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**COLLEGE OF ARCHITECTURE AND PLANNING  
DEPARTMENT OF BUILDING TECHNOLOGY**



**EFFECT OF THE PUBLIC PROCUREMENT ACT 2003, (ACT 663) ON THE USE OF  
NON-TRADITIONAL WORKS PROCUREMENT SYSTEMS BY MMDAs IN GHANA.**

**A THESIS SUBMITTED TO THE DEPARTMENT OF BUILDING TECHNOLOGY,  
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF SCIENCE IN PROCUREMENT MANAGEMENT**

**BY**

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**NOVEMBER, 2014**

## DECLARATION

I hereby declare that this work was solely undertaken under supervision and is the result of my effort and that all quotations from books and other sources of information have been duly acknowledged and that no part of it has been presented for another award of this university or elsewhere.

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I declare that I have supervised the student in undertaking the research reported herein and I confirm that the student has my permission to present it for assessment.

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I confirm that the student has duly effected all the corrections suggested by the examiners in conformity of the Department's requirements.

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Date

## **DEDICATION**

I devote this work to the Lord Almighty God for his guidance, my family for their love and support and my friends for their help and encouragement.

## **ACKNOWLEDGEMENT**

My heart felt gratitude is to the Almighty God who gave me the strength and knowledge to complete this research work.

My special thanks go to my supervisor, Dr. Theophilus Adjei-Kumi, for his support and immense guidance throughout my research work.

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To my mates (MSc. Procurement Management and MSc. Construction Management, 2013- 2014 academic year) for their individual support; I say thank you.

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## ABSTRACT

There are two main key terms in construction procurement: procurement systems and procurement methods. The methods embraced by the Act are International Competitive Tendering, National Competitive Tendering, Restricted Tendering, Price Quotation etc. Based on the type of project and certain characteristics, the procurement system of the project need to be considered. The most suitable procurement system selection is critical for both the client and other project participants as it is an essential factor that significantly affects the success of the project. The selection and use of a particular system are dictated by factors such as size, complexity facility and time-scale of the project, etc. There are currently changing client demands (cost, quality and time, etc.) in the construction industry. Traditional procurement system has however failed to meet these requirements. This provides as an opportunity to consider non-traditional procurement systems as an alternative. It is also not yet established if the Public Procurement Act 2003, Act 663 has some influence on this pattern of choice. Hence this study synthesizes the role played by the PPA 2003, Act 663 in the non-utilisation of the non-traditional procurement systems by Metropolitan Municipal and District Assemblies in Ghana. The objectives of the study among others included identifying the processes and procedures adopted by MMDAs in the selection of construction procurement systems, identify any specific clauses in the PPA 2003, Act 663 which consider the selection of works procurement systems by public procurement entities and factors militating against the choice of non-traditional procurement systems by MMDAs for public works. The main tool for the collection of data was questionnaires. The target population for the data collection included architects, quantity surveyors, engineers and procurement officers in the Metropolitan and Municipal Assemblies in Ashanti region. Census sampling technique was employed in the identification and selection of the public entities. Statistical package for the social sciences (SPSS) version 20 was employed to analyse data obtained. Mean score rankings was adopted to analyse data on the role of PPA 2003, Act 663 and factors militating against the choice of non-traditional procurement systems. The results indicate that the PPA 2003, Act 663 plays an important role in the non-utilisation of traditional procurement systems. One of the main recommendations of this research is for public procurement entities to have a formalised and rationalized procurement system selection structure to assist them in taking procurement decisions.

**(Keywords:** Public Procurement Act 2003, (Act 663), Procurement Methods, Procurement Systems, Traditional and Non-Traditional)

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## LIST OF ACRONYMS

CM	Construction Management
DAs	District Assemblies
DB	Design and Build
GDP	Gross Domestic Product
GSS	Ghana Statistical Service
ICT	International Competitive Tendering
MC	Management Contracting
MDAs	Ministeries, Departments and Agencies
MMDAs	Metropolitan Municipal and District Assemblies
NCT	National Competitive Tendering
NEDO	National Economic Development Organisation
ODA	Official Development Assistance
OS	Others
PM	Project Management
PPA	Public Procurement Act
PPPs	Public Private Partnerships
PPRs	Public Procurement Regulations
PUFMARP	Public Financial Management Reform Program
RIBA	Royal Institute of British Architects
RICS	Royal Institute of Chartered Surveyors
SPSS	Statistical Package for the Social Sciences
TP	Traditional Procurement
UK	United Kingdom
WA	Western Australia
WTO	World Trade Organisation

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 BACKGROUND OF THE STUDY**

The selection of the most appropriate procurement system is critical for both the client and other project participants as it is an important factor that contributes to the overall client's satisfaction and project success (Hackett et al., 2007). Procurement systems in Ghana have gone through a number of changes, with the main objective of reducing or at best eliminating corruption in Public Procurement, realizing value for money, efficiency in the procurement process among others. A major change was the passing of the Public Procurement Act, Act 663, in 2003. The usage of Act 663 has restructured procurement processes in the country and a high level of saneness in procurement established.

In Ghana, public procurement remains a big part of the economy, accounting for an estimated 24% of national imports, absorbs between 50% and 70% of the national budget and about 14% of Gross Domestic Product (World Bank, 2003) whereas the case of most developed countries, procurement accounts for approximately 9-13% of their GDP (WTO, 2001; Trionfeli, 2003). Nevertheless, it is an area in need of attention since resources are not being properly managed in many countries.

All construction activities are organised and achieved through a procurement system. It serves as an entry point through which the desire of a client to obtain a constructed facility is achieved. The selection of a procurement system for a construction project is one of the most important decisions that construction clients have to make. This is so because, the system has an overall

impact on how the project is to be executed, ranging from the pre-contract work, to the employer's financial and human resources, as well as issues relating to the risk transfer and the allocation of responsibilities under the contract. According to Best & Devalance (2002), building procurement from inception to commissioning is a complex undertaking, bringing together the set of skills and knowledge that are required for successful completion of building and construction projects.

Procurement system for the construction industry can be defined as “the organizational structure adopted by client for the management of the design and construction of a building project” (Masterman, 2002). According to Love et al. (1998), project failure or client's discontentment can occur due to a wrong procurement system. As stated by Chua et al. (1999), using a wrong procurement system may lead to project failure therefore, the selection of procurement system becomes a very essential responsibility for clients.

It is the duty of MMDAs to choose the most suitable procurement system for construction projects. This is necessary because the client is encountered with several options to acquire project (Okunlola, 2012). Due to these risks and uncertainties, choosing an appropriate project procurement system is a difficult decision-making process. The choice to select the appropriate procurement system to undertake a construction project is critical. According to Okunlola and Olugbenga (2010), the success of the project can be influenced with other factors being taken into account even though it does not necessary lead to a successful project. Factors such as increased client requirements, increase in complexity and size of projects, shorter delivery period etc, have lately increased the use of non-traditional procurement work system. There are many factors which however affect the selection of project procurement system. These include project scope, cost, time, quality, project characteristics, risk and relationships. For the right selection of

procurement system for their projects to be made, it is necessary that clients and Consultants comprehend these factors. (Sari and El Sayegh, 2007). Past experiences play an important role when clients or consultants are choosing a procurement system for a project as stated by Shiyamani and Rameezdeen (2006).

Several previous studies undertaken to date concerning procurement systems in Ghana has focused around the state of the art of the procurement forms practiced in the country (Obeng-Ayirebi, 2002) and development of model in the selection of procurement forms. Osei-Tutu (1999) attempted to evaluate the performance of various forms of procurement systems in use in the country but these exercises were based on private and experts opinion on the performance of the various procurement systems. This kind of evaluation and ranking of various forms of procurement in terms of performance is contentious because most people are not familiar with the other forms of the procurement system (Obeng-Ayirebi, 2002).

As far as MMDAs are concerned, a major area which has to be developed to an extent is project procurement system. Subsequently, the use of non-traditional work procurement systems is under privileged compared to other developing countries (Shiyamani et al., 2005). Government, being the largest client and controller of the construction industry, is mostly thought of having greatly influenced the choice of procurement systems. According to Shiyamani et al. (2005), If this is true, it would be inappropriate because several procurement systems have been developed to achieve varying requirements of project stakeholders. As such, a research objective was formulated to explore whether the government policies and regulations hinder adoption of non-traditional work procurement system by MMDAs in Ghana.

## **1.2 PROBLEM STATEMENT**

The infrastructure procured by public entities such as Metropolitan, Municipal and District Assemblies (MMDAs) are required to meet specific public needs to promote improvement in quality of lives for the general public. Since in both developed and developing countries, local governments are founded as channels of ensuring effective service delivery. The freedom to choose a procurement system will significantly affect the sustainability of the project delivery process and the operation of the building as well. A good procurement should therefore have benefits realisation management, so as to achieve the outcome and benefits of a project. Projects and programmes can only be regarded as successful if the intended benefits are realised (McCartney, 2000). According to Osei-Tutu & Adjei-Kumi (2000), a rational procedure must be developed to facilitate the selection of procurement systems for construction projects as a means to enhance the quality management decisions. The study was conclusive on the fact that public procurement entities in Ghana did not have the privilege of any such procedure. The bulk of the expenditure programmes of Ministries, Departments and Agencies (MDAs) and District Assemblies (DAs) involve capital construction procurement (Westring, 1997). Any improvement in the public procurement system will therefore have a direct and substantial impact on the overall economic situation of the country and result in budgetary savings and efficiency in government expenditures. However, successive reviews have revealed substantial inefficiencies and concluded that value for money was not being achieved in both government and donor-financed procurement.

Procurement systems for infrastructural works provide the path for the conversion of clients' intentions from an idea to physical realisation of a facility. The organisation of this system can take many forms ranging from Traditional to Non-traditional (Design & Build, Management

Contracting, Construction Management etc.) In Ghana, public construction projects have been implemented predominantly using the traditional procurement system. As projects get more complex with the attendant demand for greater emphasis on management techniques and engineering skills, the traditional procurement approach was found not suitable to the current needs (Gwen, 1998). Non-traditional works procurement systems are becoming rapidly popular in Ghana, especially among private entities (Kwakye, 1997). The PPA 2003, Act 663 was enacted to address weaknesses in public procurement. The PPA establishes a clear and standardised procurement procedures and standard tender documents as one of its basic pillars (World Bank, 2003). This study explores the effect of Public Procurement Act 2003, Act 663 on the use of non-traditional work procurement systems by MMDAs in Ghana.

### **1.3 RESEARCH QUESTIONS**

To help achieve the objectives, the following questions were asked;

1. What are the most commonly used works procurement system among MMDAs?
2. What are the processes and procedures adopted by MMDAs in the selection of construction procurement systems?
3. Are there any specific clauses in the PPA 663 which consider the selection of works procurement systems by public entities?
4. What are the factors militating against the choice of non-traditional systems by MMDAs for public works?

### **1.4 AIM OF THE STUDY**

The aim of this research is to identify the role played by the Public Procurement 2003, Act 663 in the non-utilisation of the non-traditional procurement systems by MMDAs in Ghana.

## **1.5 OBJECTIVES OF THE STUDY**

To help achieve the aim, the following objectives were set;

1. To identify the most commonly used works procurement system among MMDAs
2. To identify the processes and procedures adopted by MMDAs in the selection of construction procurement systems.
3. To identify any specific clauses in the PPA 663 which consider the selection of works procurement systems by public procurement entities.
4. To identify the factors militating against the choice of non-traditional procurement system by MMDAs for public works.

## **1.6 SIGNIFICANCE OF THE STUDY**

The study is expected to be of benefit to the building industry of Ghana since it will identify the underlying benefits in using non-traditional procurement system approach as well as the effect that the PPA 2003, Act 663 has on non-traditional procurement systems and also factors influencing the effective implementation of non-traditional procurement system in the building industry. The research work would reveal the number of problems in the procurement of works among MMDAs caused by wrong selection of procurement systems. Construction projects frequently causes delay, high risk for the client, over budget and conflict is increasing, resulting in litigation and arbitration.

Moreover, the research is to identify measures of selection of an appropriate procurement system for the achievement of project success. The study would propose better ways of optimal use of MMDAs resources such as human, capital and funds. Increasingly, government recognises the savings from a better organised and transparent procurement system.

Understanding the factors that influences the choice of procurement system for construction projects will make it possible to handle the procurement issues much better. To the communities, the study would bring equitable distribution of projects and participation in procurement process.

Lastly, it will serve as a database and background stage for further research by students on related topic for academic purposes. The document will serve as a base for students and individuals who wish to carry out further research or acquire knowledge about the PPA 2003, Act 663 and its effect on the non-traditional work procurement system.

## **1.7 SCOPE OF THE STUDY**

The study could have been conducted at all Metropolitan Municipal and District Assemblies (MMDAs) in Ghana, however, time constrained the researcher to focus on MMDAs in the Ashanti Region. The study covered on the processes and procedures adopted by MMDAs in the selection of construction procurement systems, the process and procedures captured under the Public Procurement Act 2003, Act 663 and factors militating against the choice of non-traditional procurement systems by MMDAs for public works. Data collection was limited to construction professionals in the various MMDAs.

## **1.8 RESEARCH METHODOLOGY**

Research methodology according to Gray et al. (2007) is “the study of the research process itself – the principles, procedures and strategies for gathering information, analysing it, and interpreting it”. In other words, methodology typically refers to “the techniques that are used to conduct research”. This include data collection instrument such as “questionnaire”, “interviews,” “observations”, as well as “sampling procedures and statistical techniques for organizing and interpreting unstructured data” (Bryman, 2008). To this end, the discussion in this session

centered on the processes before and while on the field, the methods of data collection, type of data collected and methods of data analysis. In this segment also, attempt was made to justify the adoption and use of triangulated or mixed method (quantitative and qualitative methodological approach) and research techniques in this study, particularly in the data collection.

The research is a survey study design which seeks to identify the role played by the PPA 2003, Act 663 in the non-utilisation of the non-traditional procurement systems by MMDAs in Ghana. The target respondents for the study are the construction professionals. (Architects, Quantity Surveyors, Engineers, and Procurement Officers etc.) of MMDAs in Ashanti Region. The above respondents, who were selected using purposive sampling method, constituted the target for the study because; they were directly involved in the subject under investigation and provided very useful information to achieve the objectives of the study. Both primary and secondary data were used in this study. To obtain primary data, a research questionnaire was designed and administered to the respondents. The questionnaires were a mix of closed and open ended, closed ended questions framed in a simple language so that the required responses will be elicited. The Statistical Package for the Social Sciences (SPSS) version 20 was used to analyse information from respondents.

## **1.9 RESEARCH OUTLINE**

This study was organised into five chapters as follows;

**Chapter one:** Introduction: this chapter indicates the main aim and research objectives, statement of the problem and scope of the research; **Chapter two:** Literature review: this chapter indicates a past review from previous studies to ascertain the main factors influencing the choice of non-traditional work procurement system and the process and procedures captured under the PPA 2003, Act 663; **Chapter three:** Methodology: this chapter indicates the main

methodologies used in prior studies and the methodology used in this research to be able to achieve the required objectives. It also covered the study area, the study population, the sampling procedure, data sources, instrumentation and data analysis; **Chapter four:** Results analysis: this chapter shows analysis, description and discussion of research results; **Chapter five:** Conclusion, summary, recommendations and areas for further studies.

