

**ASSESSING PROJECT PROCUREMENT MANAGEMENT PRACTICES, A  
THE MINISTRY OF ENERGY; A CASE STUDY OF RURAL  
ELECTRIFICATION/SHEP IN GHANA**

By

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## DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any degree or diploma at Kwame Nkrumah University of Science and Technology, Kumasi or any other educational institution, except where due acknowledgement is made in the thesis.

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## **ABSTRACT**

The purpose of this research is to assess project procurement management practices at the Ministry of Energy. Self-help electrification projects (SHEP) were suspended in about 50 communities in the Hohoe South and Kpedze areas because 50% of the imported wooden poles were discovered to be inappropriate for electrification project. This adversely impacted the project as well as the communities' socio-economic growth. The objectives of this study are; to identify the project procurement management practices carried out at the Ministry of Energy for rural electrification/SHEP project, to examine the influencing factors for the choice of procurement management system adopted by the Ministry of Energy for rural electrification/SHEP project, and, to identify the effects of procurement management system on the outcome of the rural electrification/SHEP project. A population of 78 professional procurement respondents were reached across the country, through 'convenience and purposive sampling'. Data from a total of 63 questionnaires were received and collected out of the 78 respondents constituting a response rate of 80.8%. This revealed that Open procedure also known as the competitive procurement practice is the most commonly used procurement management practiced under the SHEP, scoring an evident sky-high RII of 0.922. In view of these findings, the following are recommended; quarterly auditing, monitoring and evaluation of procurement management process to prevent corruption and promote good governance, capacity building training for both junior and senior procurement officers.

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## **ABBREVIATIONS**

<b>AESL</b>	ARCHITECTURAL AND ENGINEERING SERVICES
<b>ECG</b>	ELECTRICITY COMPANY OF GHANA
<b>GNPA</b>	Ghana National Procurement Agency
<b>GSCL</b>	Ghana Supply Company Limited
<b>MoF</b>	Ministry of Finance
<b>NEPA</b>	National Electric Power Authority
<b>NPA</b>	National Procurement Agency
<b>PUFMARP</b>	Public Financial Management Reform Program
<b>PPA</b>	Public Procurement Authority
<b>PPE</b>	Public Procurement Entities
<b>PPM</b>	Public Procurement Manual
<b>RFQ</b>	Request for Quotation
<b>SHEP</b>	Self Help Electrification Project
<b>SPSS</b>	Statistical Package for the Social Sciences

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## **DEDICATION**

Firstly, I dedicated this work to the almighty God, the great architect of the universe, for his grace and blessings which have propelled me this far. Secondly, I dedicate this material to my late father, Mr. Wilfred Atsu Agbeze, my Wife Mrs. Edith Agbeze and children, Aseye and Elikem, for their support during my period of study. I also dedicate this work to my course mates for their friendship and support, throughout the program.

## **CHAPTER ONE**

### **INTRODUCTION**

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

The provision of infrastructural services in any settlement impacts the living standards of people in that society directly or indirectly. Mabogunje (1993) noted that the comprehensive, constant and self-sustaining provision of infrastructure is a sine qua non for the effectiveness of operations and urban undertakings and the viability of towns; and that infrastructure is a sine qua non for the effectiveness of operations and urban undertakings.

Access to the energy that is needed to sustain our contemporary and connected life represents perhaps the greatest development challenge of our time. Whether it is the power to operate a factory or even the simple act of charging a cell phone, individual access to reliable, affordable electricity underpins the ability to participate in the modern economy. And yet, despite this fundamental connection between prosperity and power, estimates suggest that almost a quarter of the world's population lacks secure access to energy. The problem is particularly acute in Sub-Saharan Africa, where a full two-thirds of the population lacks access to electricity.

Public procurement usually involves the acquisition of goods and services, but the procurement of a power project involves the acquisition of neither of those things. It instead involves the selection of a group or consortium that will be responsible for developing, designing, financing, constructing, commissioning, operating and maintaining, for a very long period, a high-value asset that is immovable. It is due to the long-term nature, and the often difficult to quantify risks associated with the

development of the power project, which often makes traditional public procurement laws inappropriate or inapplicable.

The difficulty with distribution management which has been in existence for decades continues to be worldwide than an unusual difficult (Yusuf, 2003). An effective procurement policy provides a framework which allows policymakers to achieve certain objectives. For instance, for a procurement policy to develop power projects, a menu of options can be considered which will impact the design and implementation of the procurement process. To achieve a coherent and consistent procurement policy, it is important that all stakeholders involved in the decision-making and oversight in the procurement process share aligned objectives. Such objectives must be balanced and prioritized in order to meet governmental strategic goals, such as adding installed capacity or growing the economy.

The Law on Public Procurement, 2003 (Act 663) is a thorough law aimed at eliminating the shortcomings and institutional weaknesses intrinsic in Ghana's public procurement. In consultation with its development partners, the Government of Ghana recognized the public procurement scheme as a sector that urgently needed attention given the widespread perception of corruption. A World Bank research (2003a) revealed that approximately 50-70 percent (after private emoluments) of the national budget is linked to procurement. Consequently, an effective system of public procurement could provide value for cash in government spending, which is crucial for a nation facing enormous difficulties in development.

## **1.2 PROBLEM STATEMENT**

Providing appropriate and functional community infrastructure has a direct impact on any community's economic growth and general development. A significant factor responsible for the country's slow rate of industrialization has been the bad state of infrastructural development in most societies (Shaibu, 2014.). Low and epileptic electricity supply issues, insufficient and unreliable water supply, and bad network of telecommunications have impacted industrial operations and institutions, resulting in elevated manufacturing costs. Bottlenecks in the motion of products and services in the nation have been introduced by the bad state of rural and urban road network scheme. Self-help electrification projects were suspended in about 50 communities in the Hohoe South and Kpedze areas because 50% of the imported wooden poles were discovered to be inappropriate for their electrification projects. The poles that have already been built were discovered to be not well treated as needed, according to the study. The Ministry of Mines and Energy was instructed by Parliament to bring both the suppliers of the poles and the ECG to book for their negligence (Ghana Web, 1997). This is one out of several issues related to public procurement.

Several writers researched factors that militate against worldwide procurement reforms (Thai, 2004; Wittig and Jeng, 2004 ; NPPA Annual Report, 2005). These earlier studies, however, did not report barriers to Ghana's acquisition reforms.

Therefore, a thorough assessment of variables that have prevented Ghana's law from attaining the objective for which it was enacted is necessary.

### **1.3 AIM OF THE STUDY**

The purpose of this research was to assess project procurement management practices at the Ministry of Energy: a case study of rural electrification under the Self-Help Electrification Project in Ghana.

### **1.4 OBJECTIVES OF THE STUDY**

In order to achieve the aim of this research, the following specific objectives were set to be achieved:

- To identify the project procurement management practices carried out at the Ministry of Energy for rural electrification/SHEP project
- To examine the factors that influences the choice of procurement management system adopted by the Ministry of Energy for rural electrification/SHEP project
- To identify the effects of procurement management system on the outcome of the rural electrification/SHEP project

### **1.5 RESEARCH QUESTIONS**

- What project procurement management practices are carried out at the Ministry under study?
- What factors influence the choice of management procurement system adopted by the ministry for the rural electrification/SHEP project?
- How does procurement management system at the ministry influence the outcome of the rural electrification/SHEP project?
-

## **1.6 SIGNIFICANCE OF THE STUDY**

Although this thesis focuses on rural electrification/SHEP, its findings may be applied to other projects executed by the Ministry of Energy. Documenting procurement activities, factors that influence these activities, and challenges with procurement procedure practice at the ministry will go a long way to enhancing procurement practice for projects to be executed in the future. With the takeover of the Electricity Company of Ghana (ECG) by the Power Distribution Services (PDS), the findings of this study may give an insight into ‘what was’, ‘what is’, and ‘what should be’ with respect to procurement practices of similar electrification projects.

