Chartered Institute of Purchasing and Supply Australia (2005) procurement as business management ensures identification, sourcing, access and management of the external resources that an organization needs or may need to fulfill its strategic objectives that involved careful quality planning in the bidding and the implementation of the procurement process for instance, hence entity need to integrate quality management through the process if value proposition are to be created from the process (Peter B, et al. 2008). It is therefore mean according to International Bank for Reconstruction and Development Guidelines for Procurement, 2004, that Procurement decisions in terms of acquisition of goods, buying or purchase of works, hiring contractors and consultancy services are to be quality focused and improved existing system. The indication is that whether “good, services or works been procured the entity should not compromised quality as this impacts both the cost of procuring and scope specifications as well as the public perception in creating value proposition in the implementation of Public Procurement Process. It is in the light of these that Corporations and

Public Bodies such as PPA often called for process improvement through to promotion of fair and open competition for all potential tenderers in the public procurement process to minimize exposure to fraud and collusion as well as providing quality works, goods or services to promote value added proposition for the public consumer and for the Assemblies (PPA, Act 663).

Almost all purchasing decisions include factors such as delivery and handling, marginal benefit, and a price fluctuation among others has to be done with quality focus (Peter et al. 2008). Procurement generally involves making buying decisions under conditions of scarcity. If good data is available, it is good practice to make use of economic analysis methods such as cost-benefit analysis or cost-utility analysis that guides entity to procure quality works or service for the clients (Peter et al. 2008).

According to PMI, project quality management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken (PMBOK 4, 2006). The Procurement Entity implementation of quality management system through policy and procedures with continuous process improvement activities conducted throughout is appropriate (PMBOK 4, 2006).

Project Management Institute has also outlined project quality management processes which include the following: **Plan Quality:** The process of identifying quality requirements and/or standards for the project and product, and documenting how the project will demonstrate compliance (PMBOK 4, 2006). **Perform Quality Assurance:** The process of auditing the quality requirements and the results from quality control measurements to ensure appropriate quality standards and operational definitions are used (PMBOK 4, 2006). **Perform Quality Control:** The process of monitoring and recording results of executing the quality activities to



assess performance and recommend necessary changes (PMBOK 4, 2006). According to PMI, the processes interact with each other and with the other knowledge areas as well. Each process can involve effort from one or more persons or groups based on the project requirements. In mining exploration projects each process occurs at least once in every project and occurs in one or more of the project phases, if the project is divided into phases. Although the processes are presented as discrete elements with well-defined interfaces, in practice they overlap and interact. The study however, explored the relevance of quality management in public procurement, and tries to find out whether the processes, procedures in project implementations are followed in meeting public demand.

Project Quality Management addresses the management of projects and the products of the projects. It applies to all projects, regardless of the nature of their product: be it the core mandate of mining, providing social amenities to the communities in which the mineral resources are taken from or meeting governmental regulations (Massoud et al. 2010). Product quality measures and techniques are specific to the type of product produced by the project. The failure to meet product or project quality requirements can have serious negative consequences on project implementers especially procuring entity of meeting stakeholders (public) demands (Howard, et al. 2009).

According to PMBOK 4, 2006, Howard, et al. (2009) quality in procurement plays significance roles in procurement of public works and services. The public expects value for money, lowered costs of services, doing it right the first time, removing the bottleneck associated with rework, operating within schedules and on budget for the assembly.

In furthermore to that modern quality management according to (PMI, 2010) complements quality in project procurement management. Both disciplines recognize the importance of which

are major tenets in procuring public projects. **Customer satisfaction:** Understanding, evaluating, defining, and managing expectations so that customer requirements are met (PMBOK 4, 2006). This requires a combination of conformance to requirements (to ensure the project produces what it was created to produce) and fitness for use (the product or service must satisfy real needs). **Prevention over inspection:** One of the fundamental tenets of modern quality management states that quality is planned, designed, and built in—not inspected in. The cost of preventing mistakes is generally much less than the cost of correcting them when they are found by inspection. **Continuous improvement:** The plan-do-check-act cycle is the basis for quality improvement as defined by Shewhart and modified by Deming (PMBOK 4, 2006). In addition, quality improvement initiatives undertaken by the performing organization, such as TQM and Six Sigma, should improve the quality of the project's management as well as the quality of the project's product. Process improvement models include Malcolm Baldrige, Organizational Project Management Maturity Model (OPM3<sup>®</sup>), and Capability Maturity Model Integrated (CMMI<sup>®</sup>). **Management Responsibility:** Success requires the participation of all members of the project team but remains the responsibility of management to provide the resources needed to succeed (PMBOK 4, 2006).

## 2.4 Historical view of Quality Management

The concept of quality management as we think of now, first emerged out of the Industrial Revolution. Previously, goods had been made from start to finish by the same person or team of people, with handcrafting and tweaking the product to meet 'quality criteria'. Mass production brought huge teams of people together to work on specific stages of production where one person would not necessarily complete a product from start to finish (Kenneth, 2003).

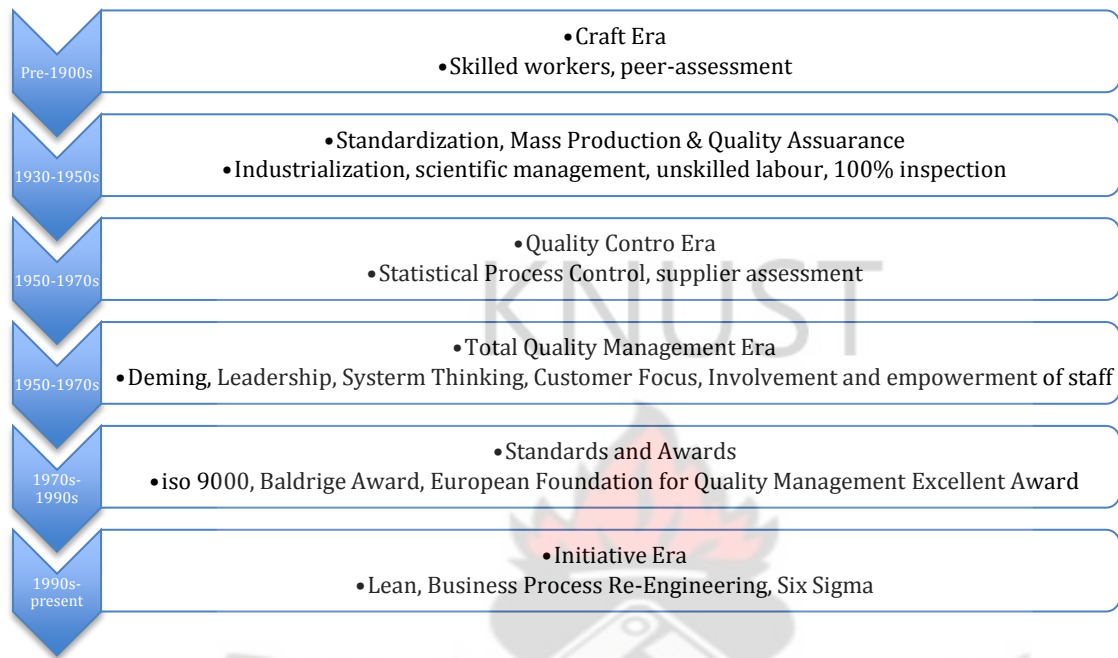
In the late 19th century pioneers such as Frederick Winslow Taylor and Henry Ford recognized the limitations of the methods being used in mass production at the time and the subsequent varying quality of output. Birland established quality departments to oversee the quality of production and rectifying of errors, and Ford emphasized standardization of design and component standards to ensure a standard product was produced. Management of quality was the responsibility of the quality department and was implemented by inspection of product output to 'catch' defects (Howard, et al. 2009).

Application of statistical control came later as a result of World War production methods and advanced by the work done of W. Edwards Deming, a statistician, after whom the Deming Prize for quality is named. Joseph M. Juran focused more on managing for quality. The first edition of Juran's Quality Control Handbook was published in 1951. He also developed the "Juran's trilogy," an approach to cross-functional management that is composed of three managerial processes: quality planning, quality control and quality improvement. These functions all play a vital role when evaluating quality (Howard, et al. 2009).

Quality, as a profession and the managerial process associated with the quality function, was introduced during the second-half of the 20th century, and has evolved since then. Over this period, few other disciplines have seen as many changes as the quality profession (Massoud et al. 2010).