## **1.10 SUMMARY OF CHAPTER**

This chapter discusses the general and theoretical perspectives to the research area from start to end. The chapter describes the step by step methodology that was used in order to answer the research questions, the research objectives and scope involve in MMDAs in the Ashanti Region of Ghana. The research questions were formulated based on current procurement work system in Ghana. Following the research question, a suitable research design was chosen. Literature review was performed in line with the data collection in order to develop a theoretical background related to the research topic. Lastly, the data was analysed, discussed and conclusions and recommendations were drawn.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

There is a number of terms being used by many researchers of the construction industry based on the literature review conducted around the topic of procurement systems. This chapter is dedicated to the literature review on non-traditional works procurement systems in the public procurement entities. The study revised related literature on those which infringed on the definition and concepts of procurement systems, research problem, its management and improvements. The literature review of this study provides a basis upon which a research is built to approve, compliment or form any new trends that probably might have occurred. This research reviewed literature relevant to the research topic.

#### **2.2 INDUSTRY STANDARD PROCUREMENT SYSTEMS**

Love et al. (1998) defines a Procurement System as “an organisational system that assigns specific responsibilities and authorities to people and organisations, and defines the various elements in the construction of a project”. According to Masterman (2002), Procurement systems can be classified as: “traditional (separated)”, “design and build (integrated)”, “management (packaged)” and “collaborative (relational)”.

Below are the four definitions that best define a procurement system:

- i. “It is an organisational structure adopted by the client for the implementation and at times eventual operation of a project” (Masterman, 2002).
- ii. “It is a key means through which the client creates the pre-conditions for the successful achievement of project-specific objectives” (Rameezdeen and Ratnasabapathy, 2006).

- iii. “It is the acquisition of project resources for the realisation of a constructed facility” (Walker and Rowlinson, 2008).
- iv. “It is an organisational system that assigns specific responsibilities and authorities to people and organisations, and defines the relationship of the various elements in the construction industry” (Love et al., 1998).

According to the Office of Government Commerce (2004), the key factor in ascertaining the success or failure of any particular project is procurement strategy which is conveyed by procurement systems. Leadra et al. (2006) states that the suggested practice for choice of the procurement systems is virtually the same across country borders even though terminologies used in the description of procurement systems differ.

Love et al. (1998) states that no one procurement system is likely to be better than others for any project though there is a consent that there is one procurement system that is in a way better than all others for an individual project, according to Gordon (1994), the choice of a suitable procurement system could lessen construction project costs by an average of 5%. Mathonsi and Thwala (2012) states that “Procurement systems have received well deserved attention in countries such as Australia, United Kingdom, United States of America, Japan and New Zealand, but this has never been the case locally as well as in many other African countries”.

In order to aid decision-makers in attaining an informed decision on what is the most suitable procurement system for a given project, a number of techniques have been developed. The numerous systems available within the marketplace have increased in recent years as such, the procurement system to attain for a project has become a challenging and difficult task for decision-makers. (Mortledge et al., 2006). The State Government of New South Wales

Department of Commerce (2006) aided in attaining value for money and managing procurement risk by preparing a procurement selection guideline which sought to attain an effective use of both private and government sector assets.

The Department of Housing and Works in Western Australia (WA) regards the procurement system as a vital factor leading to a successful project outcome and has equally developed a system for choosing a procurement system. Love et al. (2008) stated that an entrenched culture existed within public sector clients as the traditional procurement system was used in virtually all of their projects, although it might not be the most suitable system to use. Traditional procurement systems according to Love et al. (2008a), tend to dominate in the Australian construction industry and are mostly a preferred system with many State Government clients in spite of the prevalent criticism. States such as “New South Wales”, “Victoria” and “Queensland” has nonetheless drifted away from the usage of traditional systems and adopted non-traditional systems such as design and build, management contracting, partnering, alliancing etc. for major construction projects. Allen Consulting Group (2007) revealed that Public Private Partnership is widely used to acquire “roads”, “prisons” and “hospital projects” in New South Wales and Victoria, since they offer a reliable time delivery, an inventive results for government and value for money.

The shift that has happened over the recent years has been away from the separated or traditional system towards both integrated and management systems. This change occurred mainly due to client driven as these alternate systems expect the contractor to receive a high degree of risk related to the design and construction of the project (RICS, 2002).

## **2.2.1 Traditional Procurement System**

### **2.2.1.1 Historical Perspective**

The traditional system has advanced over the period. The architect was acknowledged as an independent designer of buildings and construction process leader by the end of the 18th century (Franks, 1991). Bill of quantities began to be used during the 19th century for providing a variety of contractors with a common basis for tendering. By the middle of the century, the Quantity Surveyor was recognised as proficient in building accounts and cost matters

### **2.2.1.2 Characteristics of the Traditional Procurement System**

The traditional procurement system, which is possibly the most common procurement system, is one whose most important characteristic is the carrying out of design and construction as two separately sequentially and executed processes. The two processes are carried out by distinct parties under contract to client (Keith, 1993). According to Seeley (1997), the main variations of traditional procurement system are: “bills of firm quantities”, “bills of approximate quantities”, “drawings and specification”, “schedule of rates”, “cost reimbursement” and “labour only”.

According to Osei-Tutu (1999), this system is “a series of end-on activities incorporating the brief, design development, design finalisation, production of tender documents including (Bills of Quantities), estimating the tender and finally the actual construction”. An architect for building works as the main designer, services engineer for mechanical, plumbing and electrical works and engineer for Civil/Structural works, develop within financial and time constraints. The design is transferred to the Quantity Surveyor for tender documents preparation. (Osei-Tutu, 1999). The design package after completion is offered to interested contractors. The contractors prepare bids and perform contracts with sub-contractors to build numerous sections of the

project. Normally, the bidder with the lowest evaluated responsive bid is awarded the contract (Public Procurement Act 2003, Act 663). Construction by distinct contractors may start after the beginning of the project hence resulting to extended project duration. Other expert consultants and contractors are integrated in the project through the process of ‘nomination’ or ‘naming’ (Osei-Tutu, 1999). The quality of the contractor’s work is normally supervised by the designer, the architect. The quantity surveyor carries out the administration and payment of the financial terms of the contract between the client and the contractor (Keith, 1993).

### **2.2.1.3 Types of Traditional Procurement System Contracts**

In a standard arrangement clients or their project adviser (normally an architect or civil engineer) engages designers, consulting engineers and quantity surveyors to prepare schemes, appoint contractors and supervise the work, the latter function usually for an extra fee. McCaffer (2002) has identified seven (7) types of separated contracts. These are as follows:

#### **a) Add Measurement Contract**

Under this contractual agreement, Prices for sections of construction project is approximated but the total price cannot be determined until the work is measured and valued on completion. The evaluation of the measured construction work is by the application of an agreed unit rate acquired from either bills of quantities or schedule of rates. This contractual arrangement can be procured on an approximate bill of quantities (when clients’ requirements are not known in advance) or schedule of rates (when client’s requirements are insufficient to permit the production of bills of approximate quantities). It may be adopted for projects where prompt commencement on site is required (Kwakye, 1997).

#### **b) Cost reimbursement contracts**

With the cost reimbursement contract, the client agrees to pay the contractor the prime cost (i.e. plant and materials utilised in the execution of construction projects and actual cost of labour). The contractor is paid an agreed amount to cover profit and establishment charges in addition to the prime cost. This type of contract is normally for repair, emergency and experimental nature (Kwakye, 1997)

#### **c) Lump Sum Contract**

Under this contractual arrangement, the contractor agrees to perform the whole work stated for a specified total amount. As stated by Kwakye (1997), the agreed sum is usually based on information obtained from “drawings”, “specification”, “bills of quantities” as well as “site inspection”. The contractor takes into account all contractual risks associated, the current workload and the condition of the construction market to attain the approximated price. The approximated price is paid to the contractor irrespective of the actual costs acquired in executing the works, providing there are no variations (Kwakye, 1997).

#### **d) Schedule of Rates Contract**

The Schedule can take one of a number of different forms and is best suited for repair and maintenance contracts, where the scope and precise nature of the works may not be known until the work is completed. The contractor is required to insert rates in the schedule for the listed items of work

This form of contractual arrangement is used to address any difficulties in contracts, where the whole or major parts of the work are provisional (e.g. sinking of a bore-hole for water supply, erection of a process plant or maintenance works). It is also adopted in a situation where it is

almost impossible to predict realistic and accurate quantities of to be undertaken. The contract price is derived by measuring the works done and pricing them at the tendered rates (Ivor, 1997).

#### **e) Approximate Quantities**

While the best procedure for construction contracts is to provide accurate quantities, there are circumstances where approximate quantities are necessary (Ivor, 1997). The following examples will serve to illustrate suitable applications as stated by Ivor (1997).

- i. Wherever speed is of utmost importance and the overall design has been developed, it may be essential to choose a contractor before production drawings can be finalised.
- ii. With work underneath, the information is possibly to be inaccurate for the preparation of exact quantities. The foundations depth and level of soft areas will be undefined but the boundary of the building can be determined.
- iii. Provisional quantities may be considered in an exact bill of quantities to cover work that is undefined in scope and that is subject to re-measurement when the work is executed. (Ivor, 1997).

#### **f) Target Cost**

Clients have tried to inspire contractors to be cost conscious by linking the fee to an agreed target estimate based on a set of drawings and specification or instead a bill of quantities to overcome the inherent weaknesses of the ordinary fee contract. Provision is however made for modifying the target estimate for variations in quantities to accommodate progression of a design during the construction phase. (Harris and McCarffer, 2005).

### **g) Direct Labour**

The government departments, local authorities, nationalised industries for example have in-house labour engaged to execute construction work either to design within or by external consultants. An official contract therefore does not arise but some competition can be introduced by inviting external contractors to tender (Harris and McCarffer, 2005).

#### **2.2.1.4 Advantages of Traditional Procurement System**

The advantages of the traditional system according to Kwakye (1997) are as follows:

- i. This system has been fully understood, generally applicable, and have a fully established and well-defined roles between the parties associated.
- ii. Since the project characteristics are entirely ascertained and stated prior to the contractor selection, the client has a substantial control over the end product,.
- iii. The project cost is kept within the client's budget since the cost is approximated, planned and controlled in the design and construction stages.
- iv. The client's estimated budget is recognised ahead of a contract.
- v. Interim valuations are measured easily because of the presence of a bill of quantities. Variations are also measured precisely by means of pre-determined rates.

#### **2.2.1.5 Disadvantages of Traditional Procurement System**

The disadvantages of the traditional system according to Kwakye (1997) are as follows:

- i. since all design work must be finalized prior to solicitation of the construction contract, it makes the process time-consuming
- ii. The design when prepared could result in a more expensive final product since the architect may have limited capability to evaluate scheduling and cost ramifications.

- iii. Because the client usually agrees to be liable for design during the contract with the contractor, the client normally faces contractor claims in design and construction issues.
- iv. This system encourages or inco-ordination relationships rather than co-operation between the client, designer and contractor.
- v. Because of the least-cost approach by the contractor to finalise the project, a quality review and an increased oversight is expected from the client.

### **2.2.2 Non - Traditional Procurement Systems**

Aside the traditional procurement system, there are other innovative procurement systems used by the construction industry worldwide. Masterman (2002) revealed that, the various procurement systems varies in term of “allocation of responsibilities”, “activities sequencing”, “process and procedure” and “organizational approach in project delivery”.

Non-traditional is a general term which refers to all emergent or modern procurement systems of the construction industry rather than the traditional procurement system. Non-traditional procurement system according to Masterman (2002) “is a diversified contemporary procurement system(s) that not only considers design and construction, but also considers financing, operating and facility management”. The construction industry has undergone changes over the past 50 years. These changes have resulted to the introduction of alternate procurement systems aside the well-known traditional system (RIBA 2002). This can be proven by the increased size and complexity of the construction projects, financial challenges, political and social considerations, the impact of changes in information technology. The non-traditional procurement system has shown to be successful in surmounting the difficulties underlying within the traditional procurement system (Lam et al., 2008). Nonetheless, in spite of the positive attributes related to the non-traditional procurement system, it is still inadequately advanced to enable an ultimate

decision as to what are the suitable procurement systems for a building project (Masterman, 2002).

The types of non-traditional procurement systems include the following:

#### **2.2.2.1 Design and Build Procurement System**

Design and Build is an integrated procurement system, defined by Turner (1990) as “using a single contractor to act as the sole point of responsibility to a public sector client for the design, management and delivery of a construction project on time, within budget (taking account of whole-life costs”. With design and build procurement, a contractor takes charge for some or all of the design. There should be a precise reference to this in the contract, and the level of design liability should always be set out as clearly as possible. Unless the contract states otherwise (Turner 1990).

Certain design and build systems limit the design liability of the contractor to the normal professional duty to exercise judicious care and skill. The client’s demands might be specified concisely and simply, possibly more than a schedule of accommodation and site plan. The contractor’s input might be limited to taking a scheme design supplied by the client and developing details and production information. It is though better to state in terms of the performance prerequisite rather than to specify in detail. (Turner, 1990).

With a design and build system, it is likely to assure a rapid start on site. The close combination of design and build can lead to an efficient planning. The client’s consultants however needs time to organise a set of adequate requirements, and also to evaluate the tenders of the competitive tenderers. Any modifications made by the client after a contract is signed, can be costly. According to Turner (1990), an amount of variations of design and build exist, which which are as follows:

- i. **Direct** – An evaluation of the potential competitors may be conducted before tendering but only one tenderer is acquired. There is no competition attained in tenderers.
- ii. **Competitive** – several contractors are invited to tender in designs and prices through competition. A tenderer is chosen based on the tender documents.
- iii. **Develop and construct** – consultants design the scope of the building. Tenderers are chosen from a contractors list to formulate and finish the design and construct the building.
- iv. **Package deal** – when this system is used, scope innovation is restricted. Competitive contractors will use a substantial part of their own or another branded building system.
- v. **Novation** –With this system, a former contract is taking from a client by the contractor for the design work, then finishes the design and builds the project. It is normally referred to as design, novate and construct.

#### **2.2.2.1.1 Design and Build - Past and Present**

The Emmerson report (1962) can be recognised as a catalyst for the change to integrated procurement system. It condemned the split-up between design and construction, a characteristic of traditional system. The general shortfalls of communication were made clearly in the report by concentrating on the communication between architects and contractors. Banwell strengthened his forerunner's findings two years after Emmerson's seminal report (Banwell Report, 1964). Traditional system was condemned for omitting the contractor from the design process. These reports resulted in the introduction of more integrated procurement systems. This allowed design and build to be executed by a single organization.

Design and build expanded in popularity in the late 1970s and early 1980s fuelled by dissatisfaction with the traditional approach and the need for a guaranteed maximum price in times of economic uncertainty. Design and build's variations have expanded considerably in the last decade. It has increased dramatically in the 1990s going from a 10 percent share during the 1980s up to a 35 percent share of the construction procurement market (RICS, 2000). Alhazmi and McCaffer (2000) worked on system selection models in design and build surveyed Saudi Arabian public clients. One finding of the research illustrated that clients selected design and build as the most appropriate procurement system for their projects. Masterman (2002) has collated much information from various government reports on the usage of different procurement systems over recent years. He argues that there is a drought of reliable data. However, what can be established is that design and build has gained in popularity owing to the perceived need for a dynamic alternative to the fractured conventional system. Bennett et al. (1996) found that design and build offered better construction speed than traditional procurement system 12% and 30% better overall project speed. In addition to this, it cut on average, 13% off costs in comparison with traditional procurement system.