## **1.7 SCOPE OF THE STUDY**

This research is on the ministry of Ministry of Energy. However, it does not deal with all activities of the ministry, but only on the procurement management of the ministry. Even at that, this study does not investigate procurement practices of all electrification projects executed by the ministry, but only on an aspect of rural electrification under the Self-Help Electrification Project. The lack of time and finance for a nationwide survey would not be conducted. Rather, the survey will focus on SHEP in the Western Region.

## **1.8 RESEARCH METHODOLOGY**

This concerns processes for collecting information and the information source for this study. Achieving the goal of this study needs conformity from the perspective of procurement executives with logical and scientific procedures and empirical investigations. A qualitative approach will be adopted to elicit the relevant information from project managers, procurement officers, accounting officers, etc. The interview was

mostly performed in the centered group where subjectivity is minimized in order to attain high data reliability. The studies style was survey and the technique was based on the collection and analysis of published and unpublished literature, field visits and interviews. Primary sources such as reports, minutes and theses, secondary sources such as books, newspapers, web and newspapers, and tertiary sources such as abstracts and dictionaries have gathered literature sources. A comprehensive literature review under the Self-Help Electrification Project was performed to provide a thorough knowledge of rural electrification management procurement.

## **1.9 ORGANISATION OF THE STUDY**

The thesis is split into five (5) sections that are autonomous but interrelated.

Chapter one deals with the overall study introduction. It will also present the issue declaration, purpose and goals, study importance, research methodology, scope, research constraints research issues and hypothesis. The research aim, objectives, and scope are presented, the research questions are formulated.

Chapter Two will include a review of the literature. An extended coverage of previous works will be provided to the review.

Chapter Three will be devoted to providing in-depth conversations on the study's methodology.

Chapter Four will present the field survey data empirical analysis that responded to all study goals and issues.

Chapter Five will wrap up the research by reviewing the main contributions of the research to knowledge.

A provision will be made for summary of the research results. Avenues for further research will be identified. Policy recommendations and limitations of the study will also be outlined. Finally, a personal reflection on the entire thesis project will conclude the report.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

This chapter discusses the project procurement management practices, and factors that influence the choice of management procurement system. This is to give the researcher sufficient background information to assess procurement management system on the outcome of the rural electrification/SHEP project in Ghana. The chapter also reviews the Public Procurement Act of Ghana

#### **2.2 BACKGROUND**

Procurement of works project is exceptionally big because it consists of acquiring something like providers for an military or other organizations, it also includes the act of collecting distinct people, office buildings, construction accommodations, bridges, highways etc. for a "customer or a customer's". In contrast, procurement is the term procure, which means "acquiring," "acquiring," "acquire," and "obtaining." System is a way of working, arranging and obtaining a plan or a set of guidelines that follows. The system can imply a system, procedure, and method organized simultaneously. In addition to all of the above, project acquisition refers to a structured project or process, such as offices for army and civilian officials, housing for senior and junior officials, bridges, and highways, etc. (Maizon, 1996). Documents are presented with the argument that the incompatibility of the procurement scheme chosen for a chosen works project caused one of the most significant reasons to the works procurement projects failure (Maizon, 1996). One of the difficulties most procurement companies face is to pick the right procurement scheme as quoted by (National Economic Development Office, 1985). The choice of the

specific procurement scheme is a prevalent criterion, such as time, cost competitiveness, related risks, quality, how flexible the system, certainty about attaining the target goal, any potential dispute and arbitration (Skitmore and Marsden, 1988; Love et al., 1998). Also, according to Maizon, (1996) most of the increasing complexity in building works projects has to do with the financial management aspect which has a direct influence on the type of procurement system that need to be considered by management in planning of the next fiscal year by all public procurement entities. The choice of a specific procurement scheme over the other is an important burden for the acquisition company, which determines the system to be used sometimes. Consequently, due to such procurement system, alternative systems are used owing to the growing knowledge of most procurement entities particularly in terms of improving procurement criteria of time, cost and quality. The fundamental purpose of each chosen procurement scheme is to obtain money value. In latest years it has emerged that value for cash is not the same as cost efficiency. No matter how economic the sector is, it does not add value to the customer's company in its design and building phases of the end product (Maizon, 1996).

### **2.3 CONCEPT OF PROCUREMENT**

Appropriation is merely another name in order to obtain products, services, or property for the financial operations of an economic entity, such as a commercial company or a government agency. The procurement procedure comprises several aspects of selection: the nature of the acquisition, the identity of providers and the legal mechanism used to influence procurement and side-deals, and broader financial and social impacts that could be associated with the acquisition (Arrowsmith and Hartley, 2002).

Economics recognizes the significance of these issues in analysis of product quality and characteristics, inter-firm performance differences, deficiencies and asymmetries in information in relationships between the buyer and the seller, transaction costs, and externalities and spillovers. For legal scholars and practitioners, the interest of the procurement process lies particularly in contracting relationships between parties and enforcement aspects. In management research, the focus is on the organization and its relationship to suppliers in the supply chain or network (Arrowsmith and Hartley, 2002). The concept of works procurement has been defined in numerous customs and according to Hibberd (1991), the term procurement is described in the Oxford English dictionary as the work of obtaining by heed or attempt, acquire or bring regarding the procurement entity's needs. He then further argued that the aim of this concept of procurement is that it can raise awareness of the issues which can involve both the challenges which is generally accepted in practices and in establishing strategies.

According to World Bank (2003) purchasing of works, goods and services on the greatest achievable full amount in terms of cost in the right quantity, right quality, at the right time, in the right place for the purpose of what the government, entity, organization, or individual generally perceive through contract is termed procurement. Apart from world Bank, Mohsini and Davidson (1989), came out with another definition as a way of acquiring a new works project space either by direct buying, rentals or leasing from competitive open market or complete design of a building space to meet the required needs.

Every procurement entity that considers achieving a maximum goal in adopting a particular procurement system in terms of speed, price, certainty, quality and risk transfer must practice good procurement management (Mohsini and Davidson, 1989:86).

Kumaraswamy (1994a) when citing example commencing on Sri Lanka's earlier submissions, also came out with a different argument that the accomplishment of technology transfers which itself is frequently misconceptualized from a developed to a developing country have been shifted by the use of wrong approaches.

### **2.3.1 Nature of Public Procurement Systems in Ghana**

Because there was no complete schedule of procurement prior to the enactment of the Public Promotions Act, 2003 (Act 663) (Anvuur and Kumaraswamy 2006), Ghana National Procurement Agency (GNPA) and Ghana Supply Company Limited (GSCL) remained the principal mediators in government transaction. However, many organizations rarely adjust purchases but purchase land for governments.

According to PUFMARP (1996), the public procurement system in Ghana has:

- (1) Absence of complete public purchases principles;
- (2) Absence of pivotal entity with technical knowledge to manage effective procurement exercises;
- (3) Absence of complete lawful frame to protect public purchases;
- (4) No visibly described functions, tasks and ability for procurement institutions;
- (5) Absence of procedures and guidelines to direct, train and carefully watch public purchases;
- (6) National Procurement Agency (NPA) and Supply Company Ltd acquire goods in the place of government for PEs;
- (7) Absence of sovereign pleas procedure to manage grievances from distressed bidders;
- (8) Absence of expert to position public properties; and
- (9) Absence of self- governing purchases reviewing and checking function.