The quality profession grew from simple control, to engineering, to systems engineering. Quality control activities were predominant in the 1940s, 1950s, and 1960s. The 1970s were an era of quality engineering and the 1990s saw quality systems as an emerging field (Howard, et al. 2009).

The current thinking on what defines ‘quality’ and ‘quality management’ is the result of a series of historical shifts in thinking and approach as has been identified earlier.



**Figure: 2.1 A Quality Timeline**

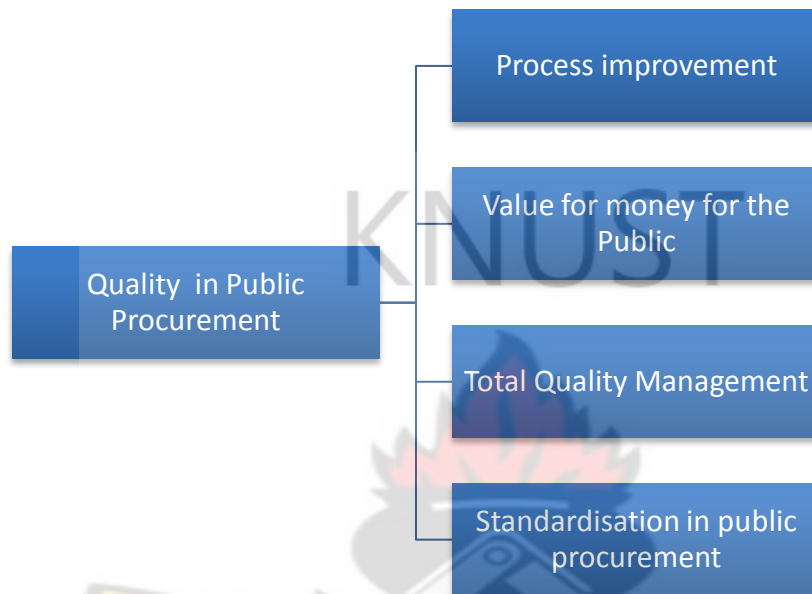
Source: Howard, et al. (2009)

The figure is indicative; bands are meant to indicate eras in which certain ideas/approaches became predominant rather than their first articulation, and clearly many ideas are still in reasonably common practice today (e.g. inspection, ISO 9000, etc.)

## 2.5 Conceptual and Theoretical Framework

Conceptually, quality in procurement is the independent variable which has been examined through public procurement process within Cape Coast Metropolitan Assembly. The dependent variables are process improvement, and total quality management.

Theoretically, improved process improvement, total quality management, focus on the public satisfaction through value proposition, transparency and reduced operational cost by optimizing for quality assurance in public procurement have been contextually explored in this study.



**Figure 2.2: Theoretical Framework of Quality in Public Procurement**

Source: (Own sourced, 2013)

As a matter of fact, public procurement has come to play a major role in enhancing the quality level of public and private sectors, and there has been much research into public purchasing (Peter Baily. et al., 2008).

Thai (2008), Monczka et al. (2008) and Burt et al. (2009) have explained the general aspect and characteristics of public procurement in their works. Cohen et al. (2002), discussed the influence of public procurement on industrial R&D and addressed socially responsible purchasing practices, and Monczka et al. (2008) investigated the ethical issues of procurement. Also, Thai (2008), mentioned e-Government and Monczka et al. (2008) discussed social responsibility, and discussed green purchasing policy. While many people have discussed the effects of public



purchasing in many related issues and areas, little research has been done on integrating quality public procurement. Adopting a consistent approach to tender and contract documentation: promotes and facilitates increased consistency in the contractual approach of public, authorities to the procurement of goods and services; allows cost effective and time efficient processes for both government and suppliers; and reduces the need for continued legal advice for similar contract documents for both government and suppliers according to Cohen et al. (2002).

## **2.6 Standardization in Public Procurement Process**

The average public procurement process can involve numerous stages, such as the development of a Statement of Work, the development of evaluation criteria, publishing the RFP, evaluating bids, and so forth until the contract is established. Delays at any number of stages will undoubtedly impact the entire process, set of standard are required to ensure greater quality in Public Sector Procurement within the Ghana. Public Procurement Process continues to evolve in complexity more than any set of standards can keep pace with. As a result of increased transparency and accountability, the procurement process has become more complex. What this has led to, is a set of standards that continues to decrease, as the time needed to complete the process increases. This translates into the inevitable conflict between cost and time. To resolve this conflict, pressure is placed on the staff to decrease the process time hence, resulting in the use of “quick fix” solution such as less scrutiny when reviewing materials (Kenneth, 2003). Decreasing standards indicates that more time and effort is being put into the procurement process, which then creates lower overall value (PMBOK 4, 2006).

A detailed discussion of the methods by which one could achieve both improvement in terms of time and in terms of quality in the public procurement process are beyond the scope of this study,

but may include a standardization of the elements within the process and the amalgamation of procedures. Elements such as Total Quality Management, Process Improvement, Organization Quality Policy, Health and Safety Guidelines in the procurement process are relevant in measuring quality (Kenneth, 2003). However, if one is looking for methods by which to decrease the time standards while maintaining consistent standards of quality in a supply chain then one need not look further than the evolution of mass production supply chain, arrangements (Kenneth, 2003). Mass production supply chain arrangements are built on standardization, which ensures a consistent product in as short a time as possible. It would be naive to believe that the public procurement process can become a mass production supply chain similar to computer hardware or automobile assembly; however, it would be equally naive to ignore the lessons of standardization that the examples provide. Standardizing certain procedures would allow the contracting authority a strong reference point as to the length of time by which those processes would take and thus produce less variability. The standardization of procedures would also enable the procurement process to maintain certain levels of consistency and hence, quality and overall value (Kenneth, 2003). Again, a detailed discussion is beyond the scope of this article, but this author hopes to stimulate further discussion on the topic of standards within the public procurement process (Kenneth, 2003).

## **2.7 Total Quality Management**

International Organization for Standardization (ISO) has defined TQM as: is a management approach for an organization, centered on quality, based on the participation of all its members and aiming at long –term success through customer or public satisfaction of the procure project or contract, and benefits to all members of the organization and society at large (ISO 8402:1994). Elements such as TQM and Six Sigma form key components defining quality in procurement

management (Massoud et al. 2010).

In procuring public project, one major aim is to reduce variation from every process in order to achieve greater consistency. It is at this point that TQM requires the procuring entity maintains the required quality standard in all aspects of its procurement process. This requires ensuring that things are done right the first time and defects and wastes are eliminated from operations.

TQM is a management philosophy that seeks to integrate all organizational functions (procurement, finance, design, engineering, and production, customer service, etc.) to focus on meeting customer needs and organizational objectives (Massoud et al. 2010).

TQM views an organization as a collection of processes. It maintains that organizations must strive to continuously improve these processes by incorporating the knowledge and experiences of workers. The simple objective of TQM is "do the right things right the first time, every time". TQM is infinitely variable and adaptable. Although originally applied to manufacturing operations, and for a number of years only used in that area, TQM is now becoming recognized as a generic management tool, just as applicable in service and public sector organizations. There are a number of evolutionary strands, with different sectors creating their own versions from the common ancestor.

According to (Peter Baily. et al., 2008) total quality management in procurement management is found on the principle of the following elements that create better project performance. These are commitment by senior management and all employees, meeting customer requirements, Just In Time, Improvement teams, Reducing product and service costs, Employee involvement and empowerment, Recognition and celebration, Challenging quantified goals and benchmarking, Focus on processes / improvement plans, Specific incorporation in strategic planning. The actors



have indicated that such variable form the foundations on which quality project procurement are delivered (Kenneth, 2003).

## **2.8 Process Improvement**

Quality project procurement is mainly concerned with continuous improvement in all work, from high level strategic planning and decision-making, to detailed execution of work elements on the shop floor (Mukherjee, & Kachwala, 2010). It stems from the belief that mistakes can be avoided and defects can be prevented. It leads to continuously improving results, in all aspects of work, as a result of continuously improving capabilities, people, processes, and technology and machine capabilities (PMBOK 4, 2006). Continuous improvement must deal not only with improving results, but also more importantly improving capabilities to produce better results in the future. The five major areas of focus for capability improvement are demand generation, supply generation, technology, operations and people capability (Kenneth, 2003). The concept is plausible if there is practice of transparency in the public procurement process where potential tenderers adhere to quality in their tender preparation and the eventual implementation of quality in all their procurement functions (PMBOK 4, 2006).