#### **2.2.2.1.2 Advantages of Design and Build Procurement System**

The advantages of using a design and build systems are as follows:

- i. Client has to deal with one firm and reduces the need to commit resources and time to contracting designers and contractors separately.
- ii. Price certainty is obtained before construction commences as client's requirements are specified.
- iii. There can be reduction of time and cost and encouragement of innovation through the use of an assured maximum price with a savings option split.

- iv. Construction activities design overlay can minimise the time of a project.
- v. The contractor's involvement in the design improves construction.

#### **2.2.2.1.3 Disadvantages of Design and Build Procurement System**

The disadvantages of using a design and build systems are as follows:

- i. The change of the project scope by the client can be costly.
- ii. Since each design and project programme will differ among tenderers and cost for projects will vary for each design, it is difficult to compare tenders.
- iii. During the preparation of an adequate comprehensive brief by clients, problems can occur.
- iv. Design liability is limited to the standard contracts available.

#### **2.2.2.2 Construction Management**

Construction Management according to Walker (1999) is a type of the management procurement systems used to deliver projects on schedule. The basic characteristics of the system include:

- The project Contractors and the client have a direct contractual relationship among them.
- A greater part of the financial risks is taken by the client due to the constant participation and going into direct contracts with contractors.
- The client has sole responsibility for his/her project and procures the several consultancy services flexibly.
- A Construction manager is engaged by the client to manage a project and is not liable for non-completion except it was as a result of professional negligence.

A number of advantages and disadvantages have been identified by Walker (1999). These may be summarised as follows:

#### **2.2.2.2.1 Advantages of Construction Management**

- i. Contract variants in projects are rare.
- ii. The design and production units have a reduced conflict.
- iii. Construction management consultants are involved earlier.
- iv. Nominated contractors are not necessary.
- v. As a result of the packaging and splitting of construction projects, there is an increase competition for construction works on large projects.

#### **2.2.2.2.2 Disadvantages of Construction Management**

- i. The client pays a lot for expertise fees.
- ii. It is not likely to acquire a total amount on the project until the final tender package is awarded with the multi-packing of the work.
- iii. Because the construction Manager is not liable for late completion and defective workmanship, the client is exposed to a high degree of risk.

#### **2.2.2.3 Management Contracting**

An independent expertise and a management contractor are engaged by the client. During the pre-construction stages, their duties are to advise the team and during construction, they are responsible for completing the project by using direct works contracts. It is not likely to start early and attain an early completion with this type of contract. The client can modify the designs during construction and the drawings and details can be adjusted and finalised as the work

proceeds. Walker (1999) states that “the contractor can advise on the design programme, tender action, delivery of materials and goods, and construction programmes”.

A written submission will usually be made by the management contractor including a proposed management fee and will be employed after been interviewed by the client and the design team. The total management service, stated as a percentage of the whole project cost will be inclusive in the proposed management fees. The management contractor assumes the project based on of a contract cost plan done by a quantity surveyor (Walker 1999).

#### **2.2.2.3.1 Advantages of Management Contracting**

The advantages of management contracting are:

- i. Overall project delivery is saved by the overlay of Design and construction as well as the numerous work packages.
- ii. Involving the contractor earlier can result in a good design and detailing which lead to savings on production cost.
- iii. The management contractor identifying antagonistic project information and recommending a change prior to contract minimises the risk of a possible contractual claims.
- iv. Because the management contractor becomes part of the project team to attain the client’s project objectives, the self-centered behaviour is eliminated.

#### **2.2.2.3.2 Disadvantages of Management Contracting**

The disadvantages of management contracting are:

- i. Lack of co-operation between project contractors can result in delays and contractual claims.

- ii. Before the start of construction on site, the client's financial assurance is not known.
- iii. Contract documentations which are unfair may be drawn up. This may biasedly assign tasks and risks to project contractors who may not be well prepared to execute a project.

#### **2.2.2.4. Project Management**

Project Management is the conventional system of construction administration. The client has direct contracts with both the Consultant and the Contractor. The client is able to retain direct control over all aspects and the quality of the project. This process allows the client more flexibility in decision making. The client ultimately makes the final decisions. In addition, the client may realize the benefit of competitive tendering (Chartered Institute of Building, 2009). The consultant and contractor have no formal contract between them, even though they rely on each other to perform certain duties. Their contracts are only with the client. It is the responsibility of the client to select a contractor. The client has the right to either use competitive tendering or negotiate on a price with an individual contractor. The consultant has liability only for the design while the contractor has liability for the project delivery and its conformance to the construction documents. Any decision that the client makes without the consultants approval, the client assumes responsibility and liability.

The primary role of project management in the construction industry is managing the site based construction activities from initiation through to closure. However, it is quite feasible for projects to be initiated at any phase of the built assets lifecycle to initiate a 'change' (Chartered Institute of Building, 2009).

##### **2.2.2.4.1 Advantages of Project Management**

- i. The client retains control over all aspects/ quality of the project.

- ii. The client maintains flexibility in decision making.
- iii. The client realizes the benefits of competitive bidding
- iv. Owner has direct, contractual relationships with both the Consultant and the Contractor and ultimately makes all decisions.

#### **2.2.2.4.2 Disadvantages of Project Management**

- i. The client can become overwhelmed with the minute details of the project.
- ii. The client accounts payable has to deal with multiple companies.

#### **2.2.2.5 Partnering**

Partnering is a collaborative or discretionary procurement system. The client lays down a framework for the overall administration of the project within which he/she has the discretion to use the most appropriate of all the procurement systems contained within the other three categories. Partnering gives Quantity Surveyors a chance to act as an independent consultant. They also play a vital role by offering services such as contractual issues (Cartlidge, 2002). An example is Public-Private Partnership.

Public-private partnerships is appropriate where there is ample competition for the projects and where government has a substantial ability in contract management and negotiation. Chan et al. (2009), states that, “the costs of tendering, negotiating and managing contracts can be considerable with tendering costs alone estimated at up to 3% of the project cost”. PPPs offer an additional flexibility and timelier source of finance for significant infrastructure investments which might be forced by public debt pressures. Chan et al. (2009) also stated that PPPs provide a potential to minimise project risk, but are expensive to conduct.

#### **2.2.2.5.1 Points to consider about PPP's**

The University of Melbourne on the 17th of December 2008, relinquished a National Benchmarking Study ordered by the National PPP Forum (Duffield, 2008). It included 67 PPP and traditional projects. The main outcomes were as follows:

- PPPs had 28.2% better on cost than traditional projects, providing 31.5% better cost certainty.
- Equally, 16.7% more PPPs projects were executed within the estimated cost than traditional projects.
- PPP contracts had a cost increase post contract completion at an average of 4.3%, compared to traditional projects which had 18.0%.

In conclusion, it was established that PPPs contracts were well developed and their time performance were progressing faster than traditional projects. The study also indicated that PPPs had a more cost efficient ways for Government to procure major projects (Dawson, 2009).

#### **2.2.2.5.2 Advantages of Partnering**

- i. The Public sector gains the advantages the private sector offers such as: ability to design, construct, manage and finance a project.
- ii. They promote and help the innovation in the public sectors with the transfer of knowledge and new techniques.
- iii. Better quality infrastructure and better operation throughout the life of the project.
- iv. More efficient and more economical maintenance of the project.
- v. Reduction of the construction cost and maintenance of the project.

### **2.2.2.5.3 Disadvantages of Partnering**

- i. The 'use' of the project by the private sector (for example payment by users of a new bridge every time they go through the bridge) is difficult for low income people.
- ii. By reducing the cost of a project, there is a danger that the quality of the works may be affected.
- iii. Important infrastructure operations are been managed by the private sector.

### **2.2.2.6 Alliancing**

Alliancing is an agreement between two or more entities, which undertake to work cooperatively, on the basis of sharing of project risk and reward, for achieving agreed outcomes based on principles of good faith and trust and an open-book approach towards costs (Cullen et al., 2005). Project alliances according to Davis and Walker (2009) are “a particular kind of relationship procurement system that rely on virtual organisations generating new knowledge and enabling teams to solve interrelated problems in a complex environment” .The objectives of all parties associated may be met by identifying, establishing and maintaining a certain relations with project stakeholders (Davis, 2005). According to Hampson et al. (2001), alliancing is now used in procuring projects effectively in the private and public sector. The Victorian Government (2006) stated that alliance systems should be used for complex and high-risk projects, which are unpredictable.

Furneaux et al. (2009) stated that the main difference among alliancing and traditional systems is that the project planning is involved by all members of the construction team. A significant advice can be provided on the buildability of a given design by involving contractors earlier in the design phase of the project.

#### **2.2.2.6.1 Overview of Alliancing**

Guidelines have been made by clients to help stakeholders as a result of the growth in popularity of alliancing (Stephenson, 2000). In alliancing, tenderers are chosen with two methods. The first method is the single target outturn cost alliance and the second is the two target outturn cost alliance, also known as the Competitive target outturn cost alliance. The selection systems do not describe how alliancing functions after contract signage but only how tenderers are selected (Victorian Government, Project Alliancing Guide 2006; Stephenson, 2000).

#### **2.2.2.6.2 Advantages of Alliancing**

- i. Improved ability to manage risks due to the sharing of responsibility and incentive for all participants to proactively mitigate risks.
- ii. Reduced need for contract administration (i.e., inspection, dispute resolution) allows resources to be focused on achieving project objectives.
- iii. Less adversarial system.
- iv. Transparent pricing of the project, including contingencies.
- v. Increased efficiency provided by a well-functioning team.

#### **2.2.2.6.3 Disadvantages of Alliancing**

- i. Participants are liable for the performance of other team members.
- ii. Requires high level of involvement from senior management to establish and maintain alliances.
- iii. Increased procurement costs
- iv. Contractors may be hesitant to enter into an arrangement where risks are shared and selection occurs prior to target pricing.

### 2.2.3 Criteria for selection of Industry Standard Procurement Systems

The efficient procurement of a building project through the choice of the most appropriate procurement system has been recognised as a major determinant of project success (Bennett and Grice, 1990). Failure to select an appropriate procurement system is widely cited as being the primary cause of project dissatisfaction (Masterman, 2002). The selection of a procurement system is more than simply establishing a contractual relationship. It involves creating a unique set of social relationships whereby forms of power within a coalition of competing or cooperative interest groups are established (Liu, 1994). The National Economic Development Organisation (NEDO, 1985) identified nine (9) criteria that clients could use to select their priorities for projects. These are:

- i. **Time:** Is early completion required?
- ii. **Certainty of time:** Is project completion of time important?
- iii. **Certainty of cost:** Is a firm price needed before any commitment to construction given?
- iv. **Price competition:** Is the selection of the construction team by price competition important?
- v. **Flexibility:** Are variations necessary after work has begun on-site?
- vi. **Complexity:** Does the building need to be highly specialised, technologically advanced or highly serviced?
- vii. **Quality:** Is high quality of the product, in terms of material and workmanship and design concept important?
- viii. **Responsibility:** Is single point of responsibility the client's after the briefing stage or is direct responsibility to the client from the designers and cost consultants desired?
- ix. **Risk:** Is the transfer of the risk of cost and time slippage from the client important?

Several studies, such as those identified in Love et al. (1998), have used modified versions of the NEDO criteria in an attempt to develop a procurement selection framework. Kumaraswamy and Dissanayaka (1998) identified the following 11 key performance criteria from among 38 initially considered, on the basis of a Hong Kong-based study. These selection criteria includes; Lower capital cost, Lower life cycle costs, Cost certainty, Shorter pre-construction duration, Time certainty, Shorter construction duration, Effective and efficient communication, Higher quality, Effective and efficient decision making, Dispute minimization and Overall client satisfaction.

Luu et al. (2003a, b) state that the use of a limited number of factors may give rise to the selection of a sub-optimal procurement system. Since the selection of procurement system is influenced by client characteristics (Moshini and Botros, 1990), project characteristics (Ambrose and Tucker, 1999), and the external environment (Alhazmi and McCaffer, 2000).

### **2.2.3.1 Problems and prospects in selecting procurement systems**

Recent industry studies, such as Latham (1994) and Egan (1998), echo an underlying lament that can be traced back many decades (for example to the Emerson Report in 1962, the Banwell Report in 1964 and the Tavistock Report in 1966, in the UK): viz, that many industry problems arise from poorly structured procurement systems.

The resulting emergence of design build, project management etc. type of procurement systems has sought to break down the barriers and bridge the gaps, by integrating efforts towards common goals. However, this is taking a longer time than envisaged, given the ingrained attitudes and apprehensions of different groupings within the industry (Latham, 1994; Egan 1998).

Apart from problems with performance levels on specific projects, a series of studies have recently blamed short-sighted procurement strategies for stifling the development of contractors, consultants and the industry itself, as cited by Kumaraswamy (1998).

According to Love and Skitmore (1996), one properly chosen delivery system can be deemed to be “better” for a given project but no one delivery system can be held to be better for all projects.

## **2.3 PROCUREMENT METHODS**

Procurement has become a more central issue in the construction industry for several reasons. There have been a number of notable reports published in the 1990s that have identified the plight of the construction industry. Procurement Method in this context refers to the methods enshrined in the Public Procurement Act 2003, Act 663. These include:

### **2.3.1 Competitive Tendering (Section 35 & Part V of PPA 2003, Act 663)**

The Procurement Act and Regulations support the usage of competitive tendering method for high standard value procurement for goods, works and consultancy services. Under the law, it is the most preferred method because a maximum competition is encouraged in the procurement system. The invitation to tender is always advertised and opened publicly. The two types of competitive tendering methods include: International competitive tendering and National Competitive Tendering.

#### **2.3.1.1 International Competitive Tendering**

International Competitive Tendering is utilised when an efficient competition cannot be attained without including foreign firms (section 45). International Competitive Tendering is suitable for high value or complex procurements, or where the works by their nature or scope, are unlikely to

attract adequate local competition. The Act requires the use of ICT for procurement of work above the threshold stated in Schedule 3.

### **2.3.1.2 National Competitive Tendering**

National Competitive Tendering (NCT) is utilised subject to contract value thresholds stated in Schedule 3 and when the procurement entity agrees on (Section 44). National Competitive Tendering is appropriate for lower value procurements, where the works by their nature or scope are unlikely to attract foreign competition, or where there are justifiable reasons for the Procurement Entity to restrict tendering to domestic contractors. The Act permits the use of NCT for procurement of works valued between the thresholds stated in Schedule 3

### **2.3.2 Restricted Tendering (Sections 38-39 of PPA 2003, Act 663)**

Restricted Tendering is a tendering process by direct invitation to a shortlist of pre-registered or known contractors, and is subject to a specific approval being granted by the Public Procurement Authority. With this method, competition is restrained. Contractors are invited to tender with a minimum of three and a maximum of six. An approval is sought from the Public Procurement Authority (PPA) by procurement entities to use this method.

It is suitable method of procurement where:

- i. The requirement is of a specified nature or in the interest of public safety or security which make an open competitive tender unsuitable.
- ii. Prospective contractors are limited.
- iii. A crucial nature of the requirement, renders an open competitive tendering impractical.
- iv. An award of contract was not made as a result of using an open competitive tendering.