Given the lack of an inclusive legal authority and a essential agency, the function of supplementing procurement processes in the country needs to be defined, the larger the segment ministries such as the Ministry of Health (MOH) decided to set up their own sectorial procurement technique. The procurement directive of the World Bank is also used for systems of the World Bank (World Bank, 1994). The traditional procurement techniques were used for public works with necessities for mandatory cataloging and sorting of vendors and consultants managed by the Water Resources, Works and Housing Ministry. Suppliers categorized by the Ministry of Water Resources, Works and Housing are said to be too wide and outdated and their registration standard – catalogs of contractors and permitted currency value – is not often streamlined as shown by the World Bank (1994) and Eyiah and Cook (2003). Meanwhile, in 1999, the Ministry of Finance is gradually managing the development of the National Procurement Code using achievements in the Ministry of Health services as an illustration of extremely controlled transactions through the provision of circulars. These accompaniments describe procedures that progress from the Ministry's purchase control-related contracts.

Foremost or multifaceted agreements financed through government through architectural consultancy services and project oversight have been awarded to Architectural and Engineering Services Limited (AESL) on a single basis deprived of fair competition (World Bank 1994). The countless clumsy and unfettered buying techniques represent the importance of the deprived situation of procurement resulting in the much-admired reorganization of public buying procedures to impart faith and security to the state and the benefactor community.

### **2.3.2 Public Procurement Act of Ghana**

According to Eyaa and Oluka (2011), public procurement can also be defined as the operation of the environment with an increasingly intense scrutiny by a driven technology force, reviews in programs, external public consideration and political influence in improving the systems. By considering the emerging changes in the way Government procure, public procurement has progressively more turn into a worldwide disquiet not excluding Ghana. Before the reform, all departments and agencies were in-charge of their own procurement until the Public Procurement Act (Act 663) in 2003 came to being.

The main reason why Ministry of Finance enacted the Public Procurement Act (Act 663), was to secure thoughtful, monetary and resourceful use of state assets, merge with public procurement processes in the public service to ensure that all public procurement are done in free and fair manner, transparent and not discriminating to ensure total sustainable procurement through value for money, (MoF, 2001). A recent study that was conducted by the World Bank also reported that about fifty to seventy percent (50-70%) of the national budget once not public emoluments is also associated to procurement (World Bank 2003). Having critically defined what public procurement means, it can be said that well-organized public procurement system could guarantee value for money in government expenditure.

In Ghana, the (Act 663), took effect in August, 2004 requires that public entities and organizations undertake procurement of works, goods and services in accordance with the Law. This was enacted by parliament of Ghana and promulgated in bringing judgment and conventionality to public procurement through all the Government institutional entities and principles that harmonize the public procurement process and

any other activities involved. These requirements although laudable is bedeviled with numerous challenges and according to Arrowsmith and Trybus (2003) public procurement entities have been facing and will continue to face many challenges. Some of these challenges have been classified by other authors as either external or internal factors. Apart from the above-mentioned challenges, all nations will have their own exclusive societal, intellectual, economic, and political atmosphere hence public procurement challenges differ from country to country.

This is because traditionally all public procurement entities with greater focus based their concentration on value for money goal at the same time as public procurement contract management which helps in achieving value for money has received very little attention. One can cite a typical situation in Ghana where huge judgment debts in most cases are attributed to the lack of proper contract management with an example of a case where the importation of Mitsubishi Pajero were procured into the country which had been parked at the Institute of Local Government Studies without being used. If proper contract procurement procedure was followed in the procurement process, the country will not have incurred such huge debts. In Ghana, the public procurement as acknowledged earlier will always face many challenges, especially those that have to do with contract if proper measures are not put in place to ensure that all these challenges are addressed in its proper manner.

## **2.4 PROCUREMENT PROCEDURES**

In relation to public contracts, Public Procurement Entities (PPE shall apply the standard tendering procedures set forth in the Public Procurement Act, Act 663 of 2003. The

tendering processes remain the same for services, goods and works. Below are the types of procedures that are established in Law:

- Open Procedure
- Restricted Procedure
- Two-Stage Procedure
- Single Source Procedure
- Request for Quotations (RFQ)

#### **2.4.1 Open Procedure**

Open procedures best suit all kinds of public contracts. Open procedures can take the form of National or International competitive tendering (Public Procurement, 2003, Act 663, Part V Sec.44 and 45). All interested Tenderers who meet the required criteria as set out clearly inside the contract notice (Advertisement) and the Tender document may submit a tender. Notice on the contract which describes the key features of the contract is made available in at least two newspapers of extensive dissemination and on Public Procurement Authority (PPA) website. Tender documents contain in detail the terms and conditions, the award criteria, and the content of the contract (Public Procurement Manual, 2007). Furthermore, inside the open procedure of tender document, any firm which has an interest in participating do has the opportunity to make a submission of a tender. Public Procurement Act (2003) affirmed that the tender must meet the standard of the procurement unit that handed out the tender document. No changes or whatsoever to the original application documents such as the conditions and terms of the contract which is backed by law, since that render the tender document difficulty on the basis of it not being impossible by comparing the offers. The contract terms are clearly displayed

in an exclusive way by the Procurement Unit in their demand for the tenders. Any breach of the principles by tenderers automatically rules them out (Public Procurement Act, 2003).

#### **2.4.1.1 Recommended Steps for Open Procedure**

Public Procurement Manual (2007) presented the under listed as the recommended steps to be adopted in an open procedure:

- The preparation of Contract Notice and Tender Document
- Publishing of Contract Notice in published in at least two newspapers of wide national circulation and on PPA website
- Receiving responses on the Tender
- Sending of Tender Document to Tenderers
- The Submission of Tenders by the Tenderers
- Establishing the Tender Evaluation Panel
- Commencing the Tender Evaluation
- Submitting the evaluation Report to Entity Tender committee
- Contract Notification of Award Notice issued and successful Tenderer informed in writing.

#### **2.4.2 Restricted Procedure**

The restricted procedure provides that only three to six contractors or suppliers are short listed and requested to submit their proposal (Public Procurement Manual, 2007). These companies are selected at an early stage of the competition and the invitation to participate in contracts. In inviting tenderers to participate, the firms are to prepare

statements with regards to the firm's performance capability, special know-how, and reliability to judge their suitability for the round two (Stergiou, 2009). According to Public Procurement Manual (2007) Section.4.2.2 restricted tendering defines the process used to directly invite or shortlist known or pre-registered contractors, and it is dependent on endorsement being decided by the PPA. Restricted tendering is the procurement method where: an open competitive tender fails to bring an award of contract; the requirement is of specific nature or has requirements of public safety which make an open competitive tender unfitting; the urgent nature of the requirement may be practical for an open competitive tender; and the number of potential contractors is limited. For the restricted procedure of tender, contractors who have the right to submit tenders are those that were selected out of the pre-qualification procedure during participation (Public Procurement Act, 2003). The Public Procurement Bulletin contains contract notices published; it describes the criteria that will be used to select tenderers and the scope of the work. The shortlisted tenderers will be allowed to make submission of a tender as they receive the tender documents. In recommendation, the least number of tenderers that will be selected should not be less than six, in situations where the number of qualified tenderers is sufficient (Public Procurement Act, 2003).

