

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF ARCHITECTURE AND PLANNING

DEPARTMENT OF BUILDING TECHNOLOGY

**PROCUREMENT OF ESSENTIAL WATER TREATMENT CHEMICALS AT THE  
GHANA WATER COMPANY LIMITED**

BY

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## DECLARATION

I hereby declare that this submission is my own work towards the award of an MSc and that to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of this University or other, except where due acknowledgement has been made in the text.

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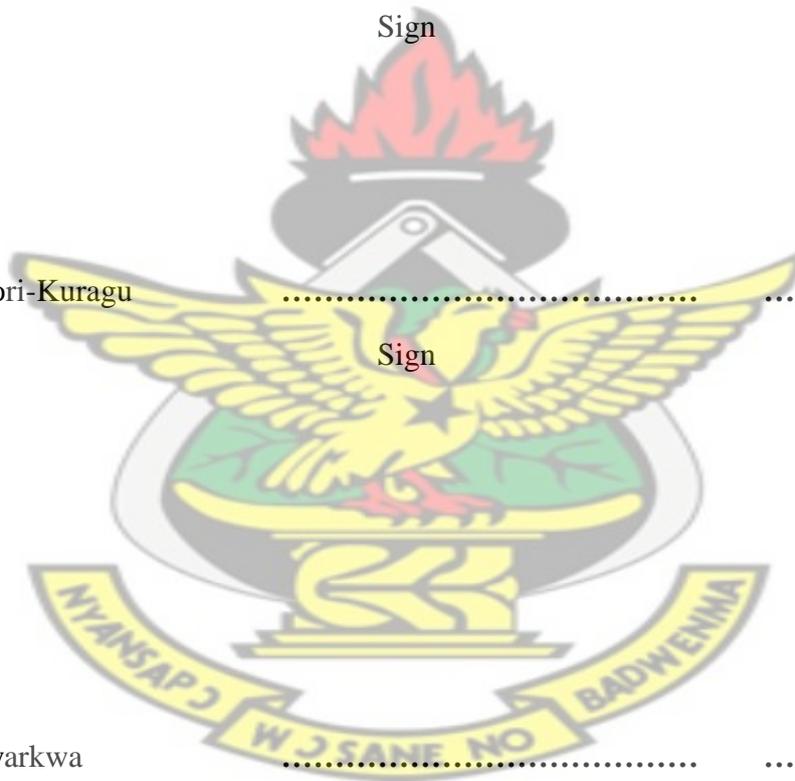
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Date



## DEDICATION

This work is dedicated to the Almighty God for his grace, mercy, favour and protection upon me throughout my study. To my parents Mr. and Mrs. Tiswen N. Synyenlentu, and guardians Mr. John F. Carpenter, Mr. Lawrence Jurry, Mr. Nathan Hun-bu Tulay, Mr. Gabriel Flaboe, Mr. Charles Allen, Mr. Clarence Momoh, Mr. Chris Sherman, Mr. Emmett Watson , Florence Dennis and Margret Kilo for the supportive role they played.

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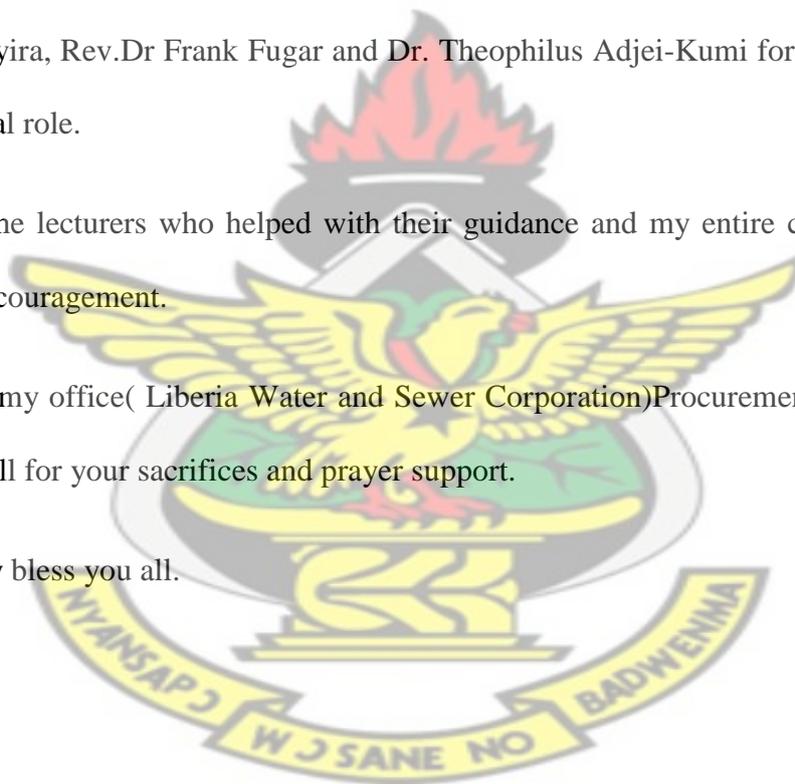
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To my family, my office( Liberia Water and Sewer Corporation)Procurement Department, I say thank you all for your sacrifices and prayer support.

May God richly bless you all.



## ABSTRACT

Effective procurement practices contribute to good Governance by increasing confidence in the fact that public funds are spent in the right direction to reduce wasteful activities. However, achieving such procurement requires empirical evidence to inform stakeholder's action. This study aimed to examine the procurement of essential water treatment chemicals at Ghana Water Company Limited.

A case study involving administration of questionnaires was conducted among workers of GWCL in Accra. The study used a purposive sampling to select 85 workers within the Procurements division. Data analysis involved descriptive statistics using SPSS software. Findings revealed that, procurement of water treatment chemicals adhere to various principles and procurement phases such that contracts were awarded on competitive bases. Findings showed administrative challenges such as delay in the approval process in procurement, shipping delays and congestion at the port, bureaucratic delays in testing. Results suggest that procurement management using the Public Procurement Act has a significant effect on the procurement of essential water chemicals.

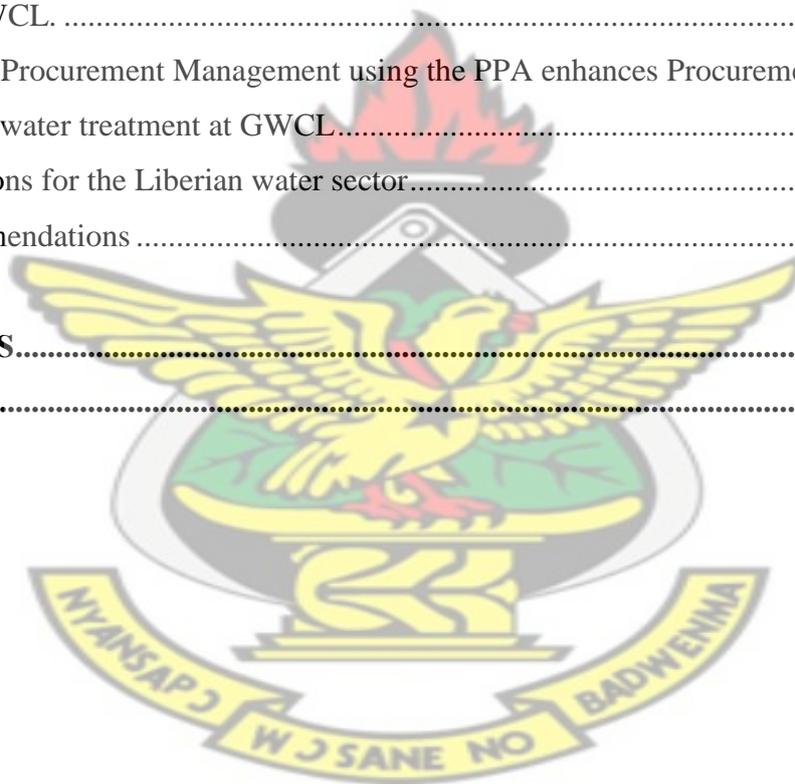
The study concludes that strengthening current practices will further improve procurement of chemicals for water treatment. Research on procurement within the context of GWCL still has inadequate comprehensive information and encourages future research to focus much on the subject.

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## ABBREVIATIONS

CPI	Corruption Performance Index
CTB	Central Tender Committee
EPA	Environmental Protection Agency
GSA	Ghana Standard Authority
GSC	Ghana Supply Company
GWCL	Ghana Water Company Limited
GWSC	Ghana Water and Sewage Corporation
ICT	International Competitive Tendering
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
NTGL	National Transitional Government of Liberia
OECD	Economic Co-operation and Development
PI	Principal Investigator
PPA	Public Procurement Authorities
PPB	Public Procurement Board
PPCA	Public Procurement and Concessions Act
PPCC	Public Procurement and Concessions Commission
PUFMARP	Public Financial Management Reform Program
PURC	Public Utilities Regulatory Commission
UN	United Nations
UNODC1	United Nations Office on Drugs and Crimes
WB	World Bank
WHO	World Health Organization
WRC	Water Resources Commission
WSRP	Water Restructuring Project
WTO	World Trade Organisation

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the Study

Procurement problems in Ghana are similarly related to situations in many African, Asian and developing countries (Rwelamila *et al.*, 1999). A number of such countries generally had weak procurement system which affected efficiency in services delivery (Kumaraswamy, 1994, Anvuur *et al.*, 2006). Public procurement directly or indirectly affects most sectors of the economy since all sectors require goods and services that need to be obtained through procurement processes. A weak procurement system therefore affects the entire public sector especially when public procurement accounts for a large portion of economic activities (Ohashi, 2009). Ghana Water Company is no exemption to this sector for the reason that all goods bought must pass through laid down procurement processes.