### **2.3.3 Single Source Procurement Method (Sections 40-41 of PPA 2003, Act 663)**

Single source procurement from a supplier without competition is subject to a specific approval using the Guidelines issued by Public Procurement Authority. This method is about procuring from a supplier without any competition, usually for single or sole sourced requirements. This method is permitted by law where:

- i. Solely one source can provide the demands needed for physical, technical or policy reasons.
- ii. The procurement is of interest to national security.
- iii. Urgent items are reasonably needed for remedial works, so long as it is limited to a least requirement to satisfy the urgent need till other forms of method can be fulfilled..
- iv. For the purposes of standardisation, an additional requirement may be needed. Also for an experiment, research purposes, study or development.

### **2.3.4 Request for Quotations (Sections 42-43 of PPA 2003, Act 663)**

This method is based on comparing price quotations obtained from numerous suppliers, mostly at least three, to ensure competitive prices. This allows procuring entities to use the method for instances where contract value is so small that, it will be inappropriate to use a competitive procurement method (Public Procurement Act 2003, Act 663).

Request for Quotations may be used when:

- i. The estimated value is less than the threshold specified in Schedule 3 of the Act.
- ii. The requirement is for widely available works activities such as redecoration, repairs, and minor alterations which do not require detailed specification and may be readily estimated by a contractor from a simple site visit.

### **2.3.5 Two-Stage Tendering (Sections 36-37 of PPA 2003, Act 663)**

Two-stage Tendering is used by a Procurement Entity to invite tenderers in the initial stage to contribute to the detailed specification of the works. Following review and consultations, new detailed specifications for the works are prepared and a restricted tender issued in the second stage to all participants who were not rejected in the first-stage. It is an appropriate method of procurement when it is not feasible for the Procurement Entity to formulate detailed specifications or plans for the works, to identify their characteristics in a defined manner, or the subject of the works is subject to rapid technological advances. Two-stage tendering is allowed where detailed specifications cannot be made available before going to tender (Section 36) or the optimal solution is unknown.

### **2.3.6 Criteria for Selection of Procurement Methods**

Procurement methods according to the PPA 2003, Act 663 are selected based on thresholds specified in the schedule 3 of the Act. The default method for standard high value procurement for goods, works and consultancy services is competitive tendering because it encourages maximum competition. However, there are circumstances under which the other procurement methods like Restricted, Single Sourcing, Price Quotation, Two – Stage Tendering etc. are used. The selection of an appropriate procurement method involves considering certain requirements, characteristics and the type of works, goods or services to procure.

## **2.4 RELATIONSHIP BETWEEN INDUSTRY STANDARD PROCUREMENT SYSTEMS AND PROCUREMENT METHODS**

There are Two main key terms in construction procurement:; procurement systems and procurement methods. Procurement system with respect to construction, is defined by

Masterman (2002) as “a management system used by the client to secure the design and construction services required for the execution of a proposed project to a required cost, quality and within a specified time”. Procurement systems are in two forms namely traditional procurement and non-traditional procurement. Examples of the Non-traditional procurement are Design and Build, Management Contracting, Construction Management, Project Management, alliancing, partnering etc. However procurement methods in this context refer to the methods captured in the PPA 2003, Act 663. Examples are International Competitive Tendering, National Competitive Tendering, Restricted Tendering, Request for Quotation, Single Sourcing, Two-Stage Tendering, etc.

A procurement method gives the particular method to select according to the contract value threshold under each of the method. After the selection of a procurement method, the appropriate procurement system to be used for the project needs to be considered. However a survey done by the researcher indicated that public procurement entities go strictly by the Public Procurement Act 2003, Act 663 considering only the procurement methods and to a large extent adopt the Traditional procurement System without considering the Non-Traditional procurement system. Choosing an appropriate procurement system requires considering certain characteristics and a rationalized procedure but is currently not done.

## **2.5 THE IMPACT OF THE PUBLIC PROCUREMENT ACT 663 ON PROCUREMENT SYSTEMS.**

The Public Financial Management Reform Program (PUFMARP) in 1996 was introduced by Government with the goal of enhancing public financial management generally in the country. A Public Procurement Oversight Group was set up in 1999 to prepare a complete public

procurement reform programme. As cited by Adjei (2006), “The Public Procurement Bill was drafted in 2002 and this was passed into law on 31st December 2003 as the Public Procurement Act 2003, Act 663”. PPA 2003, Act 663, was passed to harmonise public procurement processes in the public service, secure judicious, economic and efficient use of state resources, and furthermore, ensure that public procurement is fair, transparent and non-discriminatory (Ministry of Finance, 2001).

The PPA 2003, Act 663 was constituted after years of foul play and abuse as far as procurement was concerned in the country. This necessitated a thorough review of the existing procurements regulations. The enactment of the law in 2003 further ensured that modern trends in procurement was adopted to bring about the much needed sanity to local procurement system which had been flawed by bad procurement practices such as corruption and other malfeasances (Osei-Tutu et al., 2010). In Ghana, public procurement accounts for 50%-70% of the national budgets, 14% of GDP and 24% of imports. Implicitly, public procurement therefore has both social and economic impact on the country (World Bank, 2003a). Increasing the effectiveness, efficiency and transparency of procurement systems is an on-going concern of governments and the international development community. All countries have recognised that increasing the effectiveness of the use of public funds, including funds provided through official development assistance (ODA) requires the existence of an adequate national procurement system that meets international standards and that operates as intended (Adjei, 2006).

### **2.5.1 Review of Public Procurement Act 2003, Act 663**

A review was done in the light of industry standard procurement systems. This was to find out whether there are processes and procedures captured for selecting procurement systems and if there are any specific clauses which consider the selection of works procurement systems by public entities.

The basic structure of the legal and regulatory framework of public procurement in Ghana consists of the Public Procurement Act 2003, Act 663, Public Procurement regulations, Public Procurement manual and Standard tender documents and Guidelines to assist public procurement practitioners. They contain detailed rules and procedures for all aspects of the procurement system, the operations of the Public Procurement Authority and the procurement entities and the conduct of procurement activities (Public Procurement Authority, 2007). According to the Act, the standard documents are to be issued by the Public Procurement Authority and are to be listed in Schedule 4 of the Act 663. The standard tender documents comprise of standard invitation and contract documents for procurement of all values. It includes standard tender documents for goods, works and services. The manuals issued by the Public Procurement Authority provides practical guidance and step by step procedures for executing procurement functions in accordance with Act 663 and with standard forms to assist in procurement record keeping (Public Procurement Authority, 2007). PPA 2003, Act 663 states categorically the procurement methods to adopt for any public goods, works and services based on the thresholds in schedule 3 of the Act.

#### **2.5.1.1 The Public Procurement Act 2003, Act 663**

The procurement Act 663 comprises nine (9) parts and 99 sections. Part IV of the procurement act touches on the methods of procurement. It states the various methods that can be used to

procure goods, works and services during tendering and also the procedures for selecting a particular method. Part III and Part V talks about the proceedings and processes used in selecting a tenderer but not categorically stated that the processes captured are traditional systems. There are methods and procedures stated under Part VI of the Act to engage a consultant by notice of invitation of expressions of interest and request for proposals with the use of design and build system approach. However these methods and procedures are too cumbersome.

### **2.5.1.2 The Public Procurement Manual**

The Public Procurement Manual details the standards and procedures to be followed in the procurement of goods, works and services within the public sector, and also includes a section for guidance on asset disposal procedures. Section III describes the different procurement methods for goods, works and services and presents in detail certain phases of each procurement procedure. The manual generally does not state emphatically the forms of procurement systems available for a particular assignment.

### **2.5.1.3 The Public Procurement Regulations**

The Public Procurement Regulations (PPRs) are commonly adopted to clarify and further develop some of the provisions of the Procurement Law. The regulation is in eleven (11) chapters. Chapter III talks about the standard tender documents. The various types of selection procedures are captured under chapter IV. The types and procedures of the procurement systems are not categorically specified in the regulation.

## **2.6 PROCUREMENT STRATEGY**

A contract is a key component of a procurement system and it is an essential element required between two parties collaborating for a work. A contract influences the parties' solemnity of the

occasion. It requires the parties to seriously consider the effects of performance and non-performance upon themselves. (Aboushiwa & Bower, 2000).

### **2.6.1 Responsibility for Choice of Procurement Strategy**

The framework, the structure and the delegations of authority will determine who should respond to the end-user requirements within an organization. This decision may depend in part on whether the supply is expected to be available locally /regionally. Central and decentralised units are sometimes authorised to operate in different segments. The organisation's capacity of each unit might also be considered. (Aboushiwa & Bower 2000)

### **2.6.2 Essence of Procurement Strategy**

Aboushiwa & Bower (2000) stressed on the importance of contract strategy and described it as a blend of activities that runs from defining the Client's: Project objectives, Priorities, Responsibilities, Organisational structure, Types of contract, Conditions of contract, Contractor selection, Tender procedures, and Risk allocations to the selection of most appropriate contract strategy. The author restates the importance of the contract strategy and the process which is carried out in order to reach the required end products. Aboushiwa & Bower (2000) urges the introduction of contract strategy as early as possible into the project for its betterment. The author states that contract strategy is the most important aspect of a project because it forms the foundation on which everything else is built. Therefore the earlier the contract strategy is decided, and the works are planned, the better will be the project outcomes.

### **2.6.3 Procurement Strategy Selection Models**

The choice of a suitable procurement strategy has two components as specified by Mortledge et al. (2006).

- i. **“Analysis** - Assessing and establishing priorities for the project objectives and client attitude to risk”.
- ii. **“Choice** - Considering possible options, evaluating them and selecting the most appropriate”.

Selecting a suitable procurement strategy is as vital as choosing other key features of a project. A good strategy when utilised, improves the management of supply so as to obtain a greater value at a least cost. Contract strategy has a key influence on the final cost and time of a project according to Bower (2003). The contract strategy chosen must be able to achieve the primary objectives of the project. Due to the diversity of both construction and the Client’s requirements, there are different types of strategies available and no single uniform approach to contractual arrangements shall be advocated (Bower, 2003).

## **2.7 SUMMARY OF CHAPTER**

The chapter discussed the industry standard procurement systems, the various systems available with respect to construction. It further discussed Criteria for selection of Industry Standard Procurement Systems and Problems and Prospects in Selecting these Systems. The chapter also emphasized on traditional procurement system, its advantages and disadvantages and the various types of non-traditional procurement systems with its advantages and disadvantages. The impact of the Public Procurement Act on procurement systems and the relationship between Industry Standard Procurement Systems and Procurement Methods were discussed. The chapter further

reviewed the PPA 2003, Act 663 in the light of industrial standard procurement systems. Terminologies such as procurement strategy and procurement method with respect to the Public Procurement Act were given an expanded introduction

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 INTRODUCTION**

The next important step in any research process after the study of literature and identifying the research question is deciding on the most suitable methodology. This chapter describes the researcher's general study approach, discussion and motivation of data collection methods employed. The methodology also informs the strategy and procedure to be employed in carrying out the research agenda and how the data collected is interpreted.

#### **3.2 THE STUDY AREA**

The study area comprises of public procurement shareholders in the Ashanti Region. The region is situated in the middle belt of Ghana. The region shares boundaries with four of the ten political regions, Brong Ahafo Region, Eastern region, Central region and Western Region. The Ashanti Region is the second largest of 10 administrative regions in Ghana, occupying a total land surface of 24,389 square kilometers or 10.22% of the total land area of Ghana. In terms of population, however, it is the most populated region with a population of 4,780,380 in 2010, accounting for 19.4% of Ghana's total population (GSS, 2012). Ashanti Region is currently the second most urbanised in the country, after Greater Accra Region with (60.7%) of the population living in urban areas. The growth of industries and the large volume of commercial activity in and around Kumasi as well as the high migrant number may account partly for the relatively high urban population. Based on these census reports the estimated population growth rate is 2.7% (GSS, 2012).

### **3.3 THE RESEARCH DESIGN**

Research design, according to Oppenheim (1992), is the “basic plan or strategy of the research, and the logic behind it” which will help the researcher to draw the research sample and categorise the sub-groups it must contain and which variables need to be measured. Therefore, the research design will identify the research philosophy, approach, purpose, logic and outcome of the research. The research design also concerns purely a plan of information required to answer the research questions or problems and the required concept, paradigm and instrument for the collection of the requisite information for the research (Frazer and Lawley, 2000). However, in as much as any researcher can use different strategies in his/her research, different research designs may be employed as recounted earlier where appropriate and suitable. Moreover, it is likely that by choosing just one of the types, a researcher can contribute significantly to theory development (Saunders et al., 2007).

The research will identify processes and procedures adopted by MMDAs in the selection of construction procurement systems, specific clauses in the PPA 663 which consider the selection of works procurement systems by public entities and factors militating against the choice of non-traditional procurement of works among MMDAs in Ghana. The design normally specifies which of the various types of research approach will be adopted and how the researcher plans to implement scientific controls to enhance the interpretability of the results. There are several strategies for conducting research and the literature on research methods abounds with contradictory claims regarding the appropriate strategy for a given research problem (Rooke et al., 1997; Harriss, 1998; Dainty, 2008). As a result, dilemmas often arise in the process of research, especially when choosing an appropriate research strategy and methods for answering research questions. Creswell (2009) defines research design as the plan and procedures to

conducting research involving the intersection of three elements: philosophical worldview (i.e. methodological paradigm), strategies of inquiry (i.e. research strategy), and specific methods (i.e. research methods). Three types of research approach are in common use: quantitative; qualitative; and triangulated or mixed method (Fellows and Liu, 2008; Creswell, 2009).

This research employs the triangulated or mixed approach due to the nature of the research and the characteristics of the measurement. The research style adopted for the study is a survey research approach.

### **3.4 POPULATION**

A research population according to Polit et al. (1993) is defined as “the totality of a well-defined collection of individuals or objects that have a common, binding characteristics or traits”. The population for the study consisted of those who are related to public procurement activities in the Ashanti Region. The major reason for utilising this group of people is because, their activities has a bearing directly or indirectly on public procurement in the Ashanti region being the scope for the study. The research covers a population of over one hundred and twenty (120) direct stakeholders and thirty (30) MMDAs which consist of (1No) Metropolitan, (8 No.) Municipal and (21 No.) District Assemblies in the Ashanti Region.

The 1992 Constitution requires that 7.5% of the total revenue of Ghana be transferred to local governments based on an annually agreed formula by the legislature. In practical terms, Agaba and Shipman (2007) argues that sub-national governments generate about 20% of total government revenues whiles an estimated 34% of the government expenditure takes place at the local government level. Municipal and metropolitan assemblies are selected for the study since

these sources have to a large extent, the required professional personnel responsible for works procurement.

### **3.5 SAMPLE AND SAMPLING TECHNIQUES**

A working population is the operational definition of the general population from which the researcher can reasonably identify as a complete list of members of the general population (Rea and Parker, 1997). In this study, a sample size was determined in order to arrive at the number of respondents to be attained for analysis.

#### **3.5.1 Determination of Sample Size**

Determination of a sample size in every research is very important. This is based on a number of factors such as the population size, the risk of selecting a “bad “sample and the allowable sample error (DeVaus, 2001). There are criteria’s to be considered in other to determine a good sampling method. According to DeVaus, (2001), the sampling error “is the range in which the true value of the population is estimated to be”.