#### **2.4.2 Two-Stage Procedure**

According to section 38 of Public Procurement (Act 663) (2003), the Two-stage Tendering is rarely used when Procurement Entity calls for tenderers in the early phase to make a contribution to the specification details of the work. New comprehensive specifications after the review and consultations are prepared and in the second stage a restricted tender issued to all qualified participants from the first-stage. Two stage

tendering is the best method for the Procurement Entity in cases where it is not possible to ascertain their characteristics, the focus of the works is giving in to quick technological improvements, or to formulate comprehensive plans or specifications of the works. (Public Procurement Act 663, 2003).

#### **2.4.4 Single Source Procedure**

Section 40 of Public Procurement Act 663 (2003) stipulates that this procedure normally sourced from a supplier with no competition (direct procurement), and using Guidelines, this procedure is depending on a definite consent from the Public Procurement Board. The single source procedure will best suit activities that can only be delivered by the single source for policy, technical or physical reasons like demanding the usage of exclusive methods that are available from just a single source; and the acquisition is for immediately required corrective works, if it is limited to the 16 least requirements in meeting the vital need up until a procurement by other procedures can be satisfied.

#### **2.4.5 Request for Quotations (RFQ)**

According to Section 43 of Public Procurement Act 663 (2003) the RFQ is also referred to as the “shopping”. It is founded on the grounds of making comparison of price quotations from at least three suppliers against ensuring competitive prices.

### **2.5 PROCUREMENT SYSTEMS**

The procurement system is a contemporary concept, well known by various terms, including: procurement techniques, the approach to projects, distribution systems or the delivery of procurement procedures and various other techniques (Rameezdeen and

Ratnasabapathy, 2006). The procurement scheme or techniques of procurement were defined from different perspectives and aspects. In the beginning the organizational scheme used by the client for the implementation and the last building process during a certain period (Masterman, 2002) is a kind of organizational system framework. The main way that customers can achieve the accurate goals of specific projects is also called the main way (Rameezdeen and Ratnasabapathy, 2006) to guarantee the suitable prior climate for success. Procurement method “is an institutional method that defines appropriate tasks and authorities to individuals and corporations, and plans numerous rudiments in the completion of a venture” (Love et al. 1998). The procurement schemes were referred to as the administration of aggregated processes channeled through the building carriage scheme of the project by Oguensanmi and Bamisele (1997), and Ashwort and Hogg (2007). Ashwort and Hogg (2007) further claim that various procurement options are available to meet the requirements of the various customers and project information. In these groups of buying schemes, however, scientists are mainly different. Birchall and Ramus (1996) have shown that categorization often includes combining characteristics of two or more techniques or systems, which is usually used in organizational practice. Nonetheless, a number of researches are carried out, including those primarily in category building procurement systems in two extensive aspects, such as conventional procurement and non-traditional procurement systems (Seeley, 197; Turner, 1997; Ashwort and Hogg 2007). The traditional procurement systems are designed, tendered and designed as separate roles by three consecutive phases. The traditional technique is named because the bidding process is mainly competitive. The traditional procurement system permits number of contractors who feel competent to present tenders for construction ventures in a permitted environment comparable to the

normal environment of the rivalry market. Masterman (1992) referred to earlier study projects as a "construction acquisition technique," describing "a merger of operations carried out by a client to obtain a building." The word procurement scheme was used to describe: 'The structure of the organisation that is hired by customers for the project management' by Masterman (1992). The building procurement methods in the categories of the definition of Masterman (1992) are:

1. Separated and co-operative method (traditional system and variants);
2. Integrated method (Design and Build and variants system); and
3. Management oriented method.

The role in the building and design of projects is unbundled under the separated and cooperative, and is developed specifically by contractors and developers in varied sovereign organizations. This procedure is referred to sometimes as linear or sequential contracting procedures or multiple contracting duties. This technique allows the project development activities to start with a viability evaluation, original design, and certification. Conventionally, before tenders and building events can start, comprehensive building work drawings must be completed by designers. The separate and co-operative procurement scheme is divided into two branches, which include the standard technique and conventional method options. In addition, the variant or alternative techniques are classified in:

1. Accelerated Method, and
2. Sequential Method.

In addition, the building construction owners often attribute the sequential system as a single-phase bid technique to consultants in order to generate building drawings, requirement and bidder's certificate and regulate the bid processes for the sample

sampling of a contractor. After a sampled contractor has been awarded, the contractor begins working on the grounds of the drawings prepared by the customer's advisors and requirements. The accelerated technology includes an innovative strategy to accelerate the sampling of contractors and the construction. Two sub-divisions including two stages and negotiated tendering methods can categorize the technical method. The method. Both schemes mainly include original dialogue, tendering and/or costs negotiation with sampled contractor(s).

In response to market requirements, the sub-categorization of these technologies has tended to thrive. Holt et al. (2000) have demonstrated that there are multiple variables to each of the procurement methods usually employed but that the nomenclature is usually employed; there is a wide range of procurement methods available. For example, procurement regulations recognize more than 8 design and build technology options (NSW Government, 2005). Nevertheless, the procurement methods and contract systems usually employed differ. The decision on the type of procurement technology to be employed would be made probable and strengthened by the business position of the customer for construction projects. There must be due consideration of the risks associated with each buying procedure and possible client influence. Considering this, Figure One gives a summary of 'speculative risk' to a customer and contractor for detailed purchasing techniques.

### **2.5.1 Traditional Procurement**

The traditional supply system or technology has long been known to be a viable or feasible option for many years, accessible to the vast majority of building customers (Al-Bahar and Crandall, 1990), particularly in the development sector. By means of this

technology, clients agree with the design advisor that the draft paper should definitely be distributed and the contract documents produced.

The firm recognizes in the traditional purchasing method that the design work is generally separate from the building and consultants for design and cost minimization are chosen, and the contractor is responsible for performing the works (Chitkara, 2005). This requirement covers all employees and other resources and includes all building projects through subcontractors and material suppliers. The contractor is usually selected through competitive tenders based on extensive information, although negotiation on the grounds of fractional or theoretical information may be obligated to sample it earlier (Kwakye, 1997).

In some conditions, the standard acquisition scheme which adopts two-step bids is described as the 'Traditional Accelerated Approach.' The term 'standard method' is based on the technical capacity to operate in analog and in similar manner to a restricted degree. While this allows a timely start to the project, it also involves a restricted conviction of costs.

### **2.5.2 Non-Conventional Procurement Methods**

Non-conventional is a wide term used to address any changing procurement methods in the construction industry, other than conventional procurement technology. The construction company has undergone modifications in a manner that has not ever been seen for many years. There are a number of changes which have occurred due to the extended scope and complexity of structural plans, the economic meetings, social and political thoughtfulness and the level of information technology.

These continuous changes have led to various types of buying methods apart from the standard scheme that is predominantly embraced. Even though the development of non-conventional procurement technology appeared to be comparatively better, a higher proportion of the construction company customers are based on traditional techniques, although the quality of procurement processes is not defined in particular suitable procurement processes. Masterman (2002) defines the non-conventional procurement method through differentiated modern buying methods reflecting not just the design and construction, but also financial, operational and expertise management considerations. The 3 various types of non-conventional buying technology employed in the building construction sector are therefore embedded buying methods, management-led buying methods and collaborative buying methods.