The last two decades have seen the evolution of public procurement conceptually and organizationally at all levels of governments (Thai, 2009, Wollmann, 2003). Procurement is now recognized by organizations as an essential tool for achieving long term management of finances within a country (Dza *et al.*, 2013). There are differences in the reasons for which countries embark on reforms of procurement systems. Public procurements accounts for approximately 15% of GDP in countries that belong to the Economic Co-operation and Development (OECD) and 25% to 30% of GDP in developing countries (Roos, 2012). Therefore, procurements accounts for 40% to GDP in Malawi and 70% in Uganda (Agaba and Shipman, 2007).

It is mostly used by countries as an important feature of anti-corruption efforts to promote good governance, help integrate countries into multilateral trading systems and to check

internal administration (Thai, 2008). Procurement in most developed countries is recognized by international regulations such as the World Trade Organization (WTO) and at the regional level like the European Union (Agaba and Shipman, 2007, Abeillé, 2003, Dendauw, 2000). In view of this, Most multinational donor agencies require that a more functional procurement system is an essential requirement to obtain funds to promote development by organizations in developing countries (Dza *et al.*, 2013). Achieving efficient and effective procurement system is also a significant step towards attainment of the millennium development goals to ensure sustainable development (Roos, 2012). Therefore, most governments in Africa like Ghana, Kenya, Liberia and Uganda have embarked on reforms in public procurements regulations and practices (Hunja, 2003) which span public procurement methods, process and organizational structure (Ameyaw *et al.*, 2011). Example of such reforms is the Ghana Public Procurement law (Act 663) which was enacted in 2003 to maintain standards in modern procurement to bring about more transparency to local procurement system and ensure economic and efficient use of state resources (Osei-Tutu *et al.*, 2010).

Despite the above, some studies suggest that, some challenges affect the functioning of the Public Procurement Act, 2003 (Act 663) which has a significant effect on institutions (Ameyaw *et al.*, 2011). Top of these striking challenges are low interaction between procurement entities and public procurement authorities (PPA), non-compliance with provisions of the law, splitting of contracts into smaller lots and low capacity of procurements professionals (Ameyaw *et al.*, 2011, Anvuur *et al.*, 2006). In a study of causes of delay and cost overruns in construction of ground water projects in Ghana, Frimpong *et al.* (2003) found that, there are established bureaucratic structures in the process of material procurement which hinder the easy flow of construction materials. Understandably,

processing of orders especially in public sector like Ghana Water Company can take a week to several months.

It is however acknowledged that, because of the study of procurement reform and function did not emerge in research and academic institutions until recent years, there is little contemporary evidence research on the study. The few within the Ghanaian context however focuses much on other public institutions such as municipal assemblies and financial institutions. This research therefore studies the effect of procurements on Ghana Water Company.

## **1.2 Problem statement**

In the Sub- Saharan region, the International Finance Corporation (IFC) and the World Bank survey enterprise has found that an average 33 per cent of companies are being expected to give gifts before the award of a contract. However, in Liberia, this rate is higher as more than 51 per cent of companies reported being expected to give gifts to secure a government contract. Therefore, 70 per cent of firms experienced at least one bribe payment request (World Bank, 2009). Efforts to reform Public procurement are thus critical to Liberia (Hany, 2009). This is because as an emerging economy of transition from war to recovery, public procurement policies, practices, and procedures lost its grounds such that skills of procurement practitioners and the structures of institutions were destroyed. Public officials were not held accountable for the use of public funds, and procurement and concessions records were not properly kept (Kukutschka and Martínez, 2013).

Developments in Ghana's public sector procurement present useful lessons for Liberia. The procurement law was passed by the Parliament of Ghana in 2003. The Procurement Act of Ghana, Act 663 (2003), was enacted to bring sanity and conformity to public procurement by instituting bodies and principles that harmonize the public procurement process and activities.

The Act introduced several relevant modern procurement principles that are expected to correct the rot and anomalies that were widely associated with public procurement. According to Global Advice Network (2014), the Act makes provision for a comprehensive framework for developing and strengthening procurement departments in institutions in order to enhance good governance, poverty reduction and anti-corruption checks. Also, the passage of the Act satisfies standards set by the World Trade Organization (WTO) in ensuring competition, efficiency and transparency in procurement processes.

After more than 10 years of Ghana's Procurement Act, its effect on public procurement is not clear. There is therefore the need to study the effect of the Act on the procurement of essential water chemicals at the Ghana Water Company. This will provide the basis to ascertain the extent to which the PPA Act has helped to improve the procurement processes in the company and adapt lessons for the Liberian water sector.

### **1.3 Research Questions**

The study aims at providing answers to the following questions;

1. To what extent the procurement of essential water treatment chemicals at GWCL conform to the Procurement Act?
2. What are the challenges associated with the procurement of essential water treatment chemicals at GWCL?

### **1.4 Overall Aim**

The general objective of this study is to assess the impact of the Public Procurement Act on the procurement of essential water treatment chemicals at the Ghana Water Company Ltd and make recommendation to the Liberian Water sector.

### 1.4.1 Specific Objectives

The specific objectives include;

1. To determine the extent to which procurement of essential water treatment chemicals at GWCL conforms to the Procurement Act.
2. To identify the challenges associated with the Procurement of essential water chemicals at GWCL.
3. To determine how using the Procurement Act for enhance procurement of chemicals for water treatment at GWCL.
4. To identify lessons from GWLC's experiences that could be adopted for the Liberian Water sector.

### 1.5 Significance of the study

Research has shown that Inappropriate spending of public funds breaks the spine of every economy when it becomes pervasive (Public Procurement Authority (PPA), 2013). Therefore, there is the need to put in place measures to check processes involved in public procurement. However, studies have not focused on the operations of Ghana Water Company Limited and the extent of fulfilling obligations in accordance with Procurement Act 663. Therefore, the study will fill the research gap in this regard.

The study is also important for the following reasons;

1. Improve our understanding of the essence of passing the Public Procurement Act and the need for it to be adopted in every country.
2. Will act as a reference for students, academicians, institutions and individuals who want to know more about Ghana's Procurement Act and Liberia Procurement.

3. Serves as a guide to policy makers and other stakeholders involved in promoting transparency and accountability in the public sector.
4. Will serve as a reference point for policy makers, governments and international organizations that need information on the practices involved in procurement processes in Ghana Water Company.

### **1.6 Organization of the study**

This study is organized into five chapters. Chapter one of this study deals with introduction, which will include background information, problem statement, research questions and objectives of the study as well as significance of the study.

Chapter two discusses relevant literature and present a comprehensive review of previous studies conducted on public procurement with focus on the procurement Act, 663 of Ghana. Chapter three presented the research methodology (the study design, sampling, sources of data collection, population, etc.).

In chapter four, the findings from study and discussions of the findings were presented. Lastly, chapter five presents the conclusions of the study and recommendations to improve upon the procurement act and processes of Ghana.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter reviews available literature on the effect of procurement reform in Ghana and around the world particularly Ghana Water Company (GWCL). Therefore, literature from building technology, project management, social sciences and other related domain has been the primary focus of this chapter. The review will particularly focus on such reforms in other Africa countries. It is structured per the variables developed from the objectives of the study.