Israel (2009) stated that there are numerous methods used in determining the sample size. These, are “imitating a sample size of similar studies”, “using a census for small populations”, “using published tables”, and lastly “applying formulas (e.g. Kish formula) to calculate a sample size”. The target population and sampling size had to be clearly specified. The population was defined taking into consideration the objectives of the study. Census approach was chosen for the study as suggested by Israel (2009) because it was fairly motivated by the comparatively small number of the targeted respondent i Metropolitan and Municipal Assemblies in Ashanti Region. Israel (2009) however, stated that the determination of a sample size using census approach needs no statistical calculation. According to the study, the approach allows almost the entire population

to be covered, in small population to attain an appropriate level of accuracy. Also, the census approach gives data on all individuals in the population and eradicates sampling errors.

### 3.5.2 Characteristics of Sample Size

An appropriate sample size from the population being sampled should have these features according to Levy and Lemeshow (1991)

- The population size should be up to date and complete.
- A list of members of the defined population should be included in the population size.
- No member of the population should be listed more than once to avoid multiple listing.
- The information of each individual should be included in the list to be used for differentiating the sample.

A sample size of nine (9) which consisted of (1No) Metropolitan and (8 No.) Municipal Assemblies were chosen. These are shown in Table 3.1 below:

**Table 3.1 List of Metropolitan and Municipal Assemblies in Ashanti Region**

*Source: (Ghana District, 2014)*

<b>METROPOLITAN ASSEMBLIES</b>	<b>CAPITAL</b>
Kumasi	Kumasi
<b>MUNICIPAL ASSEMBLIES</b>	<b>CAPITAL</b>
Obuasi	Obuasi
Ejisu-Juaben	Ejisu
Bekwai	Bekwai
Mampong	Mampong
Offinso	Offinso
Asokore Mampong	Asokore
Asante Akim Central	Konongo-Odumase
Ejura-Sekyidumase	Ejura

The sampling technique employed was the non-probability. Purposive sampling can be applied to research in a number of ways such as, sampling informants with a specific type of knowledge or skill (Creswell, 1994; Patton, 2002). Moreover, within the Metropolitan and Municipal, the study purposively selected construction professionals who were directly engaged in the procurement of works in the region. The identified professionals were Architects, Quantity Surveyors, Engineers and Procurement Officers.

### **3.6 DATA COLLECTION AND PROCESSING**

The data collection sources forms a vital part in every research. Using more than one data collection instrument reinforces and gives credibility to the study according to Patton (2002).. Saunders et al. (2007) clarified the data collection sources for any research as secondary and primary data. The researcher in this regard, collected the required data from two (2) different sources. This method was used since it disclosed issues that using only one data collection instrument could not reveal.

As indicated by Pickett (1998), ‘current and future success of an enterprise is a reflection of the effectiveness of the senior team, their vision and leadership and combined knowledge and skills of the organisation’. In this regard identified respondents to the study were drawn from a population of people who are perceived to have acquired knowledge and interest in the area under study and play key roles in procurement works of MMDAs in Ghana.

### **3.7 PRIMARY DATA**

The main research instrument used to collect primary data was sets of questionnaires. This was conducted with an emphasis on the objectives set in the study. The primary data were collected from the chosen respondents in the sample frame within the research population. The analysis of

the study was considerably based on this data. According to Al-Moghany (2006), researchers cannot assume that people think in certain ways without asking them what they think. The structured questionnaire is probably the most widely used data collection technique for conducting surveys to find out facts, opinions and views (Naoum, 1998). A questionnaire survey is one of the most cost effective ways to involve a large number of people in the process in order to achieve better results, as recommended by McQueen and Knussen (2002). The questionnaire survey was adapted to get feedback on opinions of respondents about processes and procedures adopted by MMDAs in the choice of construction procurement systems, the most commonly used works procurement system among MMDAs, factors militating against the choice of non-traditional procurement systems by MMDAs for public works and its effect on works of MMDAs in Ghana.

### **3.7.1 Questionnaire Design**

Sekaran (2003) defined a questionnaire as “a preformulated written set of questions to which respondents record their answers, usually within rather closely defined alternatives”. Whiles Oppenheim (1992) described questionnaire formulation as “an integral part of the research design stage”. For a quantitative study like this, one of the biggest challenges in question design is to ensure that every response can be expressed numerically, for the simple reason, statistics and econometrics perceive those variables as a stronger measure in analysis.

The research questions were revised by some professionals in academia and in procurement practice after it had been formulated by the researcher. The questionnaire was basically done to collect overall data from the construction professionals; Architects, Quantity Surveyors, Procurement Officers and Engineers at the Metropolitan and Municipal. These questions were grouped into categories to collect data on the set objectives.

All items were ranked by respondents on a four-point likert scale. The questionnaire comprised of the these sections: Section A, asked personal and general information from the respondents. Section B, each item was scaled from 0-5 with the statement: Highly Important, Very Important, Averagely Important, Least Important and Not Important respectively. Questions in this section solicit data on the most commonly used works procurement system among MMDAs and the processes and procedures adopted by MMDAs in the selection of construction procurement systems

In section C solicited information from the respondent's on specific clauses in the PPA 663 which consider the selection of works procurement systems by public entities and factors militating against the choice of non-traditional procurement systems by MMDAs for public works.

#### **3.7.1.1 Questionnaire Administration**

The preliminary questionnaire prepared were pilot tested with four (4) respondents in order to detect and eradicate potential vagueness in the questionnaire such that responses would be uniform with the purpose of the study. As a result of non-response from the respondents of the pilot study, few questions were revised to improve the validity and reliability of the questionnaire. A complete set of questionnaire were administered in person and electronically at places where the researcher were unable to personally make the trip. The identified prospective respondent were given enough time to conveniently respond to the questionnaires and made them ready for collection or return them electronically. To be assured maximum accurateness, legibility, consistency and completeness, the primary data collected was revised by the researcher

### 3.8 DATA ANALYSIS

The completed questionnaires were edited to ensure completeness, consistency and readability. They were then grouped in a format that ensured easy analysis. Quantifiable data from the questionnaires was coded into the software for analysis. Statistical Package for Social Scientists (SPSS V 20) and Microsoft excel were then used to analyse the data because it was considered to be user-friendly. Frequency tables, percentages, bar charts and other descriptive statistics methods were used to analyse the results. Respondents were required to provide answers for the reasons of the role of PPA 2003 Act 663 being perceived low in the selection of procurement of works by marking a number on a 5-point Likert Scale in order to make it easier for them. The five-point Likert scale scoring system formed the basis of calculating the mean score for each of the reasons; the relative rating of the factors by all respondents, was then obtained by comparing the individual mean score and the standard deviation for each criterion. Table 3.1 shows the rating systems for the questions in the questionnaire.

**Table 3.2: Rating System for the Questionnaire**

<b>Likert Scale/Rating Score</b>	<b>Level of Importance</b>
1	Not Important
2	Least Important
3	Averagely Important
4	Very Important
5	Highly Important

### **3.9 LIMITATIONS OF SURVEY**

Some of the limitations of this survey were as follows:

(i) A national survey could not be embarked on because of financial and time constraints. One (1) of the largest region in terms of population, resources and construction activity namely Ashanti Region, were targeted in order to attain a reasonably representative sample of the population being surveyed.

(ii) Some of the targeted professionals (Architects, Procurement Officers, Quantity Surveyors etc) approached, were unwilling to share detailed information with the researcher. This made data collection difficult.

### **3.10 SUMMARY OF CHAPTER**

This chapter first introduces the research methodology used for the study. The study area was specified. Generally the research design adopted was discussed. A review of the research style showed that, survey was the most suitable approach for obtaining the relevant data. The survey characteristics including the population, sampling frame, the sample size and techniques for obtaining the relevant data have also been explained. The analytical tool adopted has been given an expanded introduction. The next two chapters will address the analysis of the data which involves descriptive analysis and conclusion with an appropriate recommendation.

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSIONS**

#### **4.1 INTRODUCTION**

This chapter sets out the analysis of the data collected to attain the aim of the research. The primary aim was to identify the role played by the PPA 2003, Act 663 in the non-utilisation of the non-traditional procurement systems by MMDAs in Ghana. The demographic data is initially analysed with descriptive statistics while the remaining is analysed with the mean and standard deviation. The statistical tools (mean and standard deviation) were implemented to identify the factors militating against the choice of non-traditional procurement system by MMDAs for public works.

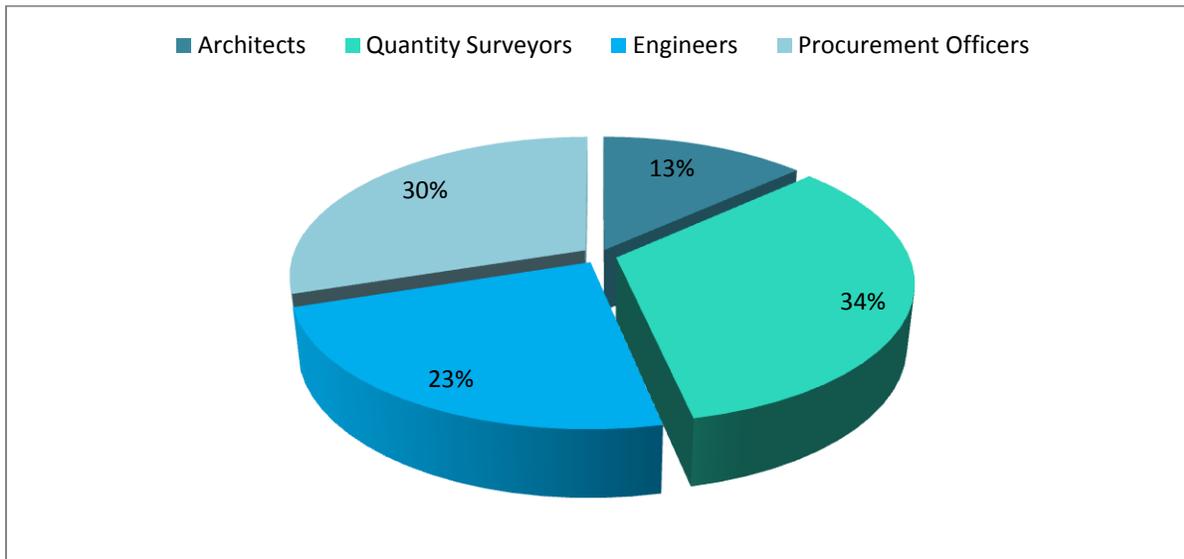
The questionnaire was divided into three main sections. The first section deals with the demographic data of the respondents which include the position held by the respondents, the length of time of service in the institution and academic qualification were asked. Section B comprises the commonly used works procurement system and the processes and procedures adopted by MMDAs in the selection of construction procurement systems, while section C focus on specific clauses in the PPA 2003, Act 663 which consider the selection of works procurement systems and the factors militating against the choice of non-traditional procurement system. Out of the 36 questionnaires (ie 9 assemblies and 4 professionals per assembly) distributed to construction professionals in the Metropolitan and Municipal assemblies, 30 were retrieved and judged to be responsive, giving a response rate of about 83%. The basis of the research findings were on these 30 questionnaires retrieved. There were missing values in some completed questionnaires however. The relatively high response rate was largely due to the

method used in administering the questionnaires. The respondents were entreated to fill the questionnaires immediately they were given.

## 4.2 ANALYSIS OF DEMOGRAPHIC DATA

### Professional Background

The first question sought to determine the various professional background held by the respondents to the questionnaire. A purposive guided sampling method was adopted for the various professionals identified as core to the procurement methodology. The results indicate that 33% of those that answered the questionnaires were Quantity Surveyors and this represents the highest number of professionals answering the questionnaire. The results are displayed in Figure 4.1. The figure shows that the lowest represented individuals who answered the question were Architects with 13% of the responds. The rest of the professionals were procurement officers and Engineers representing 30% and 24% respectively of professionals in the Metropolitan and Municipal Assemblies in the Ashanti region.

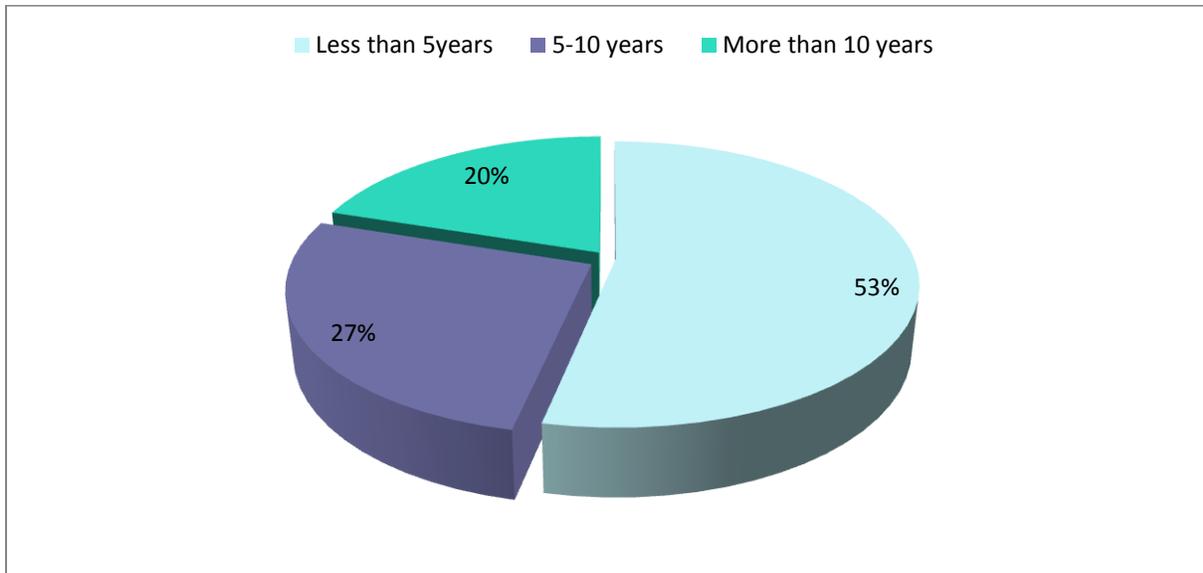


**Figure 4.1: Professional Background**

*Source: (Author, 2014)*

### Years of Experiences

Fifty-three percent (53%) of the respondents have less than five years of experience in the said position. The results are displayed in figure 4.2. While twenty percent (20%) of the respondents have had more than 10 years of experience in the said position. The result also shows that 27% of the professionals had been working in the said position for 5-10 years.