#### **2.5.2.1 Separated and Co-Operative Procurement Systems**

Masterman (1992) relates to the difficulty of obtaining accurate historical data on the quantity of use of different acquisition methods. This information type is presently widely available, albeit at significant costs, from market research companies like Glenigan and Market Development and Business Development. Many writers examine the problems which arose during the building stage and are accredited by the traditional procurement method. In examining the procurement process, Sharif and Morledge (1997) recognized the notion of "procurement catch" in line with tiny and occasional clients. The notion of procurement theory states that the customer's accessible architect should affect them to use this method, because higher volumes of the design job give the consulting firm a higher price. The connection between procurement strategies for

building construction projects and contract conflicts is examined by Conlin et al. (1996). In examining 21 finished projects, they discovered that the differences between payment and budgets, delay, time, negligence and efficiency are more prevalent in traditional projects, covering five common acquisition alternatives. In view of the ten constructive arrangements in the United States and the United Kingdom, Nahapiet and Nahapiet (1985) discussed building contracts in a cooperative manner. Nahapiet and Nahapiet (1985) further emphasized the connection between the standard technique of building (building, management contract, design and building) (Lump sum and negotiated)) and the combined cooperative partnerships. The following also were disclosed: Nahapiet and Nahapiet (1985) Although commonly regarded in order to describe the role of the construction contractor in the field of the formal agreement, the main reference for all parties involved in the building scheme completion is undeviating and significant. In addition, official contracts represent different co-operative arrangements to describe and coordinate the impact of the many construction project agents.

#### **2.5.2.2 Integrated Procurement Systems**

As the name indicates, the integrated acquisition method fuses the design and construction duties of the system (Ashworth, 2001). Only one building company is responsible for the design and construction duties. In other cases, the single procurement technique is referred to as a job because it needs that the customer works with only one business to design and build the planned building project. In this respect, the contractor must participate with respect to the designing group and be liable for its building. This buying method is classified in the design and construction techniques. Together with his

hired consultants the client makes a bidding document that includes the building brief and client requests and calls for various contractors to tender, taking into consideration that technique of procurement. Taking into account the submission of bidding papers, contractors appointed create their own design, construction and cost schemes. Contractors are most frequently engaged through a lump sum and a set term (Ashworth, 2001; Edmond, 2003).

#### **2.5.2.3 Management Oriented Procurement Systems**

The management-oriented procurement technology gives higher weight to the management and mixture of the design and construction of construction systems. In view of this method, drawing management and building is officially granted to the contractor who acts as an administrative advisor on behalf of the client. Many "experts" who agree with the administrative contractor or the client are given the building. This buying method was promulgated because a builder has enormous experience and expertise in the management of a building project design and construction. The selected builder does not design the building system as administrative advisor.

Turner (1990) included the primary derivatives of an administrative technique of buying:

1. cost certainty is not arrived till the last services set is given away
2. up-to-date and pre-emptive customer is needed
3. deprived cost certainty
4. close time and data regulations is needed

5. customer is required to offer an enhanced valuable brief to the design group as the design could lag behind finishing till the needed funds are dedicated to the construction scheme; and
6. Customers mislay undeviating regulation of design value that is affected thru the builders.

## **2.6 FACTORS INFLUENCING PROCUREMENT SYSTEMS**

Procurement agencies implement a cooperative approach in a partnership, regardless of the type of procurement scheme adopted prior to embarking on any work procurement. Often procurement companies with a sequence of finished or on-going lined-up projects have used such an approach. The adequate monitoring of contractors and consultations can be carried out on the basis of already specified indices for each project of job, and a full comparison can be carried out with them, according to Morledge et al. (2006). After all the main policies for the project have been identified for the majority of appropriate strategic procurement, the following factors can be regarded; Rowlinson 1999, Morledge et al. 2006):

- Time
- Variation
- Complexity
- Quality Level
- Price Certainty
- Competition
- Responsibility
- Risk Avoidance

- Price Completion

## **2.7 IMPACT OR EFFECTS**

Deh (2017) outlined the impacts of procurement procedures on project cost performance to include the reduction of project cost, provision of cheaper service, maximization of savings on cost, minimization of cost overruns, financial stability, accountability, enhancement of transparency, price certainty, guarantees maximum price, and price competition.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 INTRODUCTION**

The research methodology used for this study is discussed in this Chapter. The chapter deals with information collection tools, techniques, sample sizes and techniques. It explained in detail each of the techniques used and how the techniques used were used to achieve the purposes and goals. It examined the methods taken to address the key procurement problems at the Ghana Ministry of Energy.

#### **3.2 RESEARCH STRATEGY**

The study plan (1998) addresses the question of how the study goals are discussed according to Naoum. Quantitative, qualitative and triangulation are three key strategies. Each approach is determined by the purpose of the research, the type and the accessibility of data for the research (Naoum and Coles, 1997). In the case of the research design, the framework for the data collection and analysis, in a logical sequence, dealt with the original study research question (Bryman, 2004: 1992); the structure which guides the implementation of the methods for the collection and analysis of data, which links empirical data to their findings; Including experimental, survey, intervention and case studies (Baiden, 2006). However, the research method covers tools, techniques and processes for information collection. It explains in detail each of the techniques employed, and how the approaches employed address the goals, aims and issues of studies. The study was preceded by a thorough literature review and interviews with a quantitative survey questionnaire approach. The choice to adopt questionnaire as the research instrument for this study was for the following reasons:

1. it is convenient for the researcher and the respondent due to their tight schedules
2. it is believed that the challenges cut across the institutions
3. To have a respondent answering a uniform question. It also enhances the reliability of observations and improves replication because of the inherent standardized measurement and sampling procedures (Oppenheim, 2003).

### **3.3 DATA COLLECTION AND INSTRUMENTATION**

#### **3.3.1 Data Sources**

The information collection strategy includes desk surveys and field surveys. The study (literary review), as it paves the way for the growth of field survey tools by using questionnaires and interviews (Fadhley 1991), is an important element of the studies. The field study covers empirical information collection. Questionnaires are the method used for the collection of information for this study. The thorough analysis of the literature and positioning of the research within its theoretical framework helped to obtain the appropriate data from the participants. The use of questionnaires helped.

#### **3.3.2 Questionnaire Design**

Oppenheim (1996) noted the importance of first establishing the data to be collected in advance of the creation of the questionnaires so as to ask for appropriate issues. The surveys were intended to provide detailed questions and scaled-out answers. The Likert answer scale was used to evaluate the power or intensity of the interviewee's perspective in some closed questionnaire. There has been an effort to maintain questions in a straightforward language without technical conditions to minimize the respondents' potential difficulties. Furthermore, the amount of questions in each set was limited to

convince answering questions. Determinations of the respondents ' stance to complete questionnaires and ease of reading guided the format of the questionnaires.

### **3.3.3 Content of the Questionnaires**

Quality of the responses and response rate is conventionally affected by the nature of questions and the way in which questions are structured, articulated and presented. Wahab, (1996) observed that anchored on this premise, it was important to ensure that the right questions are asked, well understood and asked in the right way. On the whole, questionnaire is to be divided into five sections. The first section will seek to solicit information to explore the background of the respondents. The other four sections sought to ask questions directed at providing answers to each of the four research questions:

SECTION B: Project procurement management practices

SECTION C: Factors that influence the choice of management procurement system

SECTION D: Comparison of project management practices at the ministry with Key  
Performance Indexes (KPI)

SECTION E: Effects of procurement management system on the outcome of the  
Rural electrification/SHEP project

### **3.4 SAMPLING TECHNIQUE AND SAMPLE SIZE**

Sampling is the process of selecting the people with whom to conduct the research. The sampling criteria will be based on the research problem, purpose, design and practical implications of the research topic. Hence using convenience and purposive sampling the sample will be obtained from a population of finance officers, procurement officers, etc. involved in the financing and provision of infrastructure projects. In convenience sampling participants are included in the study because they happen to be at the right

place and at the right time. Purposive sampling refers to the judgmental sampling that involves the conscious selection by the researcher of certain participants to include in the study. This approach according to Israel (1992), cited in Owusu and Badu (2009), eliminates sampling errors and provides data on all individuals in the population. Table 3.1 shows a summary of questionnaire distribution and retrieval. From Table 3.1, seventy-eight (78) questionnaires were distributed and sixty-three (63) were retrieved.