The write-up sections are as follows;

- 2.1. Profile of procurement at Ghana Water Company
- 2.2 Historical Development of Procurement
- 2.3 Public financial reform programme in Ghana
- 2.4 The Procurement Act of Ghana
  - 2.4.1 Principles of Procurement
- 2.5 Challenges with Procurement reforms in Ghana and other African countries
- 2.7 Procurement in Liberian Water Company

#### 2.2 Profile of Procurement Ghana Water Company

History of water supply in Ghana is dated back to the 1920s when the water supply system was established in the then Gold Coast in Accra. With this, water expansion works was conducted in other parts of the country especially the colonial capital of Cape Coast, Winneba and Kumasi. The water supply system was then managed by the Hydraulic Division of Public Works Department (Nyame, 2011, Ghana Water Company (GWCL), 2012, Amoah and Yahaya, 2013)

Water division in the early years was much concentrated in the urban centers. In 1948, the colonial government realized the need to expand water supply to rural areas (McCaskie, 2009). This resulted in the birth of the Department of Rural water Development (Amoah and Yahaya, 2013, Agyenim and Gupta, 2010). The main duty was to engage in development and management of rural water supply by drilling boreholes and wells for the rural communities (GWCL, 2012)

The water supply division continued to be supervised by the Public Works Division until Independence when the division was placed under the ministry of works and housing (Agyenim and Gupta, 2010, GWCL, 2012). In 1957, water supply division was established with head office in Kumasi under the ministry of works and housing with the mandate to supply water to rural and urban centres (GWCL, 2012, Nyame, 2011, Amoah and Yahaya, 2013)

In 1959, there was severe shortage of water supply in the country due to the dry season. As a result of the crisis, the government entered into agreement with World Health Organization for a study to be undertaken on how best water supply system could be developed in the country (Amoah and Yahaya, 2013). The study recommended for an establishment of a national water and sewage department. It is in line with the recommendation of the WHO that Ghana Water and Sewage Corporation, GWSC, came into light in 1965 as a public legal entity under an Act of Parliament (Act 310). GWSC was legally mandated to supply water to both urban and rural areas, conducting research on how best to make water supply accessing to most people in the country and setting prices and collection of water revenues (Nyame, 2011, Abubakari et al., 2013, Fuest and Haffner, 2007)

The success of water supply in Ghana was short-lived as its activities were hampered with a trend of events. There was decline in revenue to the corporation due to non-supply of water to

many parts of the country. The corporation went through series of reforms and improvement projects between 1970s and late 1980s with the able support from World Bank, Nordic Development Fund, Italian and Australian governments and African Development Bank. The financial injections from governments and international donors did not help improve water supply services as delivery was very disappointing and unable to get to so many homes. Due to the failure of these interventions to achieve the needed results, several efforts were made to improve efficiency within the water supply sector in Ghana especially during the era of the Economic Recovery Programme from 1983 to 1993. The government secured loans and grants from especially World Bank for rehabilitation works as well as expansion programmes, maintenance equipment and human resource development through trainings and workshops (GWCL, 2012, Nyame, 2011; Oppong, 2013)

In 1986, subvention for operations and maintenance was withdrawn although funding for development programmes continued. User fees for water supply were increased and subsidies on water tariffs were gradually removed for GWSC to achieve self-financing. The government at that time approved a formula for annual tariff adjustments to enable the Corporation generate sufficient funds to cover all annual recurrent costs as well as attain some capacity to undertake development projects. For political reasons, this tariff formula was not applied and, over the years, irregular tariff increases were always below cost recovery levels resulting in heavy corporate deficit financing and ineffective service delivery (GWCL, 2012)

In 1987, there was an introduction of a Five-Year Rehabilitation and Development Plan. This influenced the launching of Water Restructuring Project (WSRP). This was heavily supported by both bilateral and multilateral donors for its implementation. The purpose of WSRP was to reduce water supplied to consumers which were not accounted for, rationalization of workforce, recruiting professionals to come on board and training of staff (Nyame, 2011)

In addition, the sector experienced further reforms in the 1990s. Sanitation and water supply to rural areas were moved from GWSC to District Assemblies in 1993 with the introduction of decentralization system which was under the Decentralization Act 462. In addition, Environmental Protection Agency (EPA) was established in 1994 to ensure that water operations would not cause any harm to the environment. Also, Water Resources Commission (WRC) was founded in 1996 to be in charge of water resource regulations as well as its utilization. Moreover, in 1997, the Public Utilities Regulatory Commission (PURC) was established to set realistic tariffs and ensuring standardization of water supply in the country. An agency of GWSC called Community Water and Sanitation Agency was established in 1998 to manage water supply to rural areas as well provision of sanitary facilities in the communities. Finally, pursuant to the Statutory Corporations (Conversion to Companies) Act 461 of 1993 as amended by LI 1648, on 1st July 1999, GWSC was converted into a 100% state owned limited liability, Ghana Water Company Limited, with the responsibility for urban water supply only (GWCL, 2012; Nyame, 2011)

### **2.3 Historical Development of Procurement**

Procurement is an old profession but has attracted little attention of historians. There are so many people and institutions that have played a role in nurturing procurement practices (Thai, 2001). Thai (2001) mentioned that the evolution of procurement is linked to the emergence of trade about 5000 years ago. According to Thai (2001), the earliest procurement history dates between 2400BC and 2800BC. Major procurement development begun with the “incidence from the ancient history of China, Greece, Rome and Middle East; the role of medieval Britain, France and Sweden and the emergence of procurement during and after the industrial revolution and procurements’ astonishing tour in the 20 century” (Thai, 2001)

According to Staff (2012), procurement history could be traced to Egypt. In 3000BC building pyramids Egypt required the supply of building materials. Procurement was part of

the project manager's job as they make orders for building materials and followed up to check whether they have been delivered. Others trace the development of procurement during the silk trade between China and city states of Greece. In 215BC, businessmen entered agreement with the Roman Senate for them to put in place measures that will enable them to still remain in business in the event of transporting food and clothing to soldiers in Spain. They demanded that the state take the cost in case there were attacks from enemies and storms (Ayitey, 2012). Britain made good use of aspects of procurement such as bargaining, negotiation and competitive pricing. For example, Henry VII insisted that wine grapes be bought from France following series of regulation. This opened the way for duties to be changed on supplies and consumers (Nolan, 2014, Goodchild and Chamberlain, 1999)

The days of industrial revolution marked the time procurement was professionalized. Procurement finds its way into the business resulting in Marshall M. Kirkman who is believed to have published the first book on procurement in 1887, titled, "The handling of Railway supplies; their practices and disposition." The concept of material management became the focus during this period (Thai, 2001). Procurement professionals emphasized competitive bidding, with price becoming the determining factor for most contracts. An increase in trained professionals during this time period helped procurement on its way to regaining departmental status. In addition, the world wars also played a role in the growth of the concept (Nolan, 2014). In addition, the World Wars forced procurement to shift from a strategic role to strictly clerical. Due to the scarcity of materials during war, procurement revolved heavily around order placement. During wartime and the depression, the objective was to obtain enough raw materials, services, and supplies to simply keep the economy running (Nolan, 2014, Thai, 2001).

Policies on procurement came into force as a result of growth of organizations and bureaucratic rules. The policies on procurement could be as a result of standardized

procedures and requirements for transparency of public sector workers. In the US, it was in 1800s when legislatures created offices and placed officials in charge to be responsible for making purchases. In 1810, Oklahoma State became the first state to make such legislations before states followed. Illinois is 1898, Pennsylvania is 1903, Minnesota in 1911, Ohio in 1913 and California in 1916. There were 83,000 local procurement authorities in US as at 2000 (Thai, 2001). In Kenya, procurement has moved from a more rudimentary stage to a regulated system which is comparable to international standards (Odhiambo and Kamau, 2003). In the colonial era, there were measures in place to be able to facilitate the process of procurement. For example, the crown agents who were responsible for handling purchase on behalf of the government. In 1955, Central Tender Committee (CTB) was affiliated to oversee government tenders. There was also establishment of procurement and supplies unit 1959 under the ministry of public works to be in charge of common users of goods and services (Mokaya, 2013).

In Ghana, the history of procurement can be traced to the colonial government. The colonial administration worked hand in hand with the established Public Works Department for supply of goods and services. After independence in 1957, Ghana Supply Company was formed in the 1960s to purchase goods for all public institutions. Its name was changed to Ghana National Procurement Agency in 1976. Succeeding governments relied less on GSC and by 1996, it was touted as inefficient, and one of the most corrupt institutions in Ghana. This was blamed on the absence of guidelines for procurement activities (Oppong, 2013, Anvuur et al., 2006) The Public Financial Management Reform Program (PUFMARP) was launched in 1996 by the Government of Ghana to improve upon the management of public funds in Ghana. This resulted in the establishment of Public Procurement Authority (PPA) as a body corporate body made possible by Public Procurement act 663 in 2003 (Oppong, 2013, Ayitey, 2012).

The modern evolution of procurement is because of good business practices as well as governmental policies. In the 1980s, there was new dimension of procurement and this was known as supply chain. The 1980s saw a significant increase in supplier competition. This gave organizations the luxury of putting more focus on supplier quality and dependability. Supplier management became an important factor in procurement and remains so today. By the late 1990s, the role of procurement had begun its transition into strategic sourcing. Procurement officials looked at supplier as partners and long-term contracts were encouraged. This was the beginning of procurement's modern day evolution (Oppong, 2013, Nolan, 2014). In organizations today, procurement professionals are pivotal to the success of organizations. They are responsible for an umbrella of initiatives from the development of a solicitation to the evaluation of and working with qualified suppliers, and everything in between. Ultimately, procurement is having a significant impact on an organization's bottom line solidifying its spot at the management roundtable (Ayitey, 2012, Nolan, 2014).