Furthermore according to Howard, et al. (2009), Six Sigma however, seeks to improve the quality of process output by identifying and removing the causes of defects and minimizing variability in manufacturing and procurement processes. It uses a set of quality management methods namely statistical methods and creates a special infrastructure of people within procurement entity. Each procurement stage or project within Six Sigma follow sequential order and has quantified financial target. The rule is that in Six Sigma process 99.999666% of work are statistically expected to be free from defect (3.4 defects per million) in this case project within the Assembly procured by an entity (PMBOK 4, 2006).

Features of Six Sigma are: a clear focus on achieving measurable and quantifiable financial return; an increased emphasis on strong and passionate management leadership and support; a special infrastructure of champions, master black belts and others; and a clear commitment to making decision on the basis of verifiable data and statistical methods (PMBOK 4, 2006).

## 2.9 Quality Management Methodologies

According to (PMBOK 4, 2006) entity can adopt any of the following methodologies of Six Sigma in managing quality in undertaking public procurement process for the Assembly.

DMAIC project methodology has five phases and used for projects aimed at improving an existing process (PMBOK 4, 2006).

**Define:** the problem the voice of the customer, and the project

**Measure:** key aspects of the current process and collect relevant data;

**Analyse:** the data to investigate and verify cause-and-effect relationship;

**Improve or optimize:** the current process based upon data using techniques such as design of experiment or mistake proofing. That is eliminating defects; and

**Control:** future process performance (PMBOK 4, 2006).

Also DMADV: is used for project aimed at creating new product or process designs.

**Define:** design goals that are consistent with customer demands and the enterprise strategy;

**Measure:** and identify (critical to quality), product capabilities, production process capability and risks;

**Analyse:** to develop and design alternatives, create a high-level design and evaluate design capability to select the best design;

**Design:** details, optimize the design, and plan for design verification; and

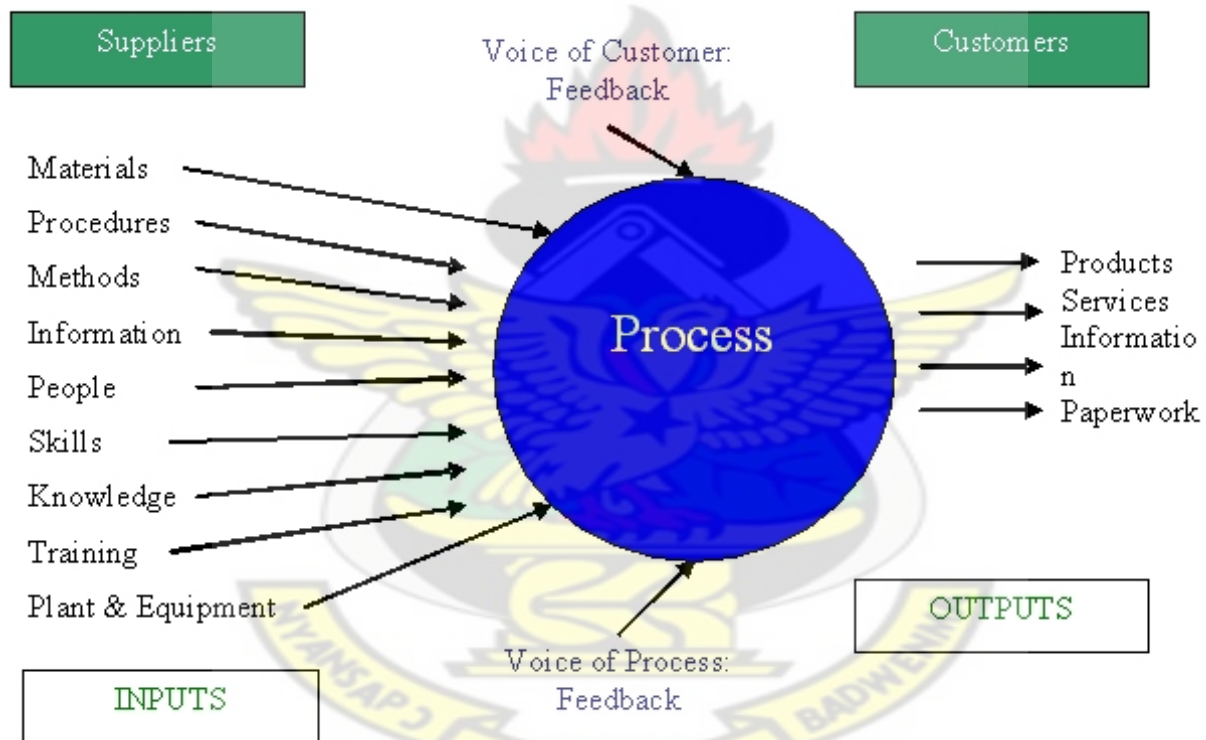
**Verify:** the design performance and ability to meet customer needs (PMBOK 4, 2006).

From the foregoing, using Total Quality Management and Six Sigma methodologies in procuring public projects are based on the following principles according to (PMBOK 4, 2006). Procurement entity needs a vision and a goal, to clearly define their quality policy that should be customer / public centered. Quality, a driving force for success, the organization's processes are directed towards continually improving the quality, tools and techniques that must be available to support improvements. Another important element is benchmarking a tool for quality improvements, while procurement market evaluation is a crucial tool supporting the customer-driven approach (Kenneth, 2003).

The responsibility of implementing quality policy lies with the procurement entity who will be the decisive success factor (PMBOK 4, 2006). Project team carry out the processes and by focusing on quality measures, combining improvement activities with commitment and recognition from the leaders, the prerequisite climate is prepared to facilitate the success of quality management systems (PMBOK 4, 2006). Once the strategic direction for the procurement entity's quality journey has been set, it needs performance measures to monitor and control the quality standards in order to sustain the quality strategy that called for procurement quality assurance (Kenneth, 2003). Furthermore, the maximization of project's performance and enhance the probability of its success, every entity needs to build a better quality procurement management process dedicated to meeting the public most important needs (PMBOK 4, 2006). Application of **Six Sigma** together with robust and efficient project management can be considered an effective tool in driving and accelerating the development and delivery of high-quality projects within budget and timelines at the Assembly level. The practice of these methodologies within procurement entity is process improvement methodology to drive operational and business excellence. For instance, **eliminating defects** in any process—from

tendering process to contract implementation and post contract are important elements of creating value for money in the public procurement process (PMBOK 4, 2006). The fundamental objective of the quality management is the implementation of a measurement-based strategy that focuses on **process improvement** and waste elimination in public procurement, thereby bringing about entity change by aligning people and processes, promoting transparency, competitiveness, and value for the state through quality in public procurement (Kenneth, 2003).

A view on TQM accentuating people, processes, and systems



**Figure 2.3: A View on TQM Accentuating People, Processes, And Systems**

Source: adopted from (Department of Trade and Industry, n.d USA, 2009)

The importance of people, processes, and systems for quality initiatives to succeed are the building blocks and are done through *as processes, people, management systems, and performance measurement* (PMBOK 4, 2006), (Baily, et al. 2008). These elements according to (Kenneth, 2003) are relevant in integrating and improving quality management in the public

procurement process. The inputs such materials procedures, methods, information, people, skills, plant & equipment as well as knowledge about the procurement process and work content cannot be compromised in creating value for money. Quality Management in the Procurement Process can best be realized if the voices of process in the form of feedback from stakeholders are considered (PMBOK 4, 2006). The final outputs whether in form of services, products and or works are to be measured based on predetermine procurement objectives set up against standard within the supply chain (Baily, et al. 2008).

## **2.10 Principle of Value for Money in Procurement**

It is common knowledge that ‘procurement’ encompasses the whole process of acquiring property or services (Baily, et al. 2008). It begins when an agency or Ministry has identified a need and decided on its procurement requirement. Procurement continues through the processes of risk assessment, seeking and evaluating alternative solutions, contract award, delivery of and payment for the property or services and, where relevant, the ongoing management of a contract and consideration of options related to the contract. Procurement also extends to the ultimate disposal of property at the end of its useful life (Baily, et al. 2008).

In addition to the acquisition of property or services by an agency for its own use, ‘procurement’ also covers a situation where an agency is responsible for the procurement of property or services for other agencies, or for third parties World Bank, 2004).