**Figure 4.2: Years of Experience**

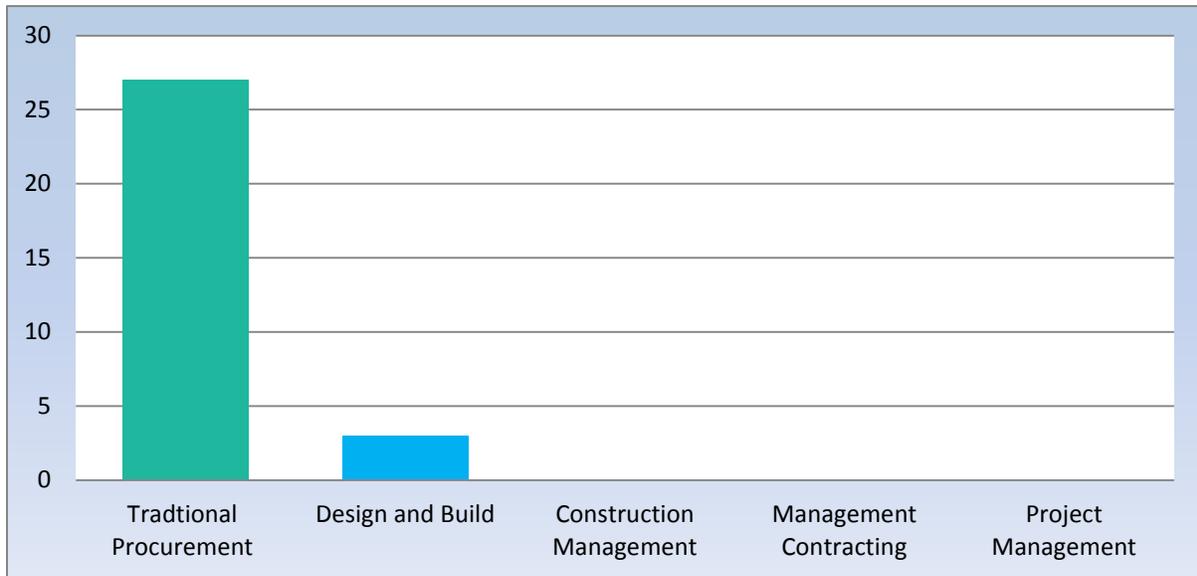
*Source: (Author, 2014)*

### 4.3 COMMONLY USED WORKS PROCUREMENT SYSTEM

As part of the endeavor an attempt was made to establish procurement system commonly used by the Metropolitan and Municipal Assembly to address the first objective of the study. This section of the chapter; deals with the form of construction procurement system, common type of traditional procurement system, familiarity and usage of the various procurement system.

As indicated in Figure 4.3 below Traditional procurement and Design and Build are the procurement system normally used with, ninety percent (90%) and ten (10%) of the respondent showing a usage of traditional and design and build respectively. Construction management,

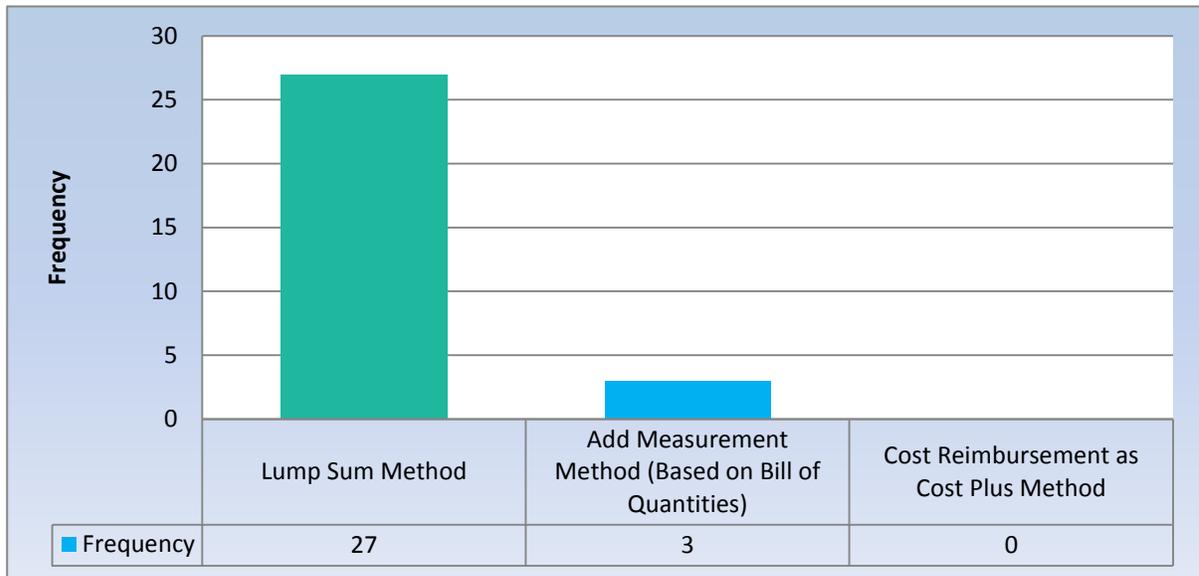
management contracting and project management are not used in the Metropolitan and Municipal Assembly as shown below. Also from the survey all the 10% of respondent who used design and build also indicated a usage of traditional procurement. This shows that traditional procurement is the most widely used procurement system.



**Figure 4.3: Form of construction procurement system normally used**

*Source: (Author, 2014)*

On the type of traditional procurement system, “Lump Sum Method” and “Add Measurement Method (based on bill of Quantities)” were identified as the common type of traditional procurement system normally selected by the Metropolitan and Municipal Assembly. Ninety percent (90%) of the respondent indicated that lump sum method is the most common type of traditional procurement system used by the Assemblies. Whiles 10% of the respondents selected measurement method (based on bill of quantities) as the most common type used indicated in Figure 4.4 below

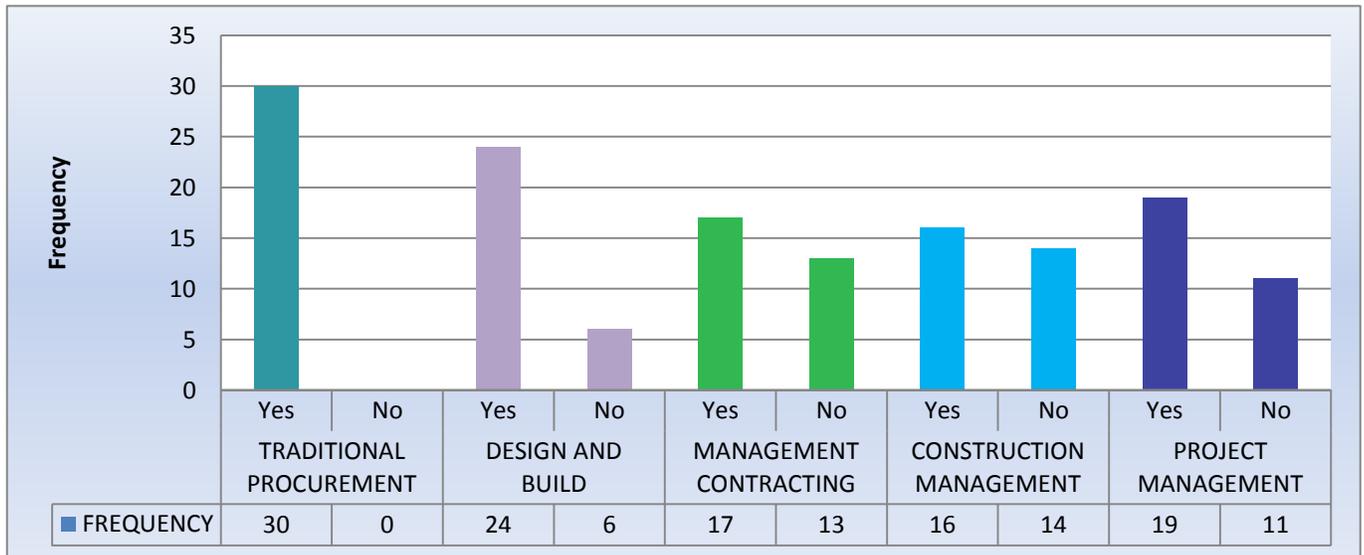


**Figure 4.4: Common type of traditional procurement system normally used**

*Source: (Author, 2014)*

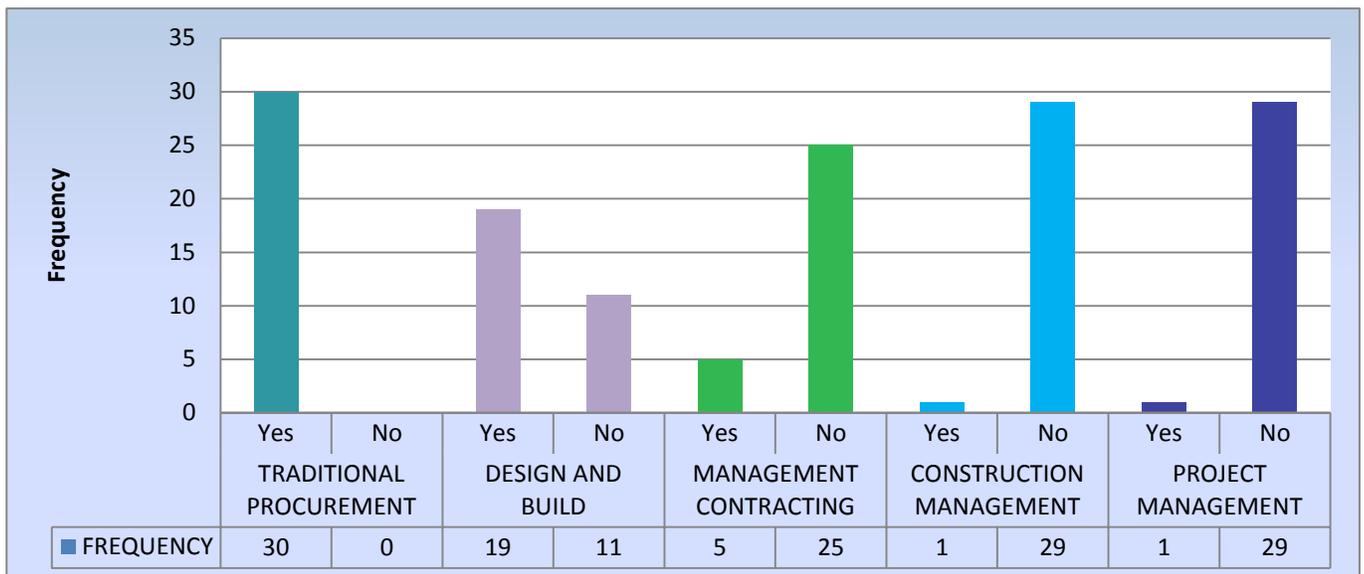
In an attempt to explore the commonly used work procurement system, it deemed necessary and imperative to ascertain the familiarity and usage of the various procurement system by professional in the Assemblies. Figure 4.5 and Figure 4.6 below, shows the familiar procurement system and previously used procurement system within Metropolitan and Municipal Assemblies in the Ashanti Region. From the descriptive analysis indicated in Figure 4.5, the entire professionals are familiar with the various procurement system with majority (100%) familiar with the traditional procurement. The result also indicated that design and build procurement system was the 2<sup>nd</sup> with a responds rate of 80% been familiar. Also the procurement system such as Management Contracting, Construction Management and Project Management had a familiar respond rate of 57%, 53% and 63% respectively. The survey indicates that public entities are not quite familiar with the contemporary procurement systems.

Traditional procurement and design and build procurement systems are the previously used procurement systems in the procurement of works among the Assemblies, with a usage rate of 30 (100%) and 19 (63%) respectively.



**Figure 4.5: Procurement Systems Familiar with**

*Source: (Author, 2014)*



**Figure 4.6: Procurement Systems Used Previously**

*Source: (Author, 2014)*

Figure 4.6 indicated that the Metropolitan and Municipal Assemblies have a low usage of the other procurement systems. Respondents indicated a 100% usage rate of traditional procurement previously and 63% for design and build. More than eighty five percent (85%) of the professionals in the Assemblies have never used procurement systems such as management contracting, construction management and project management. Respondents were further asked of the number of public infrastructure projects procured in the last two (2) years of their professional delivery. In the year 2013, the number of projects procured with traditional procurement in the metropolitan and municipal were approximately, 111 while design and build was 4. None of the projects had been procured with Management contracting, Construction Management and Project Management. The year 2012 had a similar outcome 118 projects were undertaken with traditional procurement as compared to design and build which was 3. None of the projects were procured with Management contracting, Construction Management and Project Management in the year 2012.

**Table 4.1: Decision on the choice of procurement system**

*Source: (Author, 2014)*

	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Ranking</b>
<b>Ease of use</b>	30	2.567	1.251	9 <sup>th</sup>
<b>Suitability of development objectives</b>	30	2.633	1.159	8 <sup>th</sup>
<b>Cost optimization</b>	30	3.567	0.728	1 <sup>st</sup>
<b>Experience</b>	30	2.867	0.730	6 <sup>th</sup>
<b>Time saving/speed</b>	30	2.200	1.270	10 <sup>th</sup>
<b>Dispute Avoidance</b>	30	3.200	1.186	4 <sup>th</sup>
<b>Risk/Responsibility Avoidance</b>	30	3.067	1.337	5 <sup>th</sup>
<b>Quality Level Required</b>	30	3.567	0.898	2 <sup>nd</sup>
<b>Level of design complexity</b>	30	2.767	1.006	7 <sup>th</sup>
<b>Source of Funding</b>	30	3.467	0.860	3 <sup>rd</sup>

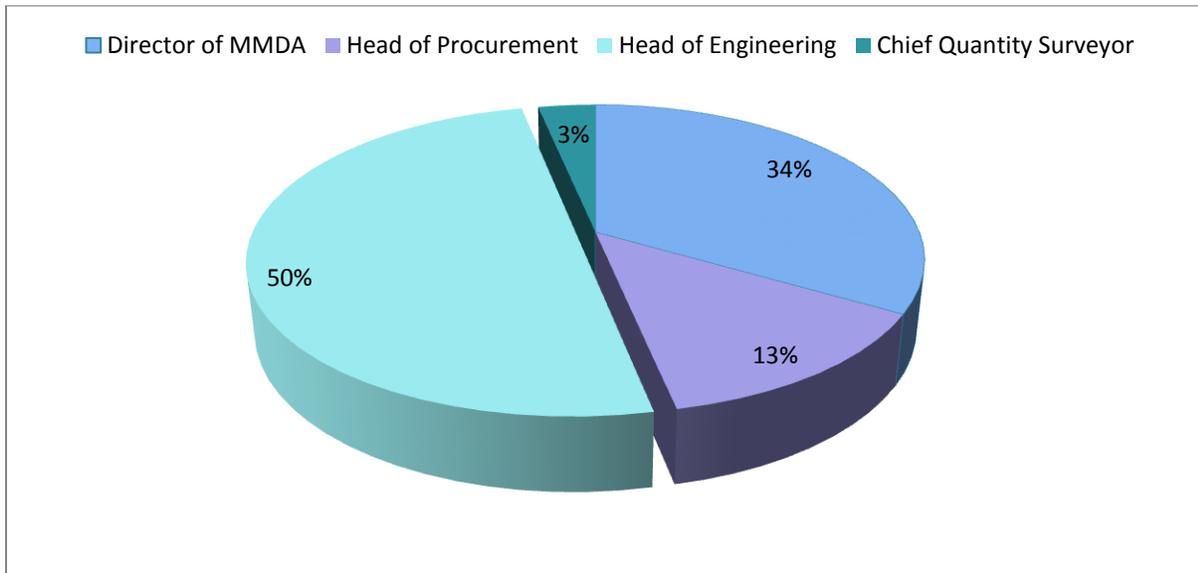
It was vital to find out from the respondents the reason for the choice of a particular procurement system over the other, as part of the data collection. It was perceived that knowledge of this kind would provide a basis to realise how this variable affects the choice of a particular procurement system according to their level of influence. Subsequently the respondents were asked to rate the various variables in the choice of a procurement system from 1 to 5, where 1 represents Not Important, 2 represents Least Important, 3 represents Averagely Important, 4 represents Very Important and 5 represents Highly Important. The result from the analysis is displayed in table 4.1 above. Based on the five-point Likert scale rating, a criterion is deemed significant if it had a mean of 3.5 or more. According to Ahadzie (2007) “where two or more criteria have the same mean, the one with the lowest standard deviation is assigned the highest significance ranking”. Standard deviation values of less than 1.0 shows uniformity in agreement among the respondents of the stated level of results (Ahadzie, 2007).