#### **2.4 Definition of Procurement**

The term procurement has its root from the word "procure" which literally means to obtain by care or effort, to bring about and to acquire. Procurement is understood differently by scholars in many ways based on their field. For example, in construction, Moshi and Davidson (1989), defined procurement as "the acquisition of new buildings, or space within buildings, either by directly buying, renting, or leasing from the open market, or by designing and building the facility to meet a specific need" (Davidson 1989 cited in Miller et al., 2009). Rashid et al. (2006) defined procurement as the processes involved in acquiring goods and services from other persons. It also covers the arrangement of people to achieve the desired outcome. Also, Procurement is referred to mean "the participation of three important parties; clients, consultants and contractors, who work together to provide practical guide in decisions regarding the projects" (Turner 1999 cited in Jaafar and Radzi, 2013). In addition, Arizona

Procurement Code in 2004 defined procurement to include all functions that pertains to obtaining any material, services and construction services including description of requirements, selection and solicitation of sources and award of contract and all phases of the contract (Lloyd and McCue, 2004). Arrowsmith (2010) captured procurement as the government's activity of purchasing goods and services which it need to carry out its functions.

For the purpose of the study, definition by Edquist and Zabala-Iturriagoitia (2012) will be adopted for the study. Procurement was defined as “the act of obtaining or buying goods, construction and services by public organizations.” Procurement offer means for state or public offices to embark on public works, building of roads, educational and health facilities as well as making purchase for public offices. In this event, the processes include prescription and processing of a demand as well as the end receipt and approval of payment. The definition takes into consideration three key procurement processes; planning, contract awarding and implementation of the project goals.

#### **2.4.1 Types of procurement**

Procurement is underscored by a collection of processes that include steps and coordination between departments of an agency and suppliers. There are many procurement systems are being use in the world. According to Rashid et al. (2006), three procurement systems are known in Malaysia. These are traditional system, Design and build method, management contracting method and professional construction management method. Jaafar and Radzi (2013) identified traditional and alternative types of procurement. Miller et al. (2009) revealed four types of procurement approaches. These are traditional (separated), collaborative, design and construct method (integrated), management (packed) and collaborated approach (relational).

In Ghana, Ren et al. (2012) mentioned in their study that three types of procurement methods are known. These are traditional procurement approach, design and build procurement approach and management procurement. In the traditional approach, the employer accepts the designed work by appointing a consultant to be in-charge of the design and cost control before the contract is award to a contractor who is responsible for carryout the work. This extends to all activities throughout the contract phase such as workmanship and materials and includes all work by subcontractors and suppliers. The contractor is usually appointed by competitive tendering on complete information which is mostly announced for bidding by the general public and interested parties (Davis et al., 2008). Design and build procurement is indicated “as an arrangement where one contracting organization takes sole responsibility, normally on a lump sum fixed price for design and construction of a client’s project” (Masterman 2002 cited in Turina and Car-Pušić, 2008). The study mentioned further principal variants of design and build as follows; novated design and build, package deal, develop and construct and turnkey methods of procurement. Davis et al. (2008) revealed that management procurement are made up of two parts; management contracting and construction management.

In the case of management contracting, the contractor has direct contractual links with all the works contractors and is responsible for all construction work. In construction management, a contractor is paid a fee to professionally manage, develop a programme and coordinate the design and construction activities, and to facilitate collaboration to improve the project’s constructability (Davis *et al.*, 2008).

According to Ren *et al.* (2012), Ghana has not deviated from the Traditional procurement approach which was adapted from the colonial government and has been used till now. It is in this line the study intends to assess the Procurement of essential water chemicals with respect to the operation of the Ghana Water Company.

## **2.5 Principles of Procurement**

According to International Fund for Agricultural Development (IFAD) (2010), principles of procurement Act set out the boundary within which procurement practitioners are supposed to work . The principles are to serve as guiding principles in the policy making process. The aim of the procurement principles is to ensure that public officials use public funds to finance public purchases in a way satisfactory and taking advantage of the market in order to get the best deal (Adu, 2011, Schapper et al., 2006, Swedish Competitive Authority, 2010) Public procurement practitioners are public servants who have been entrusted with public funds so there is the need for them to be guided in the utilization of the funds. In this case, they will be bound by their code of conduct and account for their stewardship (OECD, 2009). IFAD (2010) identified seven principles for public procurement in their guidelines which will be adopted for the study. These are transparency, competition, and value for money, accountability, ethics, fairness and efficiency which are explained below.

### **2.5.1 Transparency**

Transparency has become necessary in utilization of public funds. There is the likelihood for policy makers to engage or spend public funds in secrecy which are unlikely to yield the desired outcome. To this end, international bodies, central banks and governments have placed transparency at the forefront in order to achieve desired outcome (Adu, 2011, Chathampilly, 2012). According to Soudry (2007), transparency places obligation on authorities to create an open system on how procurement procedures are conducted. This begins from submission process being plain as well as documents governing the contract. Transparency creates an environment where information on conditions, decisions and actions are made accessible to all participants. This forces the institutions to face the reality of the situation as well as being responsible so that they could justify their actions when called

upon. This helps promote foreign direct investment when the public sector plays its role as genuine business partner (Adu, 2011, OECD, 2009).

### **2.5.2 Accountability**

Accountability in public procurement essentially means to public officials being made to be responsible for their actions and having obligations to render accounts for their stewardship (Soudry, 2007). The principle of accountability in public procurement is satisfied when there is a “defining level of authority for approval of spending and approval of key stages based on appropriate and assigned duties (Adu, 2011). According to OECD (2009), “internal guidelines should clarify the financial limits and the obligation of responding to key stages in the public pursuit cycle.” As public servants procurement practitioners and others involved in the public procurement process, accountability exposes decision makers to sanctions as a remedy for any behaviour that contravenes the public procurement legal framework and principles. They submit themselves to the public to justify their actions (Abebe, 2012)

In the same way, both internal and external audit are very important for financial control and management control. These are to ensure that standard practices are followed in the procurement cycle and takes into consideration financial audit which help in checking for financial fraud (OECD, 2009). Rasmus (2010) added further that accountability constitutes a central pillar of any procurement system. The existence of accountable system fosters government and citizens to work hand-in-hand in utilizing public resources. This limit the fear of corruption and embezzlement of funds meant for developmental project. In the procurement process, accountability could be enhanced by engaging stakeholder such as civil society and solicit for their independent involvement, review of information to enable the system to be well monitored.

### 2.5.3 Competition

At the heart of public procurement cycle is competition which underpins other principles such as transparency and accountability. The efficient function of public procurement processes hinges on the existence of competition in the procurement process cycle (Abebe, 2012) Competition is the basis for efficient, impartial and transparent procurement therefore, contracting authorities are entreated to maintain this criteria for all bidders (Sánchez, 2009). The objective of competitive processes is to provide all eligible prospective bidders with timely and adequate notification of requirements and an equal opportunity to tender for the required goods, civil works and services (IFAD, 2010)

Sánchez (2009) outline reasons for competition in procurement. In the first place, competition removes barriers that prevent new players from entering the market. Also, contracting entities are presented with options to choose from among tenders and are able to obtain value for money. According to Department of Finance and Deregulation (2008) effective competition requires non-discrimination. Procurement should be carried out by competition unless there are convincing reasons to the contrary. Sánchez (2009) Stated that, “contracting authorities must refrain from adopting certain procedures or applying certain rules if doing so would limit or distort competition.”

The public procurement market is an indicator of a country’s openness to competition through appropriately publicized tender procedures structured in a way that does not give rise to discrimination and managed in a transparent manner within a framework of legal and financial certainty. Therefore procurement authorities should ensure that restrictions are not placed on the competitive processes. It is ideal that project owners apply the principle of an extensive bidding process in order to select the most economically advantageous bid. Information given to potential suppliers, pre-selection, the content and publication of bidding documents, bid appraisals and contract awards must all be fully transparent, in line with the

relevant internationally recognized practices (Fiorentino, 2006, Sánchez, 2009, Basheka, 2008, Abebe, 2012).

#### **2.5.4 Value for money**

According to Adu (2011) value for money is described as “the optimization of cost and quality of a product to meet the customers’ demands.” In simple terms, value for money takes into consideration cost and efficiency of delivery. According to commonwealth Procurement guidelines, the successful purchase of goods, works and services should be conducted on the best possible terms desirable taking into consideration resources available (Department of Finance and Deregulation, 2005). Abebe (2012) warned that value for money should not be equated to lowest cost potential contractor is bidding or aspiring to take for the project but assessment of technical and pricing factors in light of the task to be done.

Resources are limited and needs are insatiable in every country. Therefore, public officials are admonished to make purchases at lowest cost that is ideal for the purpose as well as meeting required specifications. Public officials are entreated to consider all available options and as a matter of fact, procurement should go beyond awarding of contracts but create jobs to benefit the entire citizenry (OECD, 2009). In all, contracts should be awarded by taking into consideration cost benefit analysis. In order to ensure that the best value is obtained, contracts should maximize competition, minimize complexity of applications, ensure impartiality and contracts should be awarded to the best qualified person to deliver (Abebe, 2012, Department of Finance and Deregulation, 2005, Ameyaw *et al.*, 2012).