An integral part of the procurement cycle is the ongoing monitoring and assessment of the procurement, including the property or services procured and the tasks related to procurement in which quality ought not to be compromised. Within the Australian Public Service (APS), for instance according to Charles Agyeman Manu Assistant Director, Professional Development, Australian Public Service, the Commonwealth Government has developed and promulgated what



is called Commonwealth Procurement Guidelines (CPGs). The CPGs apply to procurement conducted by all officials in agencies or Departments (Ministries) and in relevant government bodies. The procurement policy framework outlined in the CPGs applies to all matters related to the procurement of property or services, irrespective of whether those matters are specifically mentioned in the CPGs to procure works, services and or goods that meet standard specifications and of quality [www.modernghana.com](http://www.modernghana.com) (accessed:20/08/2014).

In Ghana the Procurement Act, Act 663, 2003 is a framework which was legislated and passed through the parliament that guides them through the procurement process. The next step would be its application in the field for efficiency and effectiveness supported by pragmatic, transparent and accountable audit methodology that delivered quality and value proposition in the public procurement process. The implementation of quality management within the procurement processes is relevant in this regard in creating value for money.

A very important ingredient in the ‘procurement’ cycle is ‘value for money’ as emphasized by the PPA and religiously applied by all the relevant public servants placed in positions to acquire goods and services on behalf of the Government (PPA, Act 663, 2003).

‘Value for money’ is the core principle underpinning Government procurement. In a procurement process this principle requires a comparative analysis of all relevant costs and benefits of each proposal throughout the whole procurement cycle (whole-of-life costing) Cohen et al. (2002). Value for money is enhanced in Government procurement by: encouraging competition by ensuring non-discrimination in procurement and using competitive procurement processes; promoting the use of resources in an efficient, effective and ethical manner; and making decisions in an accountable and transparent manner Cohen et al. (2002). In order to be in the best position to determine ‘value for money’ when conducting a procurement process,

request documentation needs to specify logical, clearly articulated, comprehensive and relevant conditions for participation and evaluation criteria which will enable the proper identification, assessment and comparison of the costs and benefits of all submissions on a fair and common basis over the whole procurement cycle Cohen et al. (2002). In line with the above, cost is not the only determinant in determining and assessing ‘value for money.’ Cohen et al. (2002). Rather, when assessing alternative procurement processes or solutions, a whole-of-life assessment would include consideration of “quality” in terms of factors such as: the maturity of the market for the property or service sought; the performance history of each prospective supplier; the relative risk of each proposal; the flexibility to adapt to possible change over the lifecycle of the property or service; financial considerations including all relevant direct and indirect benefits and costs over the whole procurement cycle; the anticipated price that could be obtained, or cost that may be incurred, at the point of disposal; and the evaluation of contract options (for example, contract extension options) Cohen et al. (2002). All potential suppliers should have the same opportunities to compete for Government business and must, subject to the prescribed guidelines in the Procurement Act, be treated equitably based on their legal, commercial, technical, and financial abilities, and not on their degree of political affiliation or ownership, location, ethnicity or size. In doing so, promote quality within public procurement administration and that is value for money within the eyes of competing procurers. The property or services on offer must be considered on the basis of their quality suitability for their intended purpose, and not on the basis of their origin Cohen et al. (2002).

Procurement costs in many Ministries and departments are substantial, consuming scarce resources of tightly constrained Government budgets. Quality, timeliness, and appropriateness of the procured inputs largely determine whether the public investment will succeed. Efficient

public procurement system is therefore vital for achieving accelerated growth and development of the country (Mukherjee, & Kachwala, 2010).

Fair and open competition is the best and the most transparent way of achieving value for money in large procurements having wide vendor base and also in cases of allocation or lease of public assets or natural resources for exploitation by private parties Cohen et al. (2002). Procurements not done in such a manner do not inspire public confidence at large. Allocation of spectrum and grant of mining concessions are two such areas not following the route of open competition and therefore raising concerns about achievement of value for money Cohen et al. (2002). Any reform in the process of public procurement must, therefore, ensure that not only the procurements of goods and services but also the sale or allocation of public assets and natural resources of the country to private entities must also satisfy the fundamental requirement of fairness, transparency and competitiveness. Conducting periodic comprehensive review of procurement systems, procedures and practices in various Departments and Ministries are relevant to value proposition Cohen et al. (2002), (Mukherjee, & Kachwala, 2010). Such reviews are intended to identify major systemic weaknesses in the procurement systems and suggest ways to address them with the overall objective of enhancing value for money in public procurements. The major audit concerns pointed out in such reviews relate to quality, timeliness and appropriateness of the procurements made by the departments. The public procurements systems which suffer from serious delays, indecisiveness, and frequent change of specifications, lack of accountability, inadequate competition and acceptance of goods of inferior quality Cohen et al. (2002). Also, procurements system which suffer from defective formulation of specification resulting in frequent change of specifications after invitation of bids, inefficient system of technical evaluation which normally leads to single source selection, improper



financial evaluation and frequent misuse of special procedures like emergency procurements. Such procurements do not provide value for money and increase cost of public services substantially Cohen et al. (2002).

## 2.11 Conclusion

The success of public procurement process, are consistent with quality management processes. The outcomes and results must meet stakeholders' expectations, prevention over inspection and procurement entity responsibility. The satisfactions of the public and the benefits gained by adopting and embedding quality in value proposition in public procurement are paramount. Project quality management is the subset of project management and they have similar characteristics in creating value for money: **Stakeholder satisfaction:** The project must meet the stakeholder requirements by delivering what it promised in order to satisfy the needs of the public. The (PMBOK 4, 2006), (Kenneth, 2003) and Demin Jurun put it as "conformance to requirements" and "fitness for use." In public procurement project implementation, this called for continuous improvement (PMI, 2004) in the procurement process to deliver quality in our Metropolitan and the District Assemblies if PPA objectives are to be realized. **Prevention:** It is often said that quality is planned into a project, not inspected (PMI, 2004); in considering whole life cycle in public procurement it is always more cost-effective to prevent mistakes than to correct them which will eventually prevent risk, unplanned stoppage, cost-risk, and rework which occurred in the Assembly.

Finally, **Entity Responsibility** (PMBOK 4, 2006), the procurement team or entity must work towards the total quality management goal, while the Assembly provides the needed resources to deliver on the quality promises within the scope specification. Deming, arguably put it this way set the bar with "plan-do-check-act" approach to quality management. This approach is

relevant to quality procurement within the Assembly for continuous processes improvement and value proposition within the assembly.

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## CHAPTER THREE

### METHODOLOGY

#### 3.1 Introduction

This chapter includes the research methodology employed in carrying out the research, which comprised of sample size and technique, research instrument design, data collection procedure and framework of data analysis.

#### 3.2 Sample

The total population of Cape Coast Metropolis according to 2010 Housing and Population Census 169,894, ([www.statsghana.gov.gh](http://www.statsghana.gov.gh)) from which sample size of sixty, (60) out of two hundred (200) of personnel directly involved procurement activities within the Assembly were chosen for the study. The sample size was limited to sixty due to the timeframe for the study. The researcher purposively selected, ten (5) District Engineers, ten (10) Clerk of Works, ten (15) Procurement Officers, thirty (30) members of the public. The respondents have been carefully chosen ostensibly that they have the necessary characteristics and the experience in responding the questionnaires. The primary data collection method used to achieve the research objectives was postal questionnaires with self-addressed return envelop' targeted at the respondents. After sending the questionnaires, seventy-five percent (75%) were returned completed and with valid responses. Because quality management issues are objective realities, an objective ontological position was adopted to answer the research question:

**RQ1: What are the effects of not integrating quality into public procurement process?**

Questionnaires as research design were adopted that incorporated both inductive and deductive reasoning. A questionnaire survey was subsequently developed to encapsulate underlying measures obtained from both the literature and expert consultations (Hair et al. 2006).

Purposive sampling, which represents a non-probability sampling technique, has been used. Also known as judgmental, selective or subjective sampling, purposive sampling relies on the judgment of the researcher when it comes to selecting the units (e.g, people, cases/organizations, events, pieces of data) that are to be studied. Usually, the sample being investigated is quite small, especially when compared with probability sampling techniques (Hair et al. 2006).

The main goal of purposive sampling is to focus on particular characteristics of a population that are of interest and provide expert opinion on the subject under study. It provides the researcher with the justification to make analytical generalizations from the sample that is being studied, which will best enable the researcher to answer research questions (Hair et al. 2006). It is in this case that experts such as Project Managers, District Engineers, Clerk of Works, and Procurement Officers workers are chosen for the study.

The sample being studied is not representative of the population, but for researchers pursuing qualitative or mixed methods research designs, this is not considered to be a weakness. Rather, it is a choice, the purpose of which varies depending on the type of purposive sampling technique that is used. For example, in homogeneous sampling, units are selected based on their similar characteristics because such characteristics are of particular interest to the researcher (Narsh, 2007).