**Table 3.1 Questionnaire distribution**

<b>PROFESSIONALS</b>	<b>NUMBER ADMINISTERED</b>	<b>NUMBER RETURNED</b>	<b>% RETURNED</b>
Procurement officers	25	22	88.0
Project manager	17	12	70.6
Consultants	14	13	92.9
Quantity Surveyors	22	16	72.7
<b>TOTAL</b>	<b>78</b>	<b>63</b>	

Source: Field survey, (2019).

### **3.6 DATA ANALYTICAL TOOL**

The selection of the analytical tool is contingent on a thorough review of available analytical and statistical gears. In deciding which test is appropriate to use, it is important to consider the type of variables that one has (i.e., whether your variables are categorical, ordinal or interval and whether they are normally distributed). Consequently, descriptive statistics was adopted in analyzing the data; the kinds of data derived from the survey are likely to be mostly nominal and ordinal data.

### **3.7 CHAPTER SUMMARY**

This chapter has discussed research methods and given reasons for the options selected to achieve the research aims and objectives. The chapter also describes the research design and methodology. The research adopted statistical descriptive of SPSS technology to do the analysis. Purposive and convenience sampling will be adopted for the research work. Finally, very important key personalities targeted for the research work will be sought to fill the questionnaire. The chapter concluded with the research process and covered issues such as scope of questionnaire survey, data sources, sampling and sample size determination, questionnaire development, content of the questionnaires, questionnaires distribution, and data analytical tools.

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSION**

#### **4.1 INTRODUCTION**

This chapter focused on organization, structuring and characteristics of the data collected from the field as well as the analysis and interpretations drawn from it to address the key research objectives and questions captioned in chapter one. The results obtained are discussed in the light of existing literature which was reviewed.

#### **4.2 NATURE OF SURVEY AND RESPONSE OF RESPONDENTS**

In reference to Chapter three, a population of procurement professionals to be identified through ‘convenience and purposive sampling’, the data collection involving the administration of the questionnaires started from July, 2019 and ended on August, 2019. In all a total of 78 respondents were reached across the country. A total of 63 questionnaires were received out of the 78 respondents constituting a response rate of 80.8%. According to Mugenda and Mugenda (2003), the return rate of 50% is considered sufficient, 60% is good, 70% and above very good, this shows the response rate is very high.

#### **4.3 PROFILE OF RESPONDENTS**

##### **4.3.1 Type of firm**

For the purpose of this analysis; Procurement Officers, Project managers, Consultants and Quantity Surveyors made up the total respondents for this study. Respondents under the general information in the questionnaire were classified as whether they work with architectural firms, engineering firms, construction firms or consultancy firms.

Tables 4.1 and 4.2 below show the firms respondents belong to and their positions. Table 4.1 shows the respondents firms while Table 4.2 relates to the number of respondents per the firms contacted; out of 63 valid returned respondents, 22 Procurement professionals representing 80% responses were attained, 17 Project managers representing 70.6% responses received, 14 representing 92.9% for Consultants responsive output while 22 answered questions by Quantity surveyors representing 72.2% of returned questionnaire.

**Table 4.1: Number of Questionnaires Issued, Returned and Percentage Returned**

<b>VARIABLES (FIRMS)</b>	<b>FREQUENCY</b>	<b>PERCENTAGE (%)</b>
<b>ARCHITECTURAL</b>	<b>3</b>	<b>4.8</b>
<b>ENGINEERING</b>	<b>20</b>	<b>31.7</b>
<b>CONSTRUCTION</b>	<b>32</b>	<b>50.8</b>
<b>CONSULTANCY</b>	<b>8</b>	<b>12.7</b>
<b>TOTAL</b>	<b>63</b>	<b>100.0</b>

Source: Researcher's Fieldwork data, (2019).

**Table 4.2: Number of Questionnaires Issued, Returned and Percentage Returned**

<b>PROFESSIONALS</b>	<b>NUMBER ADMINISTERED</b>	<b>NUMBER RETURNED</b>	<b>% RETURNED</b>
Procurement officers	25	22	88.0
Project manager	17	12	70.6
Consultants	14	13	92.9
Quantity Surveyors	22	16	72.7
<b>TOTAL</b>	<b>78</b>	<b>63</b>	

Source: Researcher's Fieldwork data, (2019).

A total of 78 questionnaires were distributed to various individual who are actively and directly linked to the construction industry in terms of procurement. The valid questionnaires received for this analysis were 63 from various professionals contacted. That gives a response percentage of 80.77%.

These professionals were chosen because they currently the forefront procurement professionals easily identified to be directly involved in procurement in the construction industry in Ghana. Another key function of these professionals is project supervision and also, they possess the skills to take part in the procurement activities in the construction industry.

#### **4.3.2 Qualifications and experience of respondents**

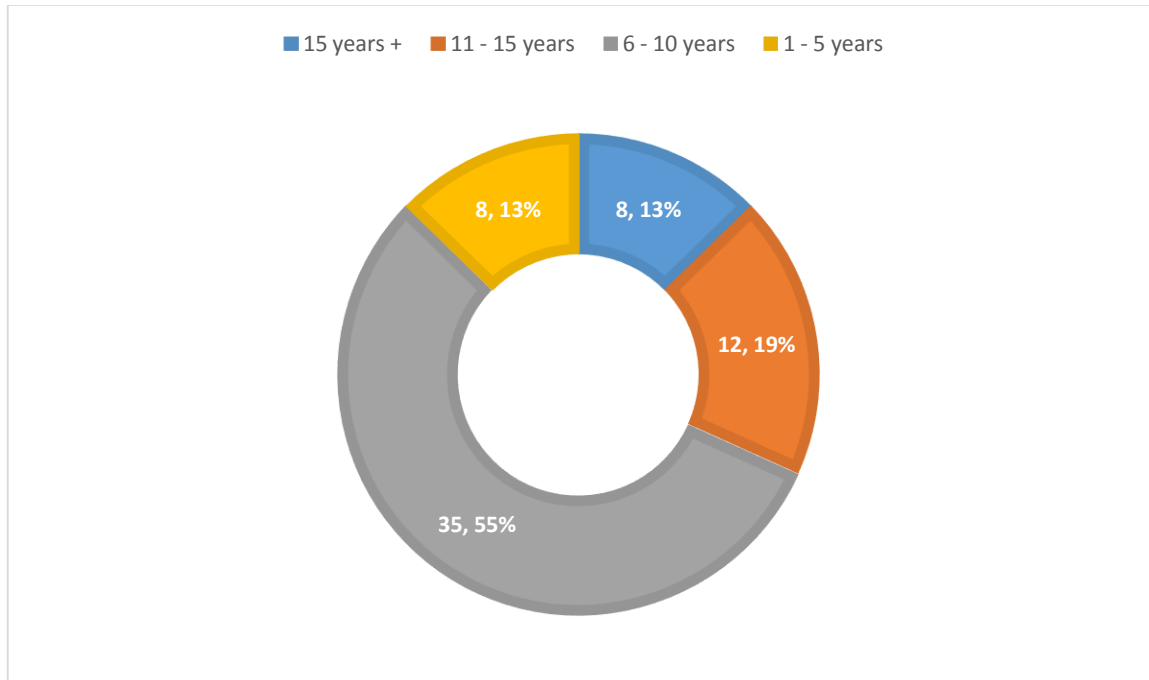
Table 4.3 shows that 12.7% of the respondents had master's degree, 44.4% had first degrees, 30.2% had HND and 12.7% had technician certifications from recognized universities, polytechnics and other accredited tertiary institution. This level of literacy

enhanced the research, especially during the data collection because most of the respondents understood the issues related to electronic procurement. In fig 4.1 below shows the relationship that exist between the respondents and the number of years they practiced procurement. This showed that the respondents were experienced individuals and were adequate to help achieve the set-out objectives.