Value for money is enhanced in Government procurement by: encouraging competition by ensuring non-discrimination in procurement and using competitive procurement processes; promoting the use of resources in an efficient, effective and ethical manner; and making decisions in an accountable and transparent manner. In order to be in the best position to

determine 'value for money' when conducting a procurement process, request documentation needs to specify logical, clearly articulated, comprehensive and relevant conditions for participation and evaluation criteria which will enable the proper identification, assessment and comparison of the costs and benefits of all submissions on a fair and common basis over the whole procurement cycle.

### **2.5.5 Ethics**

Ethical behaviour is important in government procurement as it involves the expenditure of public money, and is subject to public scrutiny. Raymond (2008) states that; Ethics are the moral principles or values that guide officials in all aspects of their work. Ethical behaviour encompasses the concepts of honesty, integrity, probity, diligence, fairness, trust, respect and consistency.

In addition, ethics is referred to mean “the moral boundaries or values within which officials work (Department of Finance and Deregulation, 2005). Ethical behavior encompasses the concepts of honesty, integrity, probity, diligence, fairness, trust, respect and consistency. Ethical behavior identifies and avoids conflicts of interests, and does not make improper use of an individual’s position. “Ethics are to guide against practices such as avoiding conflicts of interest, and not making improper use of an individual's position (Arrowsmith, 2010)

A procurement process conducted with ethics in mind helps potential purchasers and suppliers to engage each other with mutual trust and respect for the serenity of the process. Ethical approach enables business to be conducted fairly and this endeavour contracting authorities the obligation to treat potential suppliers in an equitable manner as possible (Raymond, 2008). According to Australian National Audit Office (2007), businessmen or companies aspiring to win public contracts often pump resources in the event of submitting bids and meeting other requirements. In return, it is imperative that they should be given a fair opportunity and treatment throughout the entire process (Byrne, 2013). “Public sector

procurement should be conducted without favour or prejudice. All potential suppliers should be provided with the same information and procedures should be put in place to ensure that each bid is given fair and equal consideration” (Department of Finance and Deregulation, 2005). At the core of ethical behaviour is openness and accountability in a procurement process which ignite suppliers’ confidence to participate in public businesses. It can also help reduce the cost of risk management such as fraud, theft and corruption (Sánchez, 2009).

### **2.5.6 Fairness**

It is important that public procurement is conducted in a way that is fair to all parties bidding for the contract. Most of all, materials for the contract bid should be available for all parties at the same time as well as the same channel of delivery of vital information in a timely manner (Raymond, 2008). Appropriate manner of information delivery should be selected based on what needs to be communicated and the urgency of the information. Also, every bid also needs to be taken into consideration in a fair and impartial manner, with no conflicts of interest or bias towards or against certain bidders (Arrowsmith, 2010). In addition, provisions should be made for notifications to tenderers as to whether or not they are successful in the bid.

It will not be misplaced for all unsuccessful competitors to know the results of their bid with explanations why their bids were not successful. Decisions on the selection of winners must be made purely against the criteria set from the beginning (Department of Finance and Deregulation, 2005, Sánchez, 2009). The announcement to invite tenders must state clearly grounds for participation as well as the evaluation criteria. Therefore, bids must be considered based on the conditions for participation, and these should be well targeted, clearly measurable, and not excessive in number. Procurement authorities should do their best possible not to be influenced by external factors such as politics, associations or nationality or even external pressures (Australian National Audit Office, 2007, Fiorentino, 2006)

### **2.5.7 Efficiency**

According to Ayitey (2012) “efficient public procurement system is the one which operates in a timely manner, with a minimum bureaucracy, while being responsive to the needs of the ultimate users of the goods or facilities procured.” Procurement system at any point seeks to ensure that the work is carried out efficiently by follow due process in the duration of the work. This requires that the process is carried out without unnecessary delays or waste of the already limited resources to both parties, that is, the procurement authority and potential suppliers (Arrowsmith, 2010). In addition, efficiency in public procurement is best achieved through open competition for bidders to bring out what they are capable of doing. The best quality work done at the lowest possible cost is all it seeks to achieve at the end of the day (Ayitey, 2012)

### **2.6 Legal and legislative framework of procurement in Ghana**

Parliament of Ghana passed the public procurement Act, Act 663 in 2003 and it received presidential assent on 31<sup>st</sup> December, 2003 (Public Procurement Authority (PPA), 2006). The coming into force of the Act makes non-enforceable the District Tender Board Regulations, 1995 (L.I.1606) and repeals the Ghana National Procurement Agency Decree 1976 (SMCD 55) and the Ghana Supply Commission Law, 1990 (PNDCL 245) (Sarfo and Baah-Mintah, 2013). A provision was made for the establishment of Public Procurement Board (PPB) which is central authority created to harmonize the process. The PPA has been mandated to ensure efficiency as well as transparency in the process (PPA, 2006, PPA, 2011) In addition, procurement entities such as state owned enterprises, hospitals, public universities, state owned banks and District Assemblies initiate procurement process and tender review board makes approval for recommendations as the contracts are awarded by committees (Sarfo and Baah-Mintah, 2013, World Bank, 2013)

The Act seeks to guide against fraudulent practices, provide best guide for procurement practices, make a strong case for value for money and maintain the integrity of the procurement process (World Bank, 2013). In addition, the Act seeks to lay a strong foundation for a standard system which takes into account Ghana's decentralization system. The Act essentially provides a framework for the development as well as strengthening procurement institutions and making sure their activities are geared towards poverty reduction, good governance and anti-corruption (Sarfo and Baah-Mintah, 2013, PPA, 2006)

## **2.7 Procurement Procedures in Ghana**

The public sector in Ghana has been plagued with corruption in all its activities including awards of contract. For example, the US Department of State (2013), mentioned that, some civil society groups have called the law inadequate, and allegations of corruption in the tender process persist. Zeine's (2014) added that corruption is ingrained in the public sector of Ghana. The simple reason given is that, low salary and poor remuneration in the public sector are among factors accounting for high levels of corruption among civil servants. According to Transparency International's corruption performance Index (CPI), between 1999-2008, Ghana lagged behind in its fight against corruption consistently scoring between 3.3 and 3.9 out of 10 on the Transparency Index.

Ghana has established the Public Procurement Authority (PPA), which provides information on regulations and relevant laws and lists tenders on its website. Ghana's achievements in the implementation of the Public Procurement Act have been recognized by the OECD Development Assistance Committee as an important tool for checking corruption in the country (Global Advice Network, 2014). However, (Bokpe, 2014) revealed that even though Ghana's Procurement Act was enacted on the principles of transparency, accountability, efficiency, economy and sustainability, there is growing perception that contracts are awarded not on the basis of factors including competence through evaluation criteria of

specification, personnel, resources, experience, financial capacity and equipment holding but rather on the basis of affiliations. In addition, the US Department of State (2013) warns that companies cannot expect full transparency in locally funded contracts despite the new procurement law, and there have been incidences of alleged corruption in the tender process. In addition, in the past the government has set aside international tender awards for the sake of national interests.

Procurement process is seen as a bureaucratic but it is important to follow key steps in any procurement exercise. Procurement processes aim to achieve the best value while ensuring competition and fairness. The procurement cycle follows certain documented steps for identifying a requirement or need of the company through the final step of the award of the product or contract. The procurement process involves stages which can help check procurement activities. Also, following a proven and tested step-by-step cycle will result in effective management to successfully achieve its goals. This process is common to all procurement activities anywhere (Wittig, 2003, OECD, 2009, Sarfo and Baah-Mintah, 2013, PPA, 2006)

There are various phases of public procurement being followed by countries as well as international organization and bodies. For example Abrams (2013) suggested seven public procurement processes for member states of United Nation Capital Development Fund. These are as follows; Planning, preparation, search, evaluation, decision, delivery and payment(Abrams, 2013) . In addition, OECD (2009) identified three phases of public procurement which include pre-tendering (assessment, planning and budgeting, definition of requirements and choice of procedures), tendering (invitation to tender and award of contract) and post-tendering phase (contract management, order and payment, Monitoring and Evaluation). Furthermore, United Nations Office on Drugs and Crimes (UNODC) (2013)agreed with these generally three phases of procurement process. The phases outlined

by UNODC (2013) and OECD (2009) are similar to the processes documented in the Procurement Act 663 of Ghana. Therefore, OECD (2009) procurement phases will be adopted for the study and are explained as follows.

### **2.7.1 Pre- Tendering Phase**

The pre-tender stage involves the structuring of the procurement process. This phase encompasses the formulation of the procurement strategy by following the steps below agreed laid down processes. There is the need for authorities to be guided by lessons of past process in order to come out with a well proven process in the up and coming processes (UNODC, 2013). During this phase, four stages are to be considered. These are assessment, budgeting and planning, definition of requirements and choice of procedures (UNODC, 2013, OECD, 2009)

#### **2.7.1.1 Needs Assessment**

Before the initiation of any public work, there is the need for an expression of demand from the citizenry before such a project could be undertaken. In this sense, a need assessment will determine whether that particular project is needed in the first place before a final decision is made for its commencement. At this stage, there is the need for information gathering about past project and its accompanying procurement processes (OECD, 2009). It will not be misplaced if experts are hired to do such assessment in order to get a true picture about what is to be done and how it should be done. According to UNODC (2013), “external consultants, such as engineers, accountants and lawyers are subject to a professional code of conduct to promote the integrity of the consultant. Good practice may also include involving potential bidders to assist in connection with needs assessment, so as not to rely solely on the expertise of an external consultant.”