### **3.3 Instrumentation**

The study considered a descriptive survey approach since it involves collecting primary data in order to answer questions concerning the existing status of the study. Descriptively, the design is directed towards determining the nature of a situation the incidence and interrelations among economic and sociological and psychological needs (Hair et al. 2006). It focuses on vital facts about the respondent's beliefs, opinions and attitudes and behavior, which provide an understanding of the phenomenon. (Narsh K, 2007). The five-point Likert-type scales with anchors ranging from “strongly disagree” to “strongly agree” were used to measure the study variables after which the one tailed test was used to test the variables.

### **3.4 Data Collection Procedures**

The researcher adopted a field survey approach to data collection in which questionnaires were used to elicit information from the respondents' as a research instrument. The questionnaires form part of primary sources of data used in this research.

Secondary sources of data were also used they were obtained from corporate annual reports, textbooks and the Internet materials. The sources of primary data were questionnaires which were self designed and self-administered. That is, respondents filled out the questionnaires in their privacy and without the presence of the researcher. The questionnaires were sets of questions designed to generate enough raw data for accomplishing the information requirements between the actual sampled results and the estimated true population results (Hair et al. 2006) Both closed-and open-ended type of questions were administered in collecting the raw data for easy selection or choice by the respondents due to limited time available at their disposal.

### 3.5 Framework of Data Analysis

This section elaborates on the techniques used in the data analysis to obtain the information required to answer the questions in the project. Ideally, the data has been analyzed based on the objectives under the topic **Quality Management, A Guide for delivering Value Proposition in Public Procurement: A study within Cape Coast Metropolitan Assembly (CCMA)-Ghana**. A t-test was used in analyzing the data for statistical purposes.





## CHAPTER FOUR

### DATA PRESENTATION AND ANALYSIS

#### 4.1 Introduction

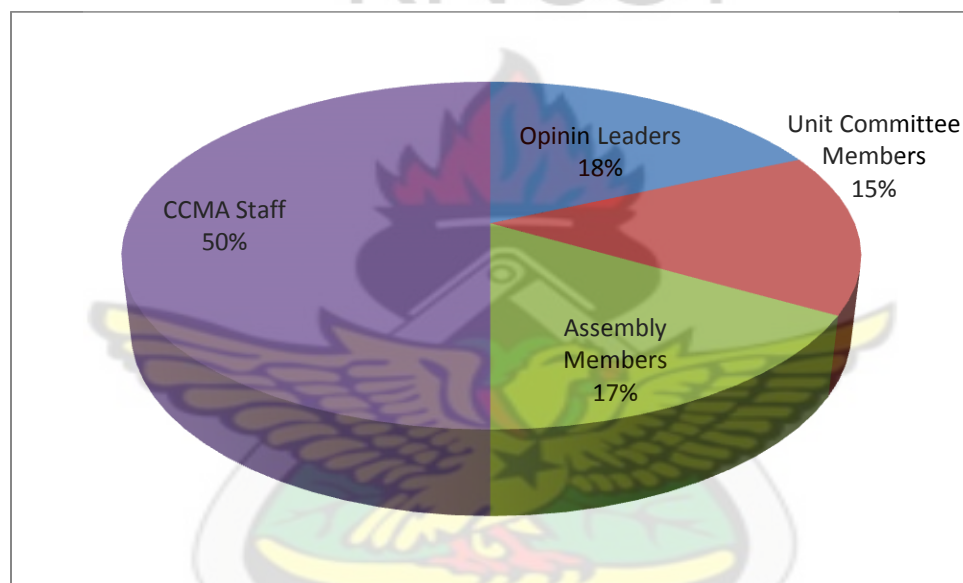
This section focuses on the data gathered and analysis of information from respondents. The main “credibility characteristics” in this study were the respondents’ profession and experience, defined as encapsulating: professional background; number of years staying within Cape Coast Municipal Assembly (CCMA) and their involvement in the procurement process by providing community water supply. The respondents were assigned weightings based on the five point likert scale (nvi-1, ni-2, u-3, i-4, or vi-5) which was interpreted as (not very important, not important, uncertain, important and very important) attributes of the sixty, (60) questionnaires which were distributed, and forty-five, (45) were completed representing seventy five percent (75%) rate of response.

The mean for each attribute including the associated standard deviation and standard error are presented in tables using descriptive statistics and one tail test. Notwithstanding, with higher rating scales (namely 1 and 5) being ascribed to critical and very critical attributes, based on the five-point Likert rating scale. The attributes are deemed critical if it has a mean of  $0 \leq 5$  as being the cut of point. Given two or more criteria with the same mean, the one with the lowest standard deviation is assigned highest importance ranking (Field, 2005a, b). Furthermore, because the standard error associated with all the means is relatively close to zero, it is reasonably asserted that the sample is an accurate reflection of the population (Field, 2005b). The findings have been

summarized in order to make reading easier for users of this research work. The responses were grouped and analyzed using tables and graphs below.

#### 4.2 Section A: Analysis of Management and Biographical Data

This section discusses biographical data of the respondents which comprised of their composition, educational qualifications, number of years working with the Cape Coast Metropolitan Assembly under the heading “background of the respondents”, among others.



**Figure 4.1: Respondents Composition within the Assembly**

Source: Field Survey 2014

The figure 4.1, described composition of the respondents' within Cape Coast Municipal Assembly who were the respondents for study. From the above, fifty percent (50%) were the staff of the Assembly made up (Procurement Officers, Clerk of works, Project Engineers, Civil Engineers of the Assembly). The remaining fifty percent (50%) were the project beneficiaries Community Members of the CCMA which were made up of Opinion leaders eighteen percent (18%), Assembly member seventeen percent (17%), and Unit Committee Members fifteen percent (15%) within the assembly were chosen for the study. This implies that all the

respondents have been equally representative and their professional inputs on issues of procuring projects for CCMA were considered in the analysis of this research. In order to eliminate any form of bias, respondents responded to the same sample of questions for the study.

### **Background of the respondents**

**Table: 4.1: The Professional Level Of Respondents**

Respondents	Frequency	Percent
Civil Engineers	2	4
Clerk of Works	5	8
Project Engineers	3	5
Procurement Officer	5	8
Others (Community Members)	45	75
<b>Total</b>	<b>60</b>	<b>100</b>

Source: Field Survey 2014

The table 4.1 described the respondents' level of profession in undertaking procurement community water supply system within CCMA. From the above, eight percent (8%) were Procurement Officers, eight percent (8%) were Clerk of works, five percent (5%) were Project Engineers while another five percent (5%) were Civil Engineers of the assembly. The remaining seventy-five percent (75%) were Community Members of the CCMA which were made up of Opinion leaders (11), Assembly member (10), and Unit Committee Members (9) within the assembly. This implies that all the respondents have been equally representative and their professional inputs on issues of procuring small water supply system within CCMA are considered in the analysis of this research. Each of the respondents has equal representative and responded to the same sample of questions for the study in order to eliminate any form of bias from the study.

**Table: 4.2: Respondents No. Of Years Working With CCMA**

No. of years at CCMA	Frequency	Percent
1-5 years	32	53
6-10 years	18	30
11 years and above	10	17
<b>Total</b>	<b>60</b>	<b>100</b>

Source: Field Survey 2014

Table 4.2 above, described how long the respondents have been working with CCMA. From the above, fifty three percent (53%) of the respondents indicated they have been working with CCMA for past one to five years. Also, thirty percent (30%) of the respondents have indicated six to ten years. Furthermore, remaining seventeen percent (17%) have stated they have being working in the assembly eleven years and above. This implies that all the respondents are familiar with the activities of the CCMA and such relevant specific experiences of being involved in the procurement activities of the CCMA are helpful in determining how the respondents response to procurement of small water supply system in delivering value for money as envisage by the Public Procurement Act, (Act 663, 2003).