The highest ranked variable was “Cost Optmization” with a mean of 3.567 and a Standard deviation of 0.728, thus it can be concluded that this was one of the factors influencing the choice of a particular procurement system over the other. There was also uniformity among the respondents as the standard deviation for this activity was less than 1. “Quality Level Required” was the second ranked variable with a mean of 3.567 and a Standard deviation of 0.898. The results from the study shows that the rest of the variables were not deemed to have a major influence in the choice of a procurement system as they all had a mean score of less than 3.5. This shows that the level of knowledge of the various procurement systems is very low in most entities. Nonetheless, it should be noticed the variable “Source of Funding” was taken seriously had a mean of 3.467 but with a standard deviation of close to one. Even though it had mean close

to 3.5, there was inconsistency in the data. The least rank variable was time saving/speed with a mean of 2.200 and a Standard deviation of 1.270.

#### 4.4 PROCESSES AND PROCEDURES IN THE SELECTION OF CONSTRUCTION PROCUREMENT SYSTEMS

In addressing the second objective, it was imperative to establish from the respondents the processes and procedures used in the selection of construction procurement system for projects. It perceived that knowledge of this kind would offer a basis to know how public entities such as MMDAs procure construction works.



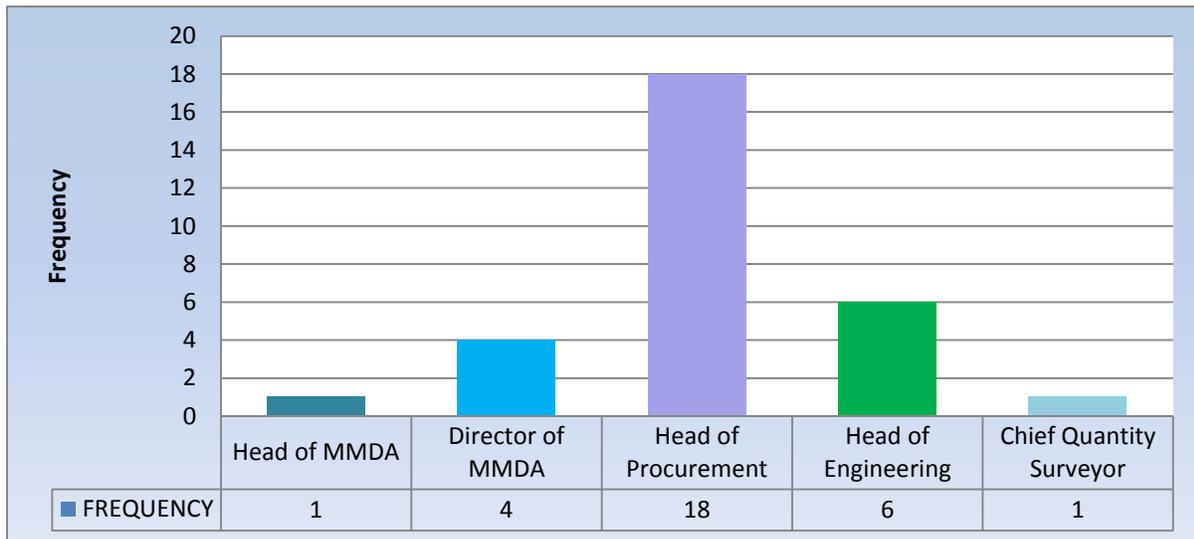
**Figure 4.7: Responsible for selection of the Construction Procurement System**

*Source: (Author, 2014)*

From Figure 4.7 above, on the responsibility for the selection of construction of procurement system; the professionals (architects, quantity surveyors, engineers, procurement officers) indicated fifty (50%) of selection done by “Head of Engineering”. With “Director of MMDAs” assign 34%, indicated by respondent as responsible for the selection of construction procurement

system. Also thirteen (13%) of the respondent assign the selection responsibility to the “Head of Procurement”, with the remaining 3% assigning responsibility to the “Chief Quantity Surveyor” in the selection of construction procurement system.

The respondents indicated a 100% documented process and procedures for the choice of a construction procurement system for projects undertaken by the assembly. Which also indicates that the assembly follows laid down rules and procedures in their work. Respondents were further asked of the components or structure of the procurement system selection processes and procedure used in the assembly. Respondents indicated that they go strictly by the procedures stated in the Public Procurement Act for selection; Adverts, tender opening, evaluation of tenders, contract award etc. This indicates that the assemblies do not have a component or structure for selecting an appropriate procurement system. The respondents misunderstood the question to mean steps in the procurement of works in their respective assemblies.

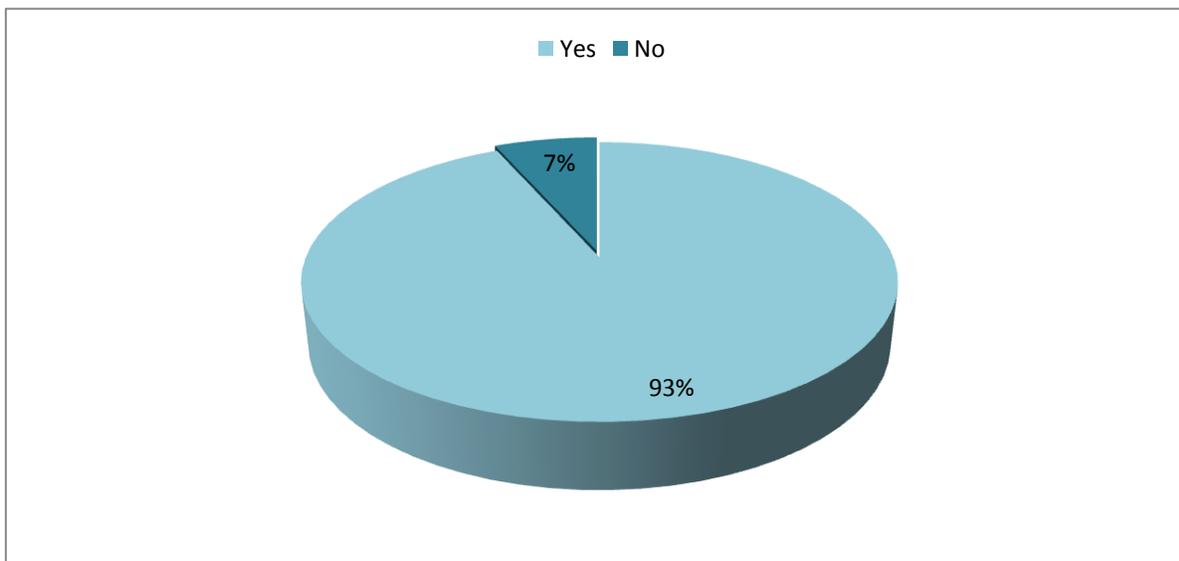


**Figure 4.8: Decisions on the Procurement Method**  
*Source: (Author, 2014)*

From Figure 4.8 above, the decision on the procurement method to use for a particular project in the assembly lied on the Head of Procurement. Sixty (60%) of the decision on the procurement method are taken by “Head of Procurement”, while twenty percent (20%) of the respondent indicated “Head of Engineering” as the one who decides the procurement method. About 13%, 3% and 3% were assigned to “Director of MMDAs”, “Head of MMDAs” and “Chief Quantity Surveyor” respectively.

As indicated in Figure 4.9 below, 93% of the respondents indicate their assembly consults a document before selection of a particular procurement system. While seven percent (7%) of the respondents indicate a non-consultation before the selection of a particular procurement system.

The respondents indicated that the Public Procurement Act 2003, Act 663, is the main document that guides them in the selection of a particular procurement system. Online Procurement Sites and World Bank sites are also consulted by respondents. This assertion is absolutely unfounded as the PPA 2003, Act 663 contain no selection detailing of the procedure for selection of a procurement system.



**Figure 4.9: Consultation of Document before Selection of Procurement System**

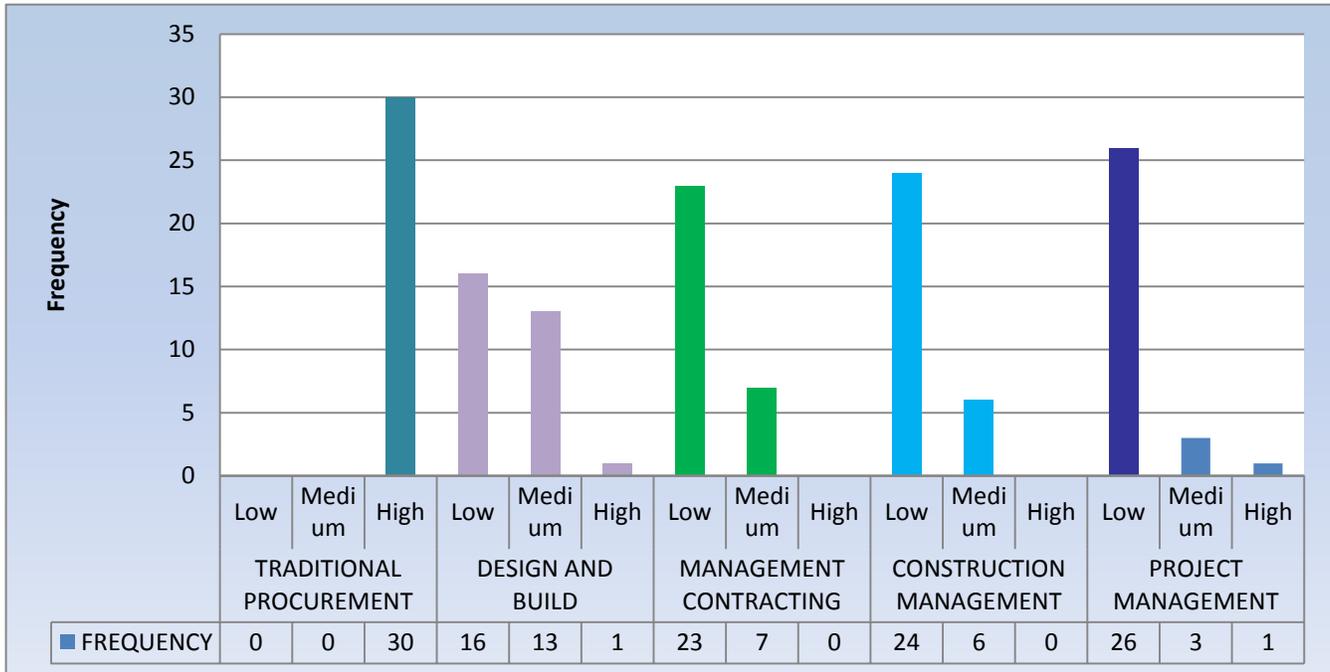
*Source: (Author, 2014)*

#### **4.5 SPECIFIC CLAUSES IN THE PPA 663 WHICH CONSIDER THE SELECTION OF WORKS PROCUREMENT SYSTEMS**

As part of the objective of the study, it was imperative to establish from the respondents the clauses in the PPA, Act 663 which detail out the selection of works procurement system. Respondents were to indicate whether the processes and procedures adopted by the assembly in the choice of a suitable construction procurement system are captured in the PPA 2003, Act 663. 100% of the respondents specified that the processes and procedures for the selection of construction procurement system are captured in the Public Procurement Act, Act 663, 2003.

Figure 4.10 below, shows the role of the Public Procurement Act 2003, Act 663 in the selection of the procurement systems. Traditional Procurement (TP) was rated “High” with 100% respond rate. Design and Build (DB) was rated 53% Low, 44% Medium and 3% High. Again on the role of the Public Procurement Act, Act 663 in the selection of the procurement systems, Management Contracting (MC) was rated 77% Low and 23% Medium.

Construction Management (CM) had 80% Low rate and 20% medium rate in the role of the PPA, Act 663. Also Figure 4.9 shows, 83% Low rate, 14% Medium and 3% High rate for Project Management (PM). Respondents indicated that the PPA 2003, Act 663 assists in the selection of procurement systems. There is no clause on the selection of which procurement system in the PPA 2003, Act 663, but plays a role in the choice people make.



**Figure 4.10: Role of the Procurement Act 663 in the selection of the procurement system**

*Source: (Author, 2014)*

Respondents were further asked to indicate the reasons why the role of the Public procurement Act is being perceived low in the selection of procurement systems. Respondents who answered low for any of the procurement system further answered why they think the PPA has not assisted in the selection of the system. Table 4.2 below indicates that “Absence of Relevant Documentation in the Schedules of the Act” ranked as 1<sup>st</sup> is the major reason for the low rate of the PPA 2003, Act 663 role in the selection of Design and Build, Management Contracting, construction management and project management. The results further revealed that “Lack of guidance from PPA 663, 2003” was ranked 2<sup>nd</sup> as the second major reason. These two major reasons were followed respectively by “relatively high contract price”, “Selection too subjective”, “Relatively high cost of procurement process”, “Lack of Familiarity (by construction professionals)”, “Lack of Familiarity (by client/government representatives)”, “Contract Administration too difficult”, “Not appropriate for Public Projects”, “Contract

Documentation too difficult”, “Tender Evaluation too difficult” and “Tender Documentation too difficult”.

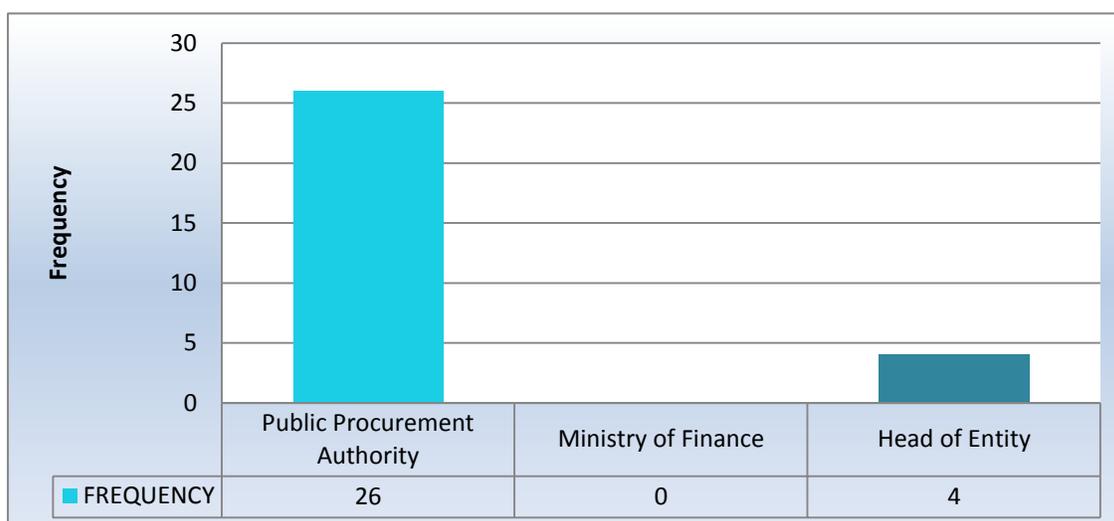
**Table 4.2: Reasons for Role of PPA 2003, Act 663 Perceived Low in Selection of Procurement Systems**

*Source: (Author, 2014)*

	PROCUREMENT SYSTEM								
	DB		MC		CM		PM		Ranking
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	
<b>Lack of Familiarity (by construction professionals)</b>	3.455	1.508	3.438	1.263	3.375	1.360	3.563	1.094	6 <sup>th</sup>
<b>Lack of Familiarity (by client/government representatives)</b>	3.455	1.508	3.688	1.014	3.688	0.873	3.563	1.094	7 <sup>th</sup>
<b>Lack of Guidance from PPA Act 663 2003</b>	1.545	1.214	1.438	1.031	1.688	1.352	1.438	1.031	2 <sup>nd</sup>
<b>Absence of Relevant Documentation in the Schedules of the Act</b>	1.455	0.522	1.438	0.512	1.438	0.512	1.375	0.500	1 <sup>st</sup>
<b>Not appropriate for Public Projects</b>	3.727	1.489	3.813	1.167	3.938	1.063	3.938	1.062	9 <sup>th</sup>
<b>Tender Documentation too difficult</b>	4.091	1.221	4.125	1.088	4.063	1.237	4.125	1.204	12 <sup>th</sup>
<b>Tender Evaluation too difficult</b>	4.182	1.250	4.000	1.317	4.063	1.237	4.125	1.204	11 <sup>th</sup>
<b>Contract Documentation too difficult</b>	4.000	1.265	3.813	1.167	3.938	1.237	3.875	1.310	10 <sup>th</sup>
<b>Contract Administration too difficult</b>	3.727	1.272	3.813	1.328	3.813	1.328	3.813	1.223	8 <sup>th</sup>
<b>Relatively high cost of procurement process</b>	3.091	1.578	3.250	1.238	3.188	1.223	3.125	0.957	5 <sup>th</sup>
<b>Relatively high contract price</b>	2.818	1.250	3.125	1.025	3.063	0.998	3.000	1.033	3 <sup>rd</sup>
<b>Selection too subjective</b>	2.727	1.272	3.188	0.981	3.125	0.957	3.125	0.957	4 <sup>th</sup>

The respondents indicated that 87% of the regulation, controlling and specification of the selection of procurement method in their opinion, must be done by the “Public Procurement

Authority” while the remaining 13% assign that to the Head of Entity as shown in Figure 4.11 below.