### 2.7.1.2 Planning and Budgeting

Public procurement is performed according to plan (Abrams, 2013, UNODC, 2013) Planning entails the ability of entities to determine the standard of work they need, strategize on a general direction for the work and be in a position to anticipate potential risk and put in place measures to help reduce such risk (Ayitey, 2012). In addition, Abrams (2013) mentioned that “officials responsible for procurement identify what items require procurement and what type of procurement is needed, and the dates when procurement actions must begin in order for the procurement to be completed by the time the service, goods or works are needed.”

Moreover, section 21 of the Procurement Act of Ghana endeavor procurement entities to prepare their procurement plan for each fiscal year and also prepare reports for each quarter to the tender committee (PPA, 2006). According to the act, procurement planning is an essential prerequisite because funding might not be sufficient to meet all works so planning ahead enables the consideration of priority projects. Again, planning enables purchasing authorities to buy at lowest unit cost possible with the funds allocated to them. planning also help private entities to be able to respond to tender calls ahead of time because its publication long before the start date (PPA, 2013).

After planning, there should be an estimation of cost of goods and services. Procurement entities “determine what they would need in terms of goods and services and how much they would like to spend” (PPA, 2013). It is important that skilled project officials to take up this task to enable them come out with realistic budget for the work. Cost could be estimated based on past procurements of procurement authorities to do market research to determine the likely cost of goods and services. Cost estimates must be realistic and should already take into account possible variations of the contract over time (Abrams, 2013, UNODC, 2013). However, “budgets could be set artificially high so that excess allocations can be misapplied, misappropriated or diverted to unplanned projects” (PPA, 2013). The Procurement Act 663 of

Ghana requires heads of procurement entities to coordinate budget preparation for that institution based on previous works and consumptions needed for such kind of work (PPA, 2013)

### **2.7.1.3 Definition of Requirement**

The requirement definition describes in detail characteristics of the activities, resources and results of the contract, which the implementation of the contract must satisfy in order for the objectives of the contract to be achieved. In the same way, they function as criteria for acceptance of tenders submitted. At the requirements definition stage, there should definition of terms such terms of reference, technical specifications and statement of work. The definition of requirement is essential for new project and also for existing operations. The procuring entity is responsible for making the required goods and services known to parties who will be interested to submit bid for the contract. It is important for procurement entities to define requirement for the work in order to help interested parties to sufficiently respond to specific bids, enable participation by any qualified bidders as well as indication the technical criteria each bidder must meet (Lynch, 2013, Abrams, 2013).

### **2.7.1.4 Choice of Procedures**

Choice of Procurement is the procedures procuring authorities apply to acquire goods, services or works to be undertaken. It could either be competitive or non-competitive based on what is to be done and the time available for the work to be undertaken. However, using competitive methods of procurement helps to promote transparency, economy and efficiency, and limit favouritism (OECD, 2009). The choice of procurement method is influenced by financial threshold of circumstances. The Procurement Act of Ghana identified six methods of procurement,. These are international competitive tendering (ICT), National Competitive Tendering, Two Stage Tendering, Restrictive Tendering, Single Source (Direct Procurement) and Request for Quotation (PPA, 2013, OECD, 2009).

According to Ayitey (2012), both International Competitive and National Competitive Tendering are both type of competitive tendering. It is the method preferred under the Procurement Act of Ghana as it calls for competition in the procurement cycle because their invitation for tenders are advertised for all interested parties to apply. “International Competitive Tendering is appropriate for high value or complex procurements or where the supply of goods by their nature or scope, is unlikely to attract adequate local competition” (PPA, 2013). In the same way, “National Competitive Tendering is appropriate for lower value procurements, where the goods 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 suppliers (PPA, 2013, PPA, 2011).

In addition, Two-Stage Tendering is “a two-stage method of formal tendering commonly used in procurement systems in particular when it is not possible to set detailed specifications for a contract at the outset of the procedure” (Arrowsmith, 2010). With regard to this method, companies or suppliers will submit bid for an aspect of contract without following any specific requirement. After first screening, successful bidders will be given common specification for them to submit further bid in a second tendering stage (Arrowsmith and Wallace, 2000, Ayitey, 2012). Moreover, restrictive tendering has been identified as another type of procurement method. With this method, the procuring entity can limit participation to a category of suppliers and two main reasons has been given for using this method. That is, when the time and cost are not enough to evaluate large application and also when the requirements are specialized to a category or group of companies who are in the position to deliver (Arrowsmith, 2010).

Furthermore, request for quotation is also a method of procurement enshrined in the procurement act of Ghana. This method is ideal for projects in which the cost is small such as where the estimated procurement contract is less than certain value thresholds set out in the

procurement regulations (Ayitey, 2012, PPA, 2006). According to Arrowsmith (2010), request for quota is mostly for “readily available goods or services that are not specially produced or provided to the particular specifications of the procuring entity and for which there is an established market” finally, Single/Sole-Source method of procurement does not require any competition to determine who won a particular contract. It is mostly from the supplier directly without any competition (Arrowsmith, 2010, PPA, 2013). UNODC (2013) mentioned that “single-source procurement often allows the procuring entity to choose the contracting partner without any form of transparency or competition. According to Arrowsmith (2010), procurers used this method because of “avoiding disproportionate cost and delay, when delay will prejudice the government’s ability to meet its needs, and implementation of horizontal policies”

### **2.7.2 Tendering Phase**

OECD (2009) identified three main processes at the tendering phase. These are Invitation to Tender (ITT), Evaluation and Award of Contract. The first stage at the tender phase is the invitation to tender. Burnet (2009) indicated that the invitation to tender should contain information that will be relevant to bidders. It is important that procurement entity devote enough time and effort to develop comprehensive document which detail the entire requirement or qualification needed to participate in the procurement process. The notice and bid documents should explain what the tenderer need to be able to partake in the procurement cycle (Matechak, 2002, Søreide, 2002, Oluka and Ssennoga, 2008). Ghikas (n.d, p.3) also added “there should be clear guidelines so that both procurement professionals and private sector providers will understand their respective roles and there should be an opportunity for the private sector to challenge the stated requirements and the result of the solicitation evaluation.”

According to UNODC (2013), “as a general rule, a procuring entity should therefore publish a public notice of its intent to procure goods or services, so that potential bidders can become aware of any contract opportunity with the government”. Advertising a notice of intended procurement is one of the cornerstone elements of an appropriate procurement system. The most prominent characteristics of tendering process for a public entity are its ability to induce fair completion among the bidders. As long as the ground rules are clear and complete, it will result in varying contractual prices which reflects on market conditions (Matechak, 2002, Walker and Hampson, 2003). Also, the tendering process invariably will create two contracts that bind the bidder and the procurement entity. In an invitation to tender, it is generally expected that the procuring entity will award the contract based on the completed tender documentation alone not based on any other criteria aside from the guidelines set out in the invitation to tender document. There should be equal treatment to all bidders unless it is already stated in terms of the call for tenders (Burnett, 2009, OECD, 2009).

The most important phases of tendering process are the evaluation and award of contract. Every bid must be thoroughly evaluated based on criteria spelt out in the tender document before contract is awarded to the deserving bidder (OECD, 2009). Ghikas (n.d) stated that contracting authorities must clarify in advance the criteria to evaluate tenders as well as the weighing given to satisfaction of each criterion. The award should be given to the supplier or bidder that offered the best value. It is worth noting there is an obligation on the part of procuring entities to achieve value for money in the sense that once contracts have been awarded, it cannot be re-negotiated again (Matechak, 2002). Procuring entities certainly look for tenders ability to deliver the most economically advantageous offer (Lynch, 2013). The balance between quality and price will be determined by the service or goods to be procured. The successful tenderer will be notified as well as unsuccessful contractors or

suppliers to inform them of the reasons why they were unsuccessful and give details of the relative advantages of the successful tender (Burnett, 2009, Matechak, 2002).

### **2.7.3 Post Tendering Phase**

This process begins once contract is awarded to deserving bidder. It is the implementation stage as well as administration of the awarded contract and there is obligation to ensure that the objective of the contract is fully met (UNODC, 2013). There are three main activities at the post tendering phase. These are contract management, monitoring and payment of the project (OECD, 2009). There are interactions between successful bidders and public procurement entities in the performance of the contract. According to Ayitey (2012), a formal contract will be drawn based on agreed upon terms on which both parties will append their signatures. From there, the awarded contract must be managed to ensure that the contractual obligations are adhered to by the parties. The contract can be managed in the following ways; “expediting delivery, arranging inspection or freight forwarding, checking bank guarantees, establishing letters of credit, making arrangements for receipt and installation of goods, verifying documentation.