**Table: 4.3: Respondents level of Qualification**

Level of Qualification	Frequency	Percent
HND	30	50
BSc (Hon)	26	43
MBA/ MSc/MPhil/PhD	4	7
<b>Total</b>	<b>60</b>	<b>100</b>

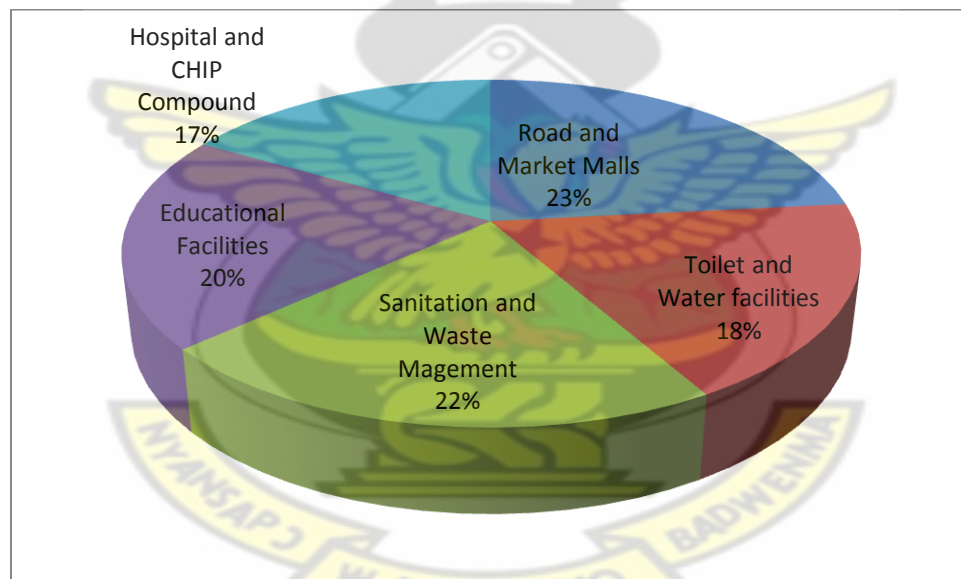
Source: Field Survey 2014

Analyzing table 4.3 above, fifty percent (50%) of the respondents were Higher National Diploma (HND) holders, forty-three percent (43%) were holding Bachelors (Hon) degrees and the remaining seven percent (7%) of the respondents were holding Master degree certificates. This

implies that each of the respondents were having some level of qualifications a significant evidence in understanding factors which affect procurement of community water supply for CCMA as well as on issues concerning the Public Procurement Act, in making an informed decisions on the implementation of the Act 663, 2003 for value for money creation.

#### 4.3 Section B: Quality Management in Public Procurement

This section analyzed responses in knowledge on quality management in public procurement that impact procurement activities within Cape Coast Metropolitan Assembly. Procurement projects for the Assembly, challenges of QM in Public Procurement, effects of integrating QM in Public Procurement among others were analyzed using descriptive statistic.



**Figure 4.2: Projects Commonly Undertaken By CCMA**

Source: Field Survey 2014

From the figure 4.2 above, projects commonly undertaken by Cape Coast Metropolitan Assembly were in the form of construction of CHPS Compounds including other health facilities making seventeen percent (17%), construction of roads and market malls twenty-three percent (23%), toilet and water facilities eighteen percent (18%), sanitation an waste management



twenty-two percent (22%) and the remaining twenty percent (20) was procurement and construction of educational facilities. This implies that procurement of these facilities is evenly distributed within the metropolis and that integrating quality management into their provision and management towards their sustainability are crucial in procurement provision.

**Table 4.4: Challenges of QM in Public Procurement Process**

	Maximum	Mean		Std. Deviation
Variables	Statistic	Statistic	Std. Error	Statistic
Delays, indecisiveness, and frequent change of specifications	5.00	4.1167	.09827	.76117
Lack of accountability, inadequate competition and acceptance of goods of inferior quality	5.00	4.0500	.11985	.92837
Procurements suffer from defective formulation of specification resulting in frequent change of specifications after invitation of bids	5.00	4.4500	.08709	.67460
Inefficient system of technical evaluation which normally leads to single source selection	4.00	3.4000	.06378	.49403
Improper financial evaluation and frequent misuse of special procedures like emergency procurements	5.00	4.5333	.06916	.53573

Source: Field Survey 2014

Table 4.4: presents the descriptive statistics of survey results on quality management in public procurement. Quality management in procurement was measured with dichotomous (nvi-1, ni-2,



u-3, i-4, or vi-5) which was interpreted as (not very important, not important, uncertain, important and very important) where values greater or equal to 5 indicate agreement to the alternative hypothesis that quality management in procurement have positive significance on procurement management. The mean values of the responses obtained from the survey range from 3.4000 to 4.5333. These mean values were greater than the test value of 1. The standard deviations of the means range from 0.49403 to 0.92837 with standard error of 0.06378 to 0.11985. From the above, there is no significant difference between the estimated mean an indication that there is positive effect and vice versa. The variables are such as delays, indecisiveness, and frequent change of specifications, lack of accountability, inadequate competition and acceptance of goods of inferior quality, procurements suffer from defective formulation of specification resulting in frequent change of specifications after invitation of bids, inefficient system of technical evaluation which normally leads to single source selection, and improper financial evaluation and frequent misuse of special procedures like emergency procurements were the challenges that pose threat in integrating quality management in their infrastructural provision in the public procurement process.

**Table 4.5a: Effects of Integrating QM in Public Procurement**

Variables	Mean	Std. Deviation	Std. Error Mean
Create value for money for the entire project from project initiation to closing	4.4167	.49717	.06418
Provide competitiveness among bidders in provide better but quality tenders and works	4.4167	.49717	.06418
Remove problems associated with rework in project implementation	4.4167	.49717	.06418
Improve continuous process improvement in public procurement	4.6000	.49403	.06378
Lower the cost of procurement project implementation	4.4500	.50169	.06477

Source: Field Survey 2014

Table 4.5a: presents the descriptive statistics of survey results on the effects of quality management in public procurement. The effects of quality management in procurement was measured with dichotomous (nvi-1, ni-2, u-3, i-4, or vi-5) which was interpreted as (not very important, not important, uncertain, important and very important) where values greater or equal to 5 indicate agreement to the alternative hypothesis that quality management in procurement have positive significance on procurement management. The mean values of the responses obtained from the survey range from 4.4167 to 4.6000. These mean values were greater than the test value of 1. The standard deviations of the means range from 0.49717 to 0.50169 with standard error of 0.06418 to 0.06477. From the above, there is no significant difference between the estimated mean an indication that there is positive effect and vice versa.

The variables are such as Create value for money for the entire project from project initiation to closing, Provide competitiveness among bidders in provide better but quality tenders and works, Remove problems associated with rework in project implementation, Improve continuous process improvement in public procurement, and Lower the cost of procurement project implementation and whole life cycle of procurement impact in the public procurement process.

**Table 4.5b: Effects of Integrating QM in Public Procurement**

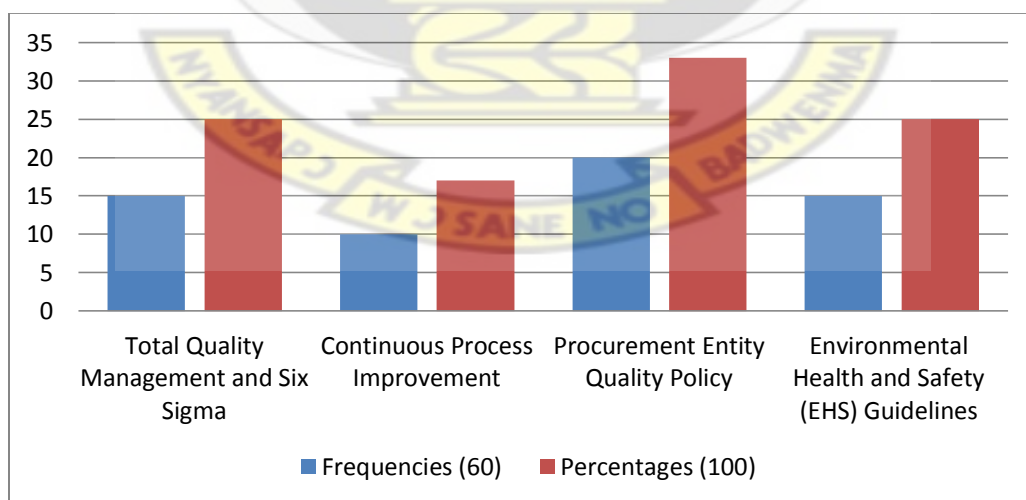
One-Sample Test						
Test Value = 1						
Variables	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Create value for money for the entire project from project initiation to closing	53.232	59	.000	3.41667	3.2882	3.5451
Provide competitiveness among bidders in provide better but quality tenders and works	53.232	59	.000	3.41667	3.2882	3.5451
Remove problems associated with rework in project implementation	53.232	59	.000	3.41667	3.2882	3.5451
Improve continuous process improvement in public procurement	56.445	59	.000	3.60000	3.4724	3.7276
Lower the cost of procurement project implementation	53.267	59	.000	3.45000	3.3204	3.5796

Source: Field Survey 2014

Furthermore, in order to test the significance of the difference between these means and the test value (1), a one-sample t-test were computed at the 95% Confidence Interval for which Difference of the lower range (3.2882 to 3.4724) and with the upper range standard error of 3.5451 to 3.7276 were computed. This t-test asserts that there is no significant difference between the estimated mean and the test value (1) when the computed corresponding t-value is significant. A positive t-value means positive effect and vice versa. The results of the test as shown above that estimated means were not significantly different from the test-value.