**Table 4.3 Respondents Qualification**

<b>QUALIFICATION</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
MSc	8	12.7
BSc	28	44.4
HND	19	30.2
Technician	8	12.7
Total	63	100

Source: Researcher's Fieldwork data, (2019).



**Figure 4.1: Experience of Respondents in relation to Procurement**

Source: Researcher's Fieldwork data, (2019).

#### **4.4 PROJECT PROCUREMENT MANAGEMENT PRACTICES**

There are different kinds of procurement procedures used for different kinds of projects. Every project is unique in terms of scope and specification. This section of the questionnaire therefore required the respondents to indicate on a five-point Likert scale the most used types of procurement management practices under the public procurement law that are used under the Self-Help Electrification Project (SHEP). The data was first weighted from the Relative Importance Index of each variable by dividing the total weight ( $\Sigma W$ ), by the total number of respondents multiplied by the number of Likert scale points. The researcher was then able to determine the most used procurement practices through this.

From the response displayed in Table 4.4, Open procedure also known as the competitive procurement practice is the most commonly used procurement management practiced under the SHEP scoring an evident sky-high RII of 0.922. This is followed by the two-stage procedure which involves the submission of financial and technical proposals by tenderers with an evident RII of 0.797. The third ranked procurement practice with an RII of 0.591 is the restricted procedure in which ability to tender is limited to a selected list of entities. The fourth ranked practice is the single source procedure which involves just one bidder with an RII of 0.585. The responses the procedure which involves the partnership between private and public firms as the fifth most used procurement practice with an RII of 0.558. Other procurement management practices indicated by respondents according to their frequency of used include request for proposals (RII=0.537), request for quotations (RII=0.481), Design and build procurement approach (RII=0.472) and the lastly the Negotiated procurement procedure was seen least used procurement management practice used in the SHEP.

**Table 4.4: Project procurement management practices**

<b>PROJECT PROCUREMENT MANAGEMENT PRACTICES</b>	<b>ΣW</b>	<b>RII</b>	<b>Rank</b>
Open Procedure	309	0.922	1st
Two-Stage Procedure	267	0.797	2rd
Restricted Procedure	198	0.591	3rd
Single Source Procedure	196	0.585	4th
Public Private Partnership (PPP)	187	0.558	5th
Request for proposals	180	0.537	6th
Request for Quotations (RFQ)	161	0.481	7th
Design and Build procurement approach	158	0.472	8th
Negotiated procurement procedure	133	0.397	9th

Source: Researcher's Fieldwork data, (2019).

#### 4.5 FACTORS THAT INFLUENCES THE CHOICE OF MANAGEMENT PROCUREMENT SYSTEM ADOPTED BY THE MINISTRY OF ENERGY FOR RURAL ELECTRIFICATION/SHEP PROJECT

**Table 4.5: Factors that influences the choice of procurement management systems**

<b>Factors that influence the choice of procurement management system adopted</b>	<b>ΣW</b>	<b>RII</b>	<b>Rank</b>
Size and technical complexity of the project.	301	0.899	1st
Quality Level	300	0.896	2nd
Time	294	0.878	3rd
Cost	248	0.740	4th
Variation	230	0.687	5th
Government policies	228	0.681	6th
Risk allocation/reduction	224	0.669	7th
Security consideration	220	0.657	8th
Emerging technology	219	0.654	9th
Complexity	207	0.618	10th
Price Certainty	180	0.537	11th
Familiarity of procurement System	166	0.496	12th
Responsibility	153	0.457	13th
Political consideration.	150	0.448	14th
Funding arrangements	147	0.439	15th
Corruption/self-enrichment.	136	0.406	16th

Source: Researcher's Fieldwork data, (2019).

Every project has certain general and unique features that determine the kind of management practice required to procure such a project for execution. Therefore,

respondents were asked to indicate what influenced the choice of the procurement management systems used under the Self-Help Electrification Project. From table 4.5 above, responses indicate that the most influential factor to procurement management choices is the size and technical complexity of a project with a relative importance index of 0.899. It is closely followed by quality level ranked second with an RII of 0.896. Given the responses, time factor was ranked third scoring an RII of 0.878. This is followed by Cost factor, ranked fourth with an RII of 0.740. Variation in projects was ranked fifth with an RII of 0.687, followed by Government Policies with an RII of 0.681. Other factors known to affect procurement management choices in order of the frequency of usage and rank in the table include Risk allocation and reduction (RII=0.669), Security consideration (RII=0.657), Emerging technology (RII=0.654), Complexity (RII=0.618), Price Certainty (RII=0.537), Familiarity of procurement System (RII=0.496), Responsibility (RII=0.457), Political consideration (RII=0.448), Funding arrangements (RII=0.439). Nonetheless, Corruption and self-enrichment was indicated to be the least influential factor on procurement management choice under the Self-Help Electrification Project.

#### **4.6 EFFECTS OF PROCUREMENT MANAGEMENT SYSTEM ON THE OUTCOME OF THE RURAL ELECTRIFICATION/SHEP PROJECT**

The kind of procurement management system used to procure a project come with its own effects. In this section, respondents were asked to indicate the degree of impact of the kind of effects the procurement management systems have on the outcome of the Self-Help Electrification Project.

Judgments from respondents, from the analysis of the questionnaire results shows that most procurement management practices used on the SHEP program promote competition in project prices. This shows most procurement management practices used under the SHEP involve more than one bidder competing for the reward of the project contract. This is supported with an evident RII value of 0.896. This is followed by transparency enhancement and ensuring of accountability ranked second and third with RIIs of 0.821 and 0.776 respectively. This shows that transparency and accountability of proceedings is key in the procurement of works under the SHEP. The next dominant effect is reduction in project cost ranked fourth with an RII of 0.693. This is an indication that getting the project executed with high quality but at the lowest cost possible is taken into consideration in the selection of procurement management practices under the SHEP. Other effects ranked from the analysis include Price certainty (RII=0.684), Ensures financial stability (RII=0.543), Minimizes cost overruns (RII=0.537), Maximize cost savings (RII=0.525), Guarantees maximum (RII=0.442) price and Cheaper service provision was the least ranked effect.

**Table 4.6: Effects of procurement management system on the outcome of the SHEP project**

<b>EFFECTS OF PROCUREMENT MANAGEMENT SYSTEM</b>	<b>Σ W</b>	<b>RII</b>	<b>Rank</b>
Ensures price competition	300	0.896	1st
Enhances transparency	275	0.821	2nd
Ensures accountability	260	0.776	3rd
Reduces project cost	232	0.693	4th
Price certainty	229	0.684	5th
Ensures financial stability	182	0.543	6th
Minimizes cost overruns	180	0.537	7th
Maximize cost savings	176	0.525	8th
Guarantees maximum price	148	0.442	9th
Cheaper service provision	133	0.397	10th

Source: Researcher's Fieldwork data, (2019).