Furthermore, there should be an effective monitoring system. After a contract is awarded, there should be measures in place to monitor the suppliers’ service and the quality of work going on. However, monitoring is done differently in many countries. In most countries, it is done informally without writing down any records and others too there are written down records which are ideal for the sake review of data by procuring entity (UNODC, 2013, Nkingu, 2003). Stephens (2010) mentioned that the monitoring is important to supervise the contract process which could be done by the procurement entity or consultant appointed to do the supervision (UNODC, 2013). According to Stephens (2010), the procurement office also have a role to play, that is, monitoring performance as well as ensuring that both parties comply with contractual agreements. In public procurement, monitoring is a continuous

process and ensuring that the procurement system in the country is properly implemented to meet the desired objectives (Nkingu, 2003, Kihwelo and Bullu, 2014)

Also, there should be sequence of payment to the contractors which agreed upon as well as outlined in the tender and contract document. Mostly, negotiations of payment are done at contract signing. There are about three forms of payments which could be agreed upon which are explained as follows. In the first place, parties could settle on advance payment format where successful contractors are given money for mobilization to the site, which is, establishing offices and other basic needs of its workers at the site of the project. Secondly, procurement entities and successful bidders can settle on routine progress payments where contractors are paid based on the progress of the work done. Lastly, variation payments are calculated based on the risk involved in the work. Contractors are paid 5% to 15% of the contract sum to cover unexpected loss or risk such rise as of inflation which could affect prices of goods and services (UNODC, 2013, Stephens, 2010).

At the end of the project, the works should be inspected and signed off by consultant or even officials from the procurement entity before the contractor can then demobilize and leave the project site. Mostly, the final payment is delayed for some time for a stipulated period. This is to check whether the project has been done to perfection after period of usage. During this liability period, the facility is monitored closely and checked very well as defects are quickly reported and rectified accordingly by the contractor (Stephens, 2010, Bower, 2003).

## **2.8 Challenges with Procurement in Ghana and other African countries**

Public sector effectiveness is important to achieve a successful governance and development therefore reforms in public sector has become a global phenomenon in contemporary world. According to a working paper by Organization for Economic Co-operation and Development, good governance is a fundamental building blocks of transparent and efficient public

procurements (Odhiambo and Kamau, 2003). However, in most developing countries including Ghana, the enactment of laws and reforms comes with a numerous challenges that affect the success of such laws. Ghana procurement law is of no exemption to such regulations. Generally speaking, Thai *et al.* (2005) found that, challenges in procurement reforms are beyond procurements regulations which include procurements methods, process, procurement organizational structure and workforce. These challenges have been experienced in the operation of procurement in most African countries including Sierra Leone, Gambia, Kenya and Ghana.

Research has found that, 80% of corruption cases that appears before Kenya's anti-corruption commission emerge with an element from procurement (Odhiambo and Kamau, 2003, PPOA, 2011). This makes it one of the major areas of corruption in the country and obstructs business activities (Akech, 2004). A 2011 report by Public Procurement Oversight Authority (PPOA) in Kenya identified that there is inadequate records management and filing systems which slows down retrieving records for review purposes. In some circumstances, some records were found incomplete. Similarly, there were limited training in laws of procurement among staffs involved in the procurement processes (PPOA, 2011). The National Procurement Authority in Sierra Leone has experienced challenges characterized by deficient staff strength, inadequate funding and organizational limitations (Elliott, 2004).

In Gambia, despite the positive procurement reform in the new legal regulatory and organizational framework, Wittig and Jeng (2004) found that, there are challenges in extending and sustaining the reforms. There is low level of competency of procurement staff. Professionals dealing with procurement are not able to relate to emerging procurement issues considering their educational background. Most activities relating to procurement is being handed by accounts officers deployed from the accountant general office. (Wittig and Jeng, 2004). It was found again in Gambia's procurement reform that, there is conflict of interest

between officials acting as Central Tender Board and procurement supervision (Wittig and Jeng, 2004, Wood *et al.*, 2008). Most international agencies still have reservation on corruption in the procurement system in Africa despite years of reform in most procurement system in the region. In 2010, only 33% of aid in Gambia used procurement system such that donors lacked confidence in the countries procurement system and had concerns about corruptions (OECD, 2011)

In Ghana, just like other African countries, there are major challenges after years of implementation of procurement reforms. In a presentation at a workshop in St. Lucia, Suleiman (2010) found these challenges to include the establishment of procurement officer cadre, staff turnover, unwillingness of parliament to submit to procurement process for scrutiny by the executives, abysmal participation and success of local contractors in major tenders and the general tendency to revert to status quo. Most staff dealing with procurement at Ministries, Departments and Agencies and Districts in Ghana are not experts in the field despite the fact that they may have acquired some training in the field. This leads to poor dissemination of procurement law which is a challenge to implementation. Other studies have shown that the challenges confronting Public Procurement is characterized by environmental factors including legal environment, market condition, and political environment, socioeconomic and organizational environment (Schiele and McCue, 2006). For instance, Ameyaw *et al.* (2011) found that the head of PPA is politically selected such that the head becomes vulnerable when there is a change of Government. This among others like imposition of ideas from the Government may weaken the effective functioning and monitoring. There is over-exploitation of some loopholes in the procurement laws. Adding to this, clients or customers find ways of skipping the procurement process or stage leading to incidence of corruption. The process of procurement is one major challenge in the fight against corruption in most developing countries including Ghana (Jones, 2009).

A 2011 PPA annual report indicated that, major challenges confronting the implementation of the Procurement Act were in the areas of “Funding and Office Accommodation, inappropriate alternative procurement procedures, Compliance with the requirement of posting of Procurement documents on PPA Website, Contract Management, among others. According to the report, despite prior approval for funds, they still experienced delayed fund releases, which ended in delays in programme implementation. There was a challenge getting adequate office accommodation to meet the growing need for more space since the PPA operated from rented premises coupled with the limited funds (PPA, 2011). Again, the report indicated that some entities failed to advertise procurements that were supposed to be advertised such that they failed to post their procurement plans, tenders, and Contract awards on the PPA website despite the training they had received on how to post documents on PPA website (PPA, 2011).

The Public Procurement has not shown any sign of significant impact on effort to fight against corruption in Ghana since one cannot pinpoint any evidence (Osei-Tutu *et al.*, 2010). The Procurement process and project cycle are characterized by numerous corruption emerging from parties involved in the Procurement process like public servants, consultants and suppliers, clients and above all political officers (Osei-Tutu *et al.*, 2010). The public procurement has not achieved its purpose in the Ghana Water Company. Oppong 2013, found in a study that the implementation of public procurement has negative impact on GWCL such that it affects the timely delivery of goods and services. The individuals to comply with the smooth implementation of procurement in GWCL do not go by it. There is an established bureaucracy and unnecessary delay arising out of administrative procedures.

## 2.9 Procurement Challenges in Liberia

In the Sub-Saharan region, the IFC and the World Bank survey enterprise has found that an average 33 per cent of companies are being expected to give gifts before the award of a contract. However, in Liberia, this rate is higher as more than more than 51 per cent of companies reported being expected to give gifts to secure a government contract. Therefore, 70 per cent of firms experienced at least one bribe payment request (World Bank, 2009). An effort to Public procurement reform was thus critical to Liberia (Hany, 2009). This is because as an emerging economy of transition from war to recovery, public procurement policies, practices, and procedures lost its grounds such that skills of procurement practitioners and the structures of institutions were destroyed. Public officials were not held accountable for the use of public funds, and procurement and concessions records were not properly kept (Kukutschka and Martínez, 2013). Despite this, the award and implementation of contracts and concessions would ensure development.

In 2003, the National Transitional Government of Liberia (NTGL) in conjunction with the World Bank (WB) United Nations (UN) identified that the legal framework for public procurement and concessions in the country was inadequate because procurement rules and procedures were loose and did not guarantee efficiency, transparency, equal opportunity to bidders (NTGL/World Bank and United Nations, 2004). As part of efforts to generate transparency in the public procurement practices and the granting of concessions, the reform of the public procurement system became a priority for the Government. With financial and technical support of the World Bank and other international partners, the Government of Liberia prepared the Public Procurement and Concessions Act (Act or PPCA) of September 2005 (Neufville, 2008, Kukutschka and Martínez, 2013). The Commission has been mandated to maximize economy and efficiency in procurement, and obtain best value for public expenditures, build capacity of officials and institutions in public procurement, promote

economic development of Liberia, Promote competition and foster participation in procurement proceedings and concession agreements by qualified suppliers, consultants and contractors.