The sample test has revealed that integrating quality management in Public Procurement exerts positive significance on procurement management which leads to:

- a) Create value for money for the entire procurement process from identifying procurement priorities or need identification manage contract and disposal route,
- b) Provide competitiveness among bidders in providing better but quality tenders and works,
- c) Remove problems associated with rework in project procurement implementation,
- d) Improve continuous process improvement in public procurement, and
- e) Lower the cost of procurement project implementation and whole life cycle



**Figure 4.3: Selected Quality Management Tools Often Used In Procurement**

Source: Field Survey 2014

From the figure 4.3 above, when asked the respondents to identify some selected tools often used in managing quality in procurement, twenty-five percent (25%) of the respondents have total quality management whiles another 25% have also stated observing environmental health and safety guidelines in the provision of infrastructure. Also, thirty-three percent (33%) of the respondents have indicated quality policy of procurement entity that outline how quality in the procurement process will be plan in, design in but not inspected in. Furthermore, the remaining seventeen percent (17%) have indicated continuous process improvement in bidding, construction and maintenance throughout the public procurement process.

**Table 4.6: Elements Creating Value Proposition in Public Procurement**

	Maximum	Mean		Std. Deviation
Variables	Statistic	Statistic	Std. Error	Statistic
Materials and Processes in project implementation	5.00	4.1000	.10000	.77460
Level of competitiveness among bidders in providing quality tenders and works	5.00	4.5167	.06506	.50394
People and Skills for project implementation	5.00	4.5833	.06418	.49717
Training and Methods in implementing the project as well as review of the annual procurement process	5.00	4.6000	.06378	.49403
Procurement Entity Quality Policy and Processes	5.00	4.4500	.06477	.50169

Source: Field Survey 2014

Table 4.6: presents the descriptive statistics of survey results on quality management in public procurement. Quality management in procurement was measured with dichotomous (nvi-1, ni-2, u-3, i-4, or vi-5) which was interpreted as (not very important, not important, uncertain, important and very important) where values greater or equal to 5 indicate agreement to the alternative hypothesis that quality management in procurement have positive significance on procurement management. The mean values of the responses obtained from the survey range from 3.4000 to 4.5333. These mean values were greater than the test value of 1. The standard deviations of the means range from 0.49403 to 0.92837 with standard error of 0.06378 to 0.11985. From the above, there is no significant difference between the estimated mean an indication that there is positive effect and vice versa. The variables are such as Materials and Processes in project implementation, Level of competitiveness among bidders in providing quality tenders and works, People and Skills for project implementation, Training and Methods in implementing the project as well as review of the annual procurement process, and Procurement Entity Quality Policy and Processes were the key elements in creating value preposition in measuring quality in the public procurement process.



## **CHAPTER FIVE**

### **CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents the summary of the research findings, review of the research question, conclusions and the necessary recommendations.

#### **5.2 REVIEW OF THE OBJECTIVES**

##### **5.2.1 Review of Objective one (1):**

To find out challenges in quality management in public procurement practices.

From the study it has been found that variables are such as delays, indecisiveness, and frequent change of specifications, lack of accountability, inadequate competition and acceptance of goods of inferior quality, procurements suffer from defective formulation of specification resulting in frequent change of specifications after invitation of bids, inefficient system of technical evaluation which normally leads to single source selection, and improper financial evaluation and frequent misuse of special procedures like emergency procurements were the challenges that pose threat in integrating quality management into the public procurement process in the provision infrastructural development within Cape Coast Metropolitan Assembly. The finding has agreed with (Howard, et al. 2009) who established that quality departments need to oversee the quality of production and rectifying of errors, and ensure standardization of design and component standards to ensure a standard product or infrastructure provided are right from material acquisition stage to construction and management. Also, ECCJ, (2007) Report on

“Linking CSR to Public Procurement in the EU”, from an ECCJ seminar and workshops held in Stockholm-Sweden identified challenges such as frequent change of specifications after invitation of bids, inefficient system of technical evaluation which normally leads to single source selection, and improper financial evaluation that affect quality in public procurement management towards infrastructural provision. The World Bank 2005) has indicated quality management in public procurement is paramount and capable of creating value proposition for the procuring entity.

### **5.2.2 Review of Objective two (2):**

To determine relevant quality elements that creates value for money in procurement process.

From the study it has been found that the mean values of the responses obtained from the survey range from 3.4000 to 4.5333. These mean values were greater than the test value of 1. The standard deviations of the means range from 0.49403 to 0.92837 with standard error of 0.06378 to 0.11985 indicating no significant difference between the estimated mean an indication that there is positive effect of relevant elements such as Materials and Processes in project implementation, Level of competitiveness among bidders in providing quality tenders and works, People and Skills for project implementation, Training and Methods in implementing the project as well as review of the Annual Procurement Process, and Procurement Entity Quality Policy. It has been found that integrating such key quality management elements into the public procurement create value proposition for the public procurement process. The finding has agreed with (Mukherjee, & Kachwalka, 2010, Kenneth Roses, 2010) writing on TQM accentuating people, processes, and systems which was adopted for (Department of Trade and Industry, n.d USA, 2009) has indicated that in order to integrate and improve quality in the public procurement process inputs such materials, procedures, methods, information, people, skills,

plant & equipment as well as knowledge about the procurement process and work content cannot be compromised in creating value for money. Furthermore the Public Procurement Act 663, (2003) and the World Bank (2005) continued to emphasis on creating level playing field for competitiveness among bidders in providing quality tenders and works, People and Skills for project implementation, Training and Methods in implementing the project as well as review of the Annual Procurement Process towards value prepositioning in the public procurement process. More so, (Larasati and Watanabe, 2010), (Kenneth, 2003), and (Massoud et al. 2010) have all indicated that in integrating quality management into the public procurement process tools such as practice of total quality management, observing environmental health and safety guidelines in the provision of infrastructure, quality policy of procurement entity that outline how quality in the procurement process to plan in, design in but not inspected in and continuous process improvement in bidding, construction and maintenance throughout the public procurement process are relevant in creating value preposition.

### **5.2.3 Review of Objective three (3):**

To explore the effects of integrating quality in public procurement practices.

From the study the mean values of the responses obtained from the survey range from 4.4167 to 4.6000. These mean values were greater than the test value of 1 whiles the standard deviations of the means range from 0.49717 to 0.50169 with standard error of 0.06418 to 0.06477. This implies that there is no significant difference between the estimated mean an indication that there is positive effect and vice versa. The variables are such as create value for money for the entire project from project initiation to closing, provide competitiveness among bidders in provide better but quality tenders and works, remove problems associated with rework in project implementation, improve continuous process improvement in public procurement, and lower the

cost of procurement project implementation and whole life cycle of procurement impact in the public procurement process. The finding has agreed with Cohen et al. (2002), (Mukherjee, & Kachwala, 2010) and the Project Management Institute (PMI) in their (PMBOK 5, 2012) that the cost of quality includes all costs incurred over the life of the product or procurement or the project by investment in preventing nonconformance to requirements, appraising the procurement project or product for conformance to requirements and failing to meet requirements (rework). The effects, which are the cost of poor quality according to PMI, can be considered as cost of conformance ( build a quality procurement project or product) through training, document processes, equipment and time to do it right), appraisal costs (asses the quality) through testing, and inspections. As well as the cost of nonconformance through both internal (poor quality found by rework and scrap) and external (poor quality found by the public through liabilities, lost of business and warranty work) by the public procurer. This implies that the money spent during the project procurement to avoid failures and the money spent during and after the project procurement which is the whole life cycle of public procurement poses effects and has to be monitored and managed if value preposition in the public procurement process are to be created for the Cape Coast Metropolitan Assembly.