**Figure 4.11: Regulate, Specify and Control the Selection of Procurement Methods**

*Source: (Author, 2014)*

#### **4.6 FACTORS MILITATING AGAINST THE CHOICE OF NON-TRADITIONAL PROCUREMENT SYSTEM.**

Respondents were asked to specify the factors the assembly considers before selecting a construction procurement system. Respondents specified these factors: Funding Available, Nature and Type of Project, Site Location, Project Complexity, Size of Project, Quality Level of Project, Available Resources, Project Methodology and In House Capacity.

**Table 4.3: Factors Militating Against Selection of Non-Traditional Procurement Systems**

*Source: (Author, 2014)*

<b>Years</b>	<b>Frequency</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
<b>Non-traditional systems not specified in Procurement</b>	8	26.7	26.7
<b>Lack of Familiarity</b>	7	23.3	50.0
<b>Processes and Procedures too cumbersome</b>	15	50.0	100.0
<b>Total</b>	30	100.0	

The last part of the questionnaire sought to find the factors militating against the choice of non-traditional procurement system in the assembly. As indicated in table 4.3, “Processes and Procedures too cumbersome” with a respond rate of 50% as the main factor militating against the choice of non-traditional procurement system such as design and build (DB), management contracting (MC), construction management (CM) and project management (PM). Also twenty-eight (28%) of the respondent indicated, “Non-traditional systems not specified in the Procurement Act” as the second ranked factor with “Lack of Familiarity” as the lowest factor militating against the choice of non-traditional procurement system among MMDAs in the Ashanti region.

100% of the respondent emphasised that a simple model for choice of an appropriate procurement system could be useful in procurement of works in the various Assemblies.

#### **4.7 SUMMARY OF CHAPTER**

In the survey, it was established that the assemblies are not quite familiar with the contemporary procurement system known as the non-traditional systems. Respondents indicated that the processes and procedures specified in the act for non-traditional procurement systems are too cumbersome and not categorically stated. Also, there is a lack of guidance from PPA 2003, Act 663 concerning non-traditional systems. It was finally concluded that a simple model for the choice of an appropriate procurement system will be useful in the public entities. Based on the findings of the survey, an apt conclusion and recommendation will be made in the last chapter.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

This final chapter gives a perception into the major findings of the study. It furthermore provides key recommendations to policy implications and also outlines recommendations for further research.

#### **5.2 SUMMARY OF FINDINGS**

From the literature review and analysis of the survey results, the findings are summarised below;

- i. Although construction professionals in the assemblies are familiar with the non-traditional procurement systems, the most commonly used works procurement system among MMDAs was traditional procurement system. It was easier for public entities to use the traditional system because of the availability of standard tender documents and its procedures spelt out in the Public Procurement 2003, Act 663.
- ii. Lump sum and Add measurement method (based on Bill of quantities) are the most Common type of traditional procurement system used by MMDAs.
- iii. A number of reasons for the choice of a particular procurement system over the other were considered. It was established that “cost optimization” and “Quality level requirements” were the major reasons for the choice of a system over the other.
- iv. It was established that MMDAs do not have an established methodology or procedure for selecting an appropriate procurement system for their construction projects.
- v. Regarding the role of PPA 2003 in the choice of procurement systems, the selection of traditional procurement system was rated high. It was concluded that the reasons for PPA

663 been perceived low in the selection of non-traditional systems were because of “absence of relevant documentation in the schedules of the act” and “lack of guidance from PPA 663”.

- vi. The key factors militating against the choice of non-traditional systems were that the inherent ‘processes and procedures were too cumbersome’ and ‘Non-traditional systems not specified in the Procurement Act’.
- vii. The development and use of a simple model for the choice of a suitable procurement system was identified by the MMDAs as the way forward.

### **5.3 CONCLUSIONS**

Based on the above literature review and analysis of the survey results, it can be established that all the research objectives have been attained with the help of the research methods employed and the restrictions of the study as follows:

The selection of an appropriate procurement system impact on project success.

- i. Non-Traditional procurement systems can improve the attainment of project characteristics rather than traditional procurement system.
- ii. Every procurement system has its own characteristic and uniqueness on the cost, time, quality of the project etc. however, one form of procurement system cannot be used for all projects.
- iii. In Ghana, the non-traditional procurement systems have not been generally used and understood by public entities.

## 5.4 RECOMMENDATIONS

To assist in the choice of a suitable procurement system for construction works based on the findings and the conclusions drawn from the study, the following recommendations are made to public entities in Ghana:

- All Public entities should have a formalise rationale procurement system selection procedure to assist them in taking procurement decisions. For objectivity in the selection process, both formal and documented systems should be subjected to further modifications to reflect future trends and training purposes are recommended.
- The study revealed that MMDAs are unable to adopt the non-traditional procurement systems because of non-availability of standard tender/contract documents for the non-traditional procurement systems in Ghana. It is therefore recommended that a standard tender document be produced by the Public Procurement Authority to facilitate the use of the system.
- All public entities in Ghana should acquaint themselves with the numerous procurement systems to help them in making well-informed procurement system decisions.
- It is also suggested that seminars, training courses and workshops on various works procurement system should be executed. These activities would improve the selection process and increase the abilities of procurement professionals in selecting an appropriate procurement system.

- The legal framework of Public Procurement in Ghana consists of the Public Procurement Act, Regulations, Guidelines, Manuals and Standard Tender/Contract documents. During review:
  - Guidelines should be issued on the procurement system selection procedure methods.
  - The Manual should indicate the step-by-step procedure for operations purposes.
  
- Procurement decision-making should be made by professionals who have been trained in the methodology, especially Procurement Officers, Architects and Quantity Surveyors.
  
- Non-Traditional procurement system is a viable system to be adopted since projects executed through this system are not likely to exceed their contract sum and also likely to be completed within contract duration. When time and quality are the most critical aspect of the project, non-traditional is the preferred system recommended by this study.

## **5.5 RECOMMENDATIONS FOR FURTHER RESEARCH**

The research results have recognised a few areas that need further research efforts. It is suggested that further research is done to explore the following areas:

- Decision models should be developed during future research for elements of the various procurement systems to be established so that could be made.

- The factors militating against the selection of non-traditional procurement systems was studied from the perspective of public entities only. It is therefore important to repeat this study to seek the opinions of private and individual entities.
  
- It is important to repeat this research every 5 years to observe the new trends of procurement systems.

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## Appendix A: Survey Questionnaire

# Kwame Nkrumah University of Science and Technology

College Of Architecture and Planning

Faculty of Architecture and Building Technology

Department of Building Technology

### **Research Topic: The Effect of the Public Procurement 2003, Act 663 on the Use of Non-Traditional Works Procurement Systems by MMDAs in Ghana.**

#### **Introduction**

*The author is a Master of Science in Procurement Management student at the Kwame Nkrumah University of Science and Technology-Kumasi, conducting a research into determining the effect of the public procurement Act 663 on the use of non-traditional works procurement systems by MMDAs in Ghana. I shall be grateful for your time in answering the following questions. You may contact the researcher on 0204182154 or [vowusuansah@gmail.com](mailto:vowusuansah@gmail.com) for clarifications. Responses may also be sent electronically using the email address above.*

#### **Definition of Terms**

For purposes of this questionnaire, please take note of the following definitions:

**Procurement Method:** Procurement Method in this context refers to the methods enshrined in the Public Procurement 2003, Act 663. Examples are: International Competitive Tendering, National Competitive Tendering, Restricted Tendering, Request for Quotation, Single Sourcing, Two- Stage Tendering, etc.

**Construction Procurement System:** The term ‘Procurement’ with respect to construction is a management system used by the client to secure the design and construction services required for the execution of a proposed project to a required cost, quality and within a specified time. Examples of procurement systems are Traditional procurement, Design and Build, Management Contracting, Construction Management, Project Management, etc.

#### **Section A**

*Please answer the following question by ticking/filling the spaces provided.*

1. Name of organization \_\_\_\_\_

2. What is your professional background?

- Procurement Officer
- Construction Project Manager
- Architect
- Quantity Surveyor
- Engineer
- Other, please specify: \_\_\_\_\_

3. How long have you been with this organization or industry?

Less than 5 years [ ] 5-10 [ ] More than 10 years [ ]

**Section B**

1. What form of construction procurement system does the organization normally use on projects?

Traditional procurement [ ] Design and Build [ ] Construction Management [ ]  
Management Contracting [ ] Project Management [ ]

Others: (Please specify) .....

2. What is the most common type of traditional procurement system selected by your organization?

- Lump Sum Method
- Measurement Method (Based on Bill of Quantities)
- Cost Reimbursement as Cost Plus Method
- Others: (Please specify) .....

3. Who is responsible for the selection of the construction procurement system in your Assembly?

- Head of MMDAs
- Director of MMDAs
- Head of Procurement
- Head of Engineering
- Chief Quantity Surveyor
- Others (Please Specify): .....

4. What factors do you consider before selecting a construction procurement system in the Assembly?  
Please specify.

.....  
 .....  
 .....

5. Do you have a documented Process and Procedure for the selection of a construction procurement system for your projects?

Yes  No

*If yes please answer Q6*

6. What are the components or structure of the Procurement System selection process and procedure?  
Please specify.

.....  
 .....  
 .....

7. Which of the above mentioned procurement systems are you familiar with or have used before?

	<u>Procurement Systems</u>	<u>Familiar with</u>		<u>Used previously</u>	
(i)	Traditional procurement	YES [ ]	NO[ ]	YES [ ]	NO[ ]
(ii)	Design and Build	YES [ ]	NO[ ]	YES [ ]	NO[ ]
(iii)	Management Contracting	YES [ ]	NO[ ]	YES [ ]	NO[ ]
(iv)	Construction Management	YES [ ]	NO[ ]	YES [ ]	NO[ ]
(v)	Project Management	YES [ ]	NO[ ]	YES [ ]	NO[ ]
(vi)	Others (Please Specify):	_____		_____	

8. Why would you decide to use a particular procurement system over the other?

Please indicate by ranking each option from **5- Highly Important**, **4 - Very Important**, **3- Averagely Important**, **2 - Least Important**, **1 - Not Important**.

	<b>Not Important</b>	<b>Least Important</b>	<b>Averagely Important</b>	<b>Very Important</b>	<b>Highly Important</b>
Ease of use					
Suitability of development objectives					
Cost optimization					
Experience					
Time saving/speed					
Dispute Avoidance					
Risk/Responsibility Avoidance					
Quality Level Required					
Level of design complexity					
Source of Funding					
<b>Other: Please specify</b>					

9. In your own opinion what do you think are the factors militating against the selection of non-traditional procurement systems in your Assembly?

- Non-traditional systems not Specified in Procurement Act
- Lack of Familiarity
- Processes and Procedures too cumbersome
- Others (Please Specify): .....

**Section C**

1. Are the processes and Procedures adopted by your organization for the selection of appropriate construction procurement systems captured in the Public Procurement Act 2003, Act 663?

Yes  No

2. In your opinion, who must regulate, specify and control the selection of procurement methods in Ghana?

- Public Procurement Authority
- Ministry of Finance
- Head of Entity
- Others (Please Specify): .....

3. Who decides on the Procurement Method to use for a particular project in your Assembly?

- Head of MMDAs
- Director of MMDAs
- Head of Procurement
- Head of Engineering
- Chief Quantity Surveyor
- Others (Please Specify): .....

4. Does your Assembly consult any document before the selection of a particular procurement system?

Yes  No

5. Which document guides you to select a particular procurement system?

.....

6. How would you rate the **role** of the Public Procurement Act 2003, Act 663 in the **selection** of the following procurement Systems?

Traditional Procurement (TP)	Low [ ]	Medium [ ]	High [ ]
Design and Build (DB)	Low [ ]	Medium [ ]	High [ ]
Management Contracting (MC)	Low [ ]	Medium [ ]	High [ ]
Construction Management (CM)	Low [ ]	Medium [ ]	High [ ]
Project Management (PM)	Low [ ]	Medium [ ]	High [ ]
Others (Specify)	Low [ ]	Medium [ ]	High [ ]

[Consider **Low** to mean that the Act does not **favour** the system in **form and content** and **High** to mean that the Act favours the system in form and content.]

7. What would you say are the reasons for the role of the PPA Act being perceived **LOW** from Q6. above *Please rate each reason on the scale of 1 – 5. 1=Very High Importance, 2=High Importance, 3=Medium Importance, 4=Low Importance, 5=No Importance*)

REASONS	PROCUREMENT SYSTEMS					
	TP	DB	MC	CM	PM	OS
Lack of Familiarity (by construction professionals)						
Lack of Familiarity (by client/government representatives)						
Lack of Guidance from PPA Act 663 2003						
Absence of Relevant Documentation in the Schedules of the Act						
Not appropriate for Public Projects						
Tender Documentation too difficult						
Tender Evaluation too difficult						
Contract Documentation too difficult						
Contract Administration too difficult						
Relatively high cost of procurement process						
Relatively high contract price						
Selection too subjective						
Others (Specify) .....						

8. Please use data on the last two (2) years of your professional delivery to fill in the table below.

No. of Public Infrastructure Projects Procured (approx.).	No. Procured under each System					
	TP	DB	MC	CM	PM	OS
Year 2013						
Year 2012						

9. Finally, do you think that a simple model for the selection of an appropriate procurement system could be useful and applied in procurement of works in the Assembly?

Yes  No

Any further comments:.....  
 .....

**THANK YOU FOR YOUR TIME**