#### **4.7 CHAPTER SUMMARY**

The evaluation and discussion of the outcomes from the field investigation were focused on this section. It started with a short debate of the questionnaires for the study and descriptive outcomes from the field. The section concluded with the comparative value index ranking of the results of the self-help electrification project impacts of procurement management practices.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

This section ends with a summary of the questions, targets and courses discussed during the entire research. The exhibition will discuss the fulfillment of important study goals. The primary results of the study are then followed. The chapter is then concluded by suggestions that the results be adopted, its practice and a proposal for future studies be established.

#### **5.2 REVIEW AND CONCLUSION OBJECTIVES**

The main objective of this research, as noted earlier, was to assess project procurement management practices at the Ministry of Energy: a case study of rural electrification under the Self-Help Electrification Project in Ghana. Subsequently a number of research objectives were developed to collectively enhance and satisfy this main objective. At this section, the research objectives are revisited to highlight the extent to which they were accomplished through the various phases of the research.

##### **5.2.1 Rural electrification project procurement practices**

From the analysis of the questionnaire results, the top three most used project procurement management practices under the SHEP are the open or competitive procedure, the two staged procurement procedure and the restricted competitive method. The common feature among these practices is that they promote competition, i.e. they allow able bidders to tender for the reward of the project contract. This way they can assess them better and choose the perfect one for the project. Furthermore, sole sourcing

was indicated as another used procurement practice under the SHEP which involves rewarding of projects to just an entity without going through the bidding process. This happens when the entity possesses a monopolistic character needed for the execution of the project. It was also stated that the government sometimes partners with private entities to execute certain projects.

### **5.2.2 Factors that influences the choice of procurement management system**

The study revealed the factors that influence the adoption of certain procurement systems under the SHEP program. Some of the top influential factors recognized from the questionnaire results analysis include the size and complexity of the project, the quality specification of the project, the time requirement, the cost range, the variation features of a project from others and the allocation, distribution and reduction of risk. However, corruption and self-enrichment, though some people will disagree was the least influential factor on the choice of procurement management systems adopted under the SHEP.

### **5.2.3 Effects of procurement management system on the outcome of SHEP**

The last objective was to look at the degree of effects the procurement practices used under the SHEP have on it. Analysis of the responses revealed the following impacts in descending relative importance index values; ensuring price completion, enhancing transparency, ensuring accountability, reducing project cost, price certainty, ensuring financial stability, minimizing cost over runs, maximizing cost savings and cheaper service provision.

### **5.3 CONCLUSION**

From the above analysis and discussions, it can be concluded that the most used procurement management practice under the Self-Help Electrification Project (SHEP) is the open procedure technically also known as the competitive tendering method. It can also be concluded that the scope and specifications of projects under the SHEP are the most influential factors that influence the adoption of procurement practices under the SHEP. Lastly the most recognized effects of the use of procurement practices on the SHEP are that they promote competition, ensure accountability and enhance transparency.

### **5.4 RECOMMENDATIONS**

In light of the discussions, findings and the conclusions, the following recommendations were hereby outlined:

- There must be quarterly auditing, monitoring and evaluation of procurement management process within the SHEP regularly to prevent corruption, promote good governance and lessons learnt for procurement process improvement.
- Capacity training should be given to both junior and senior procurement staff members to be abreast with the Public Procurement Act, Act 663, (2003) and other relevant knowledge and skills towards monitoring and evaluation of the SHEP procurement process.
- Finally, due to time constraint, it is recommended if a research is done into the procurement practices of the Rural Electrification Project using this work as a basis.

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## **APPENDIX 1**

### **KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI**

#### **QUESTIONNAIRE**

My name is Michael Agbeze, an Msc. Project Management student from Kwame Nkrumah University of science and Technology, Kumasi. This research questionnaire has been designed to solicit your views and information regarding the topic:

#### **ASSESSING PROJECT PROCUREMENT MANAGEMENT PRACTICES AT THE MINISTRY OF ENERGY: A CASE STUDY OF RURAL ELECTRIFICATION/SHEP IN GHANA.**

It is strictly for academic purposes and all information provided will be kept confidential. Your anonymity is highly ensured.

In case you have any questions or contributions kindly contact me on 0245543018 or email: *mkagbeze@gmail.com*.

#### **SECTION A: PERSONAL DATA**

1. Age Group:

☐ 18-30years   ☐ 31-40years   ☐ 41-50years   ☐ 51-60years

2. Level of education:

☐ Msc   ☐ BSc   ☐ HND   ☐ CTC I/II   ☐ Others specify

.....

3. Indicate your area of specialization .....

4. How long have you been with the Ministry of Energy?

0- 5 years [     ]     6- 10years [     ]     11-15years [     ]     15 years plus [     ]

6. Tick to indicate your position with the directorate.

Director [   ]   General Manager [   ]   Manager [   ]   Senior Staff Supervisor [   ]   Others  
specify.....

7. How many years have you been in the above position?

0-5 years [     ]     6-10 years [     ]     11-15 years [     ]     15-20 years [     ]

## **SECTION B: PROJECT PROCUREMENT MANAGEMENT PRACTICES**

Which of the following project procurement procedure was adopted in the procurement for the rural electrification/SHEP in Ghana?

<b>Project procurement management practices</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Open Procedure					
Restricted Procedure					
Two-Stage Procedure					
Single Source Procedure					
Request for Quotations (RFQ)					
Negotiated procurement procedure					
Design and Build procurement approach					

Public Private Partnership (PPP)					
Request for proposals					
<i>Others (please specify and rate them)</i>					

### SECTION C: FACTORS THAT INFLUENCES THE CHOICE OF MANAGEMENT PROCUREMENT SYSTEM ADOPTED BY THE MINISTRY OF ENERGY FOR RURAL ELECTRIFICATION/SHEP PROJECT

Below are some general influences on a particular procurement system selection. Kindly express your opinion on (**what choice of factor influences**) a particular procurement system selection by ticking the appropriate cell?

**1 – Strongly Disagree; 2 –Disagree; 3 – Not Sure 4 – Agree; 5 –Strongly Agree**

Factors that influences the choice of management procurement system adopted by the Ministry of Energy for rural electrification/SHEP project	1	2	3	4	5
Time					
Variation					
Complexity					
Quality Level					
Price Certainty					
Responsibility					
Cost					
Security consideration					
Political consideration.					
Corruption/self-enrichment.					

Size and technical complexity of the project.					
Funding arrangements					
Familiarity of procurement System					
Government policies					
Risk allocation/reduction					
Emerging technology					
<i>Others (please specify and rate them)</i>					

#### **SECTION D: IMPACTS OF PROCUREMENT PROCEDURES ON PROJECT PERFORMANCE**

Below are the impacts of procurement procedures on project performance. Kindly express your opinion on the level of impact on project performance.

**Use the scale: 1 = Very Low 2 = Low 3 = Moderate 4 = High 5 = Very High**

<b>effects of procurement management system on the outcome of the rural electrification/SHEP project</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Reduces project cost				
Cheaper service provision				
Maximize cost savings				
Minimizes cost overruns				
Ensures financial stability				
Ensures accountability				
Enhances transparency				

Price certainty				
Guarantees maximum price				
Ensures price competition				
<i>Others (please specify and rate them)</i>				