### **5.3 Conclusions**

It is undeniable fact that quality management plays an integral role in the procurement of goods, works and service if public expectations are to be met. In creating value preposition in public procurement process, integrating quality management in the public procurement process in which procurement entity has quality policy that spelled out the process, procedures and the objectives of entity in procuring works, services or goods in order to meet stakeholder's expectation. An adoption of such quality management policy ensures procuring quality products,

works or services which aim to reduce cost of poor quality and or improve entire public procurement process for the assembly and the nation at large.

While implementing proper procurement quality policy may be expensive as direct purchasing costs, the overall lifetime cost of procuring products or services can be less than the overall lifetime costs of the up-front cheapest option in either public infrastructure procurement or in the procuring goods and or services (Baily, et al. 2008; Kenneth, 2003). Hence, strict adherence to procurement quality policy will be a strategic guide for delivering value proposition in Public Procurement Process. This is because the procurement entity quality policy can result in lower operating costs, maintenance and disposal costs will indirectly add value throughout the procurement process.

The quality management in Public Procurement Process impact on efficient process improvement of the Public Procurement Act, Act 663 2003 and add value for money for the stakeholders. Quality Management in Public Procurement Process helps entity meets their needs for procurement of goods, services, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the Assembly, but also to society and the economy whilst minimizing cost poor quality (PMI, 2005).

Finally, quality management in the public procurement process are beneficial as integrating the practice add value for money while ensuring compliance with procurement rules and procedures, provide competitiveness among bidders for better but improve quality tenders and works, remove problems associated with rework in project implementation, improve continuous process improvement in public procurement, and lower the cost of procurement project implementation and whole life cycle of procurement impact in the public procurement process Cohen et al. (2002).



## 5.4. Recommendations

This work has been limited to project quality management which impact on procuring public projects. Due to limited time constraints for the study, Cape Coast Metropolitan Assembly in the central region of Ghana has been considered for the study in furtherance to, frequent complaints of poor quality work undertaken by the procuring entity for the Assembly.

Recommendations were however made for management to be incorporated into Assembly procurement management decisions upon request in order to improve performance whiles creating value proposition for the Assembly.

5.4.1: It has been recommended that procurement entity (CCMA) needs to use suppliers that integrate quality management into their procurement activities right from the need acquisition stage to manage contract and disposal in sustainable manner. That Cape Coast Metropolitan Assembly procurement entity engages suppliers that provide quality in their procurement provision where appropriate to promote competition & equal opportunities and uses suppliers who pay strict attention to terms and conditions of delivering services that promote value propositioning in procurement system within the Assembly through integration of quality management as indicated in both suppliers and buyers quality policy documents.

5.4.2: That challenges in quality management in public procurement practices such as delays, indecisiveness, and frequent change of specifications, lack of accountability, inadequate competition and acceptance of goods of inferior quality, procurements suffer from defective formulation of specification resulting in frequent change of specifications after invitation of bids, inefficient system of technical evaluation which normally leads to single source selection, and improper financial evaluation and frequent misuse of special procedures are best mitigated if entity have procurement quality policy in which general annual procurement plan indicates



procurement quality pan, quality assurance and how the entire procurement are quality control are undertaken for the Assembly. This will improve performance and add value to the public procurement process.

5.4.3: Last but not the least, procurement entity (CCMA) should ensure engaging entities which are quality minded and focus in procuring goods, service and or works in their specifications, tenders, plans, designs, construction and maintenance as well as in disposing of the products procured. This called for ensuring continuous learning and practice through training and development, monitoring and evaluation to ensure quality standard as well as periodic auditing of the procurement process within Assembly to improve performance. Thus all activities connected to attainment of quality in public procurement within the Assembly should towards direct to design, including proving and testing, specification which must be clear and unambiguous; assessment of suppliers, to ensure that they perform; motivation of all concerned; education and training of supplies staff; inspection and testing; and feedback, to ensure that all measures are effective as part of quality assurance and control process.

#### **5.4.4: Scope for Further Research**

For further it is worthy to investigate on issues auditing quality assurance in the public procurement process to ensure that appropriate quality standards and operational definitions are used in meeting requirements in Ghana's Public Procurement process.

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## APPENDIX

### Questionnaire for Respondents

Dear Respondent,

The researcher is a student of Kwame Nkrumah University of Science and Technology, College of Architectural and Planning, Department of Building and Technology-Ghana. As part of completion requirements for the award of MSc. Procurement Management the student is undertaking a research by using your Institution as case study on the topics: **“Quality Management, A Guide for delivering Value Proposition in Public Procurement: A study within Cape Coast Metropolitan Assembly (CCMA)-Ghana.** The research has been designed purely for academic purposes. The information given will be accorded the greatest degree of confidentiality. You are kindly requested to give your opinion by answering the questions below

**Instructions: Tick ☒ and or provide answers as appropriate.**

### SECTION A: Biographical Data

#### 1. Your Profession

Project Managers

District (Civil) Engineers

Clerk of Works

Procurement Officers

#### 2. Highest educational level

Higher National Diploma

Bachelors Degree (including honors)

Postgraduate (MA/MSc/MPhil/PhD)



**3. Number of years of experience in procurement practices within the Assembly**

1 to 5 years

6 to 10 years

11 to 15 years

**SECTION B: Quality in Public Procurement**

**4. Which of the following qualitative projects are undertaken by CCMA?**

Hospital and CHIP Compounds [ ]

Road and Market Malls [ ]

Educational Facilities Projects [ ]

Water and Toilets Facilities [ ]

Sanitation and Waste Management [ ]

**5. Procurement Entity does not have quality policy in undertaking the above procurement activities?**

Strongly Agree [ ]

Agree [ ]

Uncertain [ ]

Strongly Disagree [ ]

Disagree [ ]

**6. In Public Procurement, “quality” means.....**

Public satisfaction of procure project and loyalty” and “fitness for use [ ]

Degree to which a set of inherent characteristics fulfills requirements [ ]

All of the above [ ]

None of the above [ ]



**7. Tenderers do not integrate quality management into their public procurement process?**

Strongly Agree [ ]

Agree [ ]

Uncertain [ ]

Strongly Disagree [ ]

Disagree [ ]

**8. Whole life cycle is not relevant in implementing quality in Public Procurement**

Strongly Agree [ ]

Agree [ ]

Uncertain [ ]

Strongly Disagree [ ]

Disagree [ ]

**9. Which of the following key components of quality management are relevant to your**

**Procurement Entity**

Stakeholder satisfaction [ ]

Prevention over inspection [ ]

Continues process improvement [ ]

Procurement Entity responsibility [ ]

Q10.	Challenges pose to quality procurement within CCMA	Please tick				
		NVI-1	NI-2	N-3	I-4	V I-5
a.	Delays, indecisiveness, and frequent change of specifications					
b.	Lack of accountability, inadequate competition and acceptance of goods of inferior quality					
c.	Procurements suffer from defective formulation of specification resulting in frequent change of specifications after invitation of bids					
d.	Inefficient system of technical evaluation which normally leads to single source selection,					
e.	Improper financial evaluation and frequent misuse of special procedures like emergency procurements					
Others						

Q11.	Effects of integrating quality management in public procurement	Please tick				
		NVI-1	NI-2	N-3	I-4	V I-5
a.	Create value for money for the entire project from project initiation to closing					
b.	Provide competitiveness among tenderers in provide better but quality tenders and works					
c.	Remove problems associated with rework in project implementation					
d.	Improve continuous process improvement in public procurement					
e.	Lower the cost of procurement project implementation and whole life cycle					
Others						

Q12	Key elements in creating value preposition in measuring quality	Please tick				
		NVI-1	NI-2	N-3	I-4	V I-5
a.	Materials and Processes in project implementation					
b.	Level of competitiveness among tenderers in providing quality tenders and works					
c.	People and Skills for project implementation					
d.	Training and Methods in implementing the project as well as review of the annual procurement process					
e.	Procurement Entity Quality Policy and Processes					
Others						

### 13. Identify selected quality management tools often used in Public Procurement

Total Quality Management and Six Sigma [ ]

Continuous Process Improvement [ ]

Procurement Entity Quality Policy [ ]

Environmental Health and Safety (EHS) Guidelines [ ]

Q14	Impact of poor quality in public procurement (project) implementation	Please tick				
		NVI-1	NI-2	N-3	I-4	V I-5
a.	Increases the project cost of the project					
b.	Level of competitiveness among tenderers in providing quality tenders and works					
c.	Increases schedule risk of the project					
d.	Creates poor image of Procurement entity					
e.	Public dissatisfaction of implemented projects					