According to a 2010 annual report of the PPCC, one major challenge that affects their work is lack of computerized software to assist the timely collection and dissemination procurement statistics nationwide and difficulty in monitoring performance level (PPCC, 2010). Also, there is replacement of trained procurement practitioners with individuals who have no prior knowledge of procurement (Neufville, 2008). Procurement managers usually replace staffs which affect the smooth running of the sector since the new staff may not have the prerequisite knowledge needed for procurement practice. There is again insufficiency of logistics to carry out holistic operation of the Commission's activities in order to achieve the targets of Liberia Government (Neufville, 2008)

In another dimension, Kukutschka and Martínez (2013), argued that there is lack of transparency in the PPC Act which is a critical concern for the construction sector in Liberia. The PPC Act does not require the publication of complaints in the bidding process. Despite the effort by most agencies and ministries to advertise contract opportunities, the award of contract is not available to the public. In the Liberia water company for example, it is difficult to assess procurement situation of essential water chemical due to lack of information. This is also limited to how the PPCC is enforcing the PPC Act in this particular sector.

## CHAPTER THREE

### RESEARCH METHODOLOGY AND METHODS

#### 3.1 Introduction

This section focuses on research methodology and the methods that were employed in the study, the target population, sample size and sampling techniques as well as the various sources of data and how the data were collected and analysed.

#### 3.2 Study design and methods

The Ghana Water Company head office in Accra was chosen for the study because information needed could only be provided by the head office in Accra. Since the research study was to be completed within a specific timeframe, limiting the study to Accra, Head office was appropriate hence the selected case study.

The primary purpose of a case study is to understand something that is unique to an identified case (Yin, 2009, Creswell, 2013). Case study will give the researcher chance to study a phenomenon in details and provide objectivity within the limited time frame. This is in line with the view of (Osuala, 2005) that a case study will enable the researcher to collect data from and within a geographical boundary to produce an understanding of the study subject (Osuala, 2005). Therefore, case study provides an opportunity to study a phenomenon within a geographical boundary and the chances are that, there are other similar cases elsewhere but the researcher limits the study to a specified place for the purpose of the study.

#### 3.3 Study Population

The target population consisted of workers of Ghana Water Company Limited specifically those in charge of procurement in the Accra office (Procurements and materials, Operations/Project management unit and Projects Planning and Development).

### **3.4 Data collection sources**

Data for this study were obtained from primary and secondary sources. The type of data, sources and their instruments used in gathering data are discussed below;

Primary data for this study were gathered from the responses of workers Ghana Water Company. Secondary sources were derived from published and unpublished reports, books, and relevant articles. They were obtained from libraries of KNUST, Ghana Water Company Limited, the internet and other sources.

### **3.5 Sampling and sampling technique**

In conducting research, it is at times not possible or too costly to collect data from all potential respondents (Osuala, 2005). Hence, a smaller number of units (sample) are chosen to represent the whole population. Therefore, the sampling methods chosen for this study was a purposive sampling. With regard to purposive sampling, the researcher employed his or her own expert judgment about who to include in the sample frame which is based on appropriate characteristics required from sample member (Babbie, 2013, Osuala, 2005, Payne, 2004). In addition, David and Sutton (2004) added “the units are selected according to the researchers own knowledge and opinion about which ones they think will be appropriate to the topic area”. Therefore, the researcher selected the sample on the basis of their suitability and purpose of the study. In line with this, workers of Ghana Water Company Limited within Accra office (Procurements and materials, Operations/Project management unit and Projects Planning and Development) were chosen as the sample for this study.

### **3.6 Data collection Techniques and Tools**

The study administered questionnaires to collect information from professionals of Ghana Water Company in Accra who handle procurement of chemicals for water. The

questionnaires were structured based on the variables under the objectives of the study. The questionnaires involved both closed and open-ended questions.

### **3.6.1 Pretesting**

The study conducted pretesting of the questionnaires to assess the participants understanding of the questions before the actual field work was implemented. The pretesting review that workers of Ghana Water Company were not comfortable when asked about corruption cases in the procurement cases, so the researcher in consultation with the supervisor review the questions.

### **3.7 Data Handling**

All field data were kept confidential. Therefore, the filled questionnaires were kept under lock by the principal investigator at the end of each day of data collection. Only the principal investigator and co-investigators had access to the data. Again, the Field supervisor checked all forms to ensure completeness and consistency prior to submission for data entry. The data was entered into Statistical Package for Social Sciences Software (SPSS) version 20 which made the data entry quicker than manual process and reduced human errors.

### **3.8 Data analysis Plan**

Results of the analysis were generated using descriptive statistics. Data were summarized using frequency and percentage for categorical variables. Means, minimum, maximum, standard deviation and graphs were also used to summarize variables. The analysis then followed interpretation of the tables and figures and discussions based on the findings from the study. The study finally presented recommendations and conclusions in the final chapter.

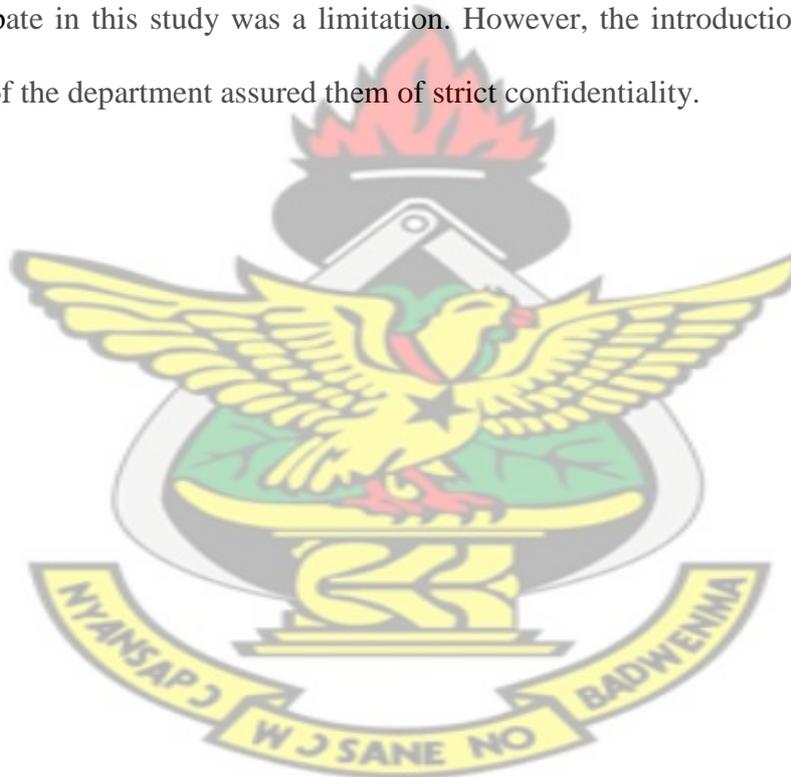
### **3.9 Ethical Issues**

An introductory letter from the Building Technology Department, KNUST was sent to the Procurement Department of the GWCL. The Principal Investigator (PI) then obtained a letter

from the head of Procurement Unit at GWCL showing his approval of the study. The PI and research assistant then explained to potential study participants, the purpose of the study and what will be required from participants prior to their enrolment into the study.

### **3.10 Limitation of the study**

It is assumed that a study that uses case study design and purposive sampling technique could open room for selection bias. One major limitation to the study is that, it could not cover all procurement activities within the GWCL. In a study that deals with a public entity like GWCL, workers were afraid to give information to an unknown person. Their unwillingness to fully participate in this study was a limitation. However, the introduction letter obtained from the head of the department assured them of strict confidentiality.



## CHAPTER FOUR

### RESULTS AND DISCUSSION

#### 4.1 Introduction

The result and discussion of the study are presented in this chapter. The chapter involves the interpretation of the results and discussion with relevant published literature from procurement. The chapter is outlined per the objective of the study. It however begins with the background information of the respondents.

#### 4.2 Background information of respondents

Table 4.1 presents the background information of respondents enrolled in the study. Responses indicate that slightly half (50.6%) of the respondents were within the age group of 31 – 40 years while 36.5% were within 41 – 50 years. Only 5.9% were however above 50 years of age with an average age being 39 years. Respondents were mostly made up of males (81.2%) with 18% constituting females. Majority 45.9% of respondents had Polytechnic Education qualification, 28.2% Bachelor degree, with 3.5% having Master's degree. Majority (74.1%) of respondents were married while 25.9% were single. Christianity 78.8%. The results show that, 55.3% of the staff had experiences ranging from 6 years to 10 years while 32.9% had worked with GWCL for 5 years and below.

**Table 4.1 Background information of respondents**

<i>Variable</i>	<i>Frequency</i>	<i>Percentage</i>
Age		
▪ ≤ 30	6	7.1
▪ 31 – 40	43	50.6
▪ 41 – 50	31	36.5
▪ > 50	5	5.9
	<i>Mean=39years</i>	
Gender		
▪ Male	69	81.2
▪ Female	16	18.8
Educational Level		
▪ SHS/O' Level	19	22.4
▪ Polytechnic	39	45.9
▪ Bachelor Degree	24	28.2
▪ Master's Degree	3	3.5
Marital status		
▪ Single	22	25.9
▪ Married	63	74.1
Religion		
▪ Christianity	67	78.8
▪ Islam	18	21.2
Years of working with GWCL		
▪ ≤ 5 years	28	32.9
▪ 6 – 10 years	47	55.3
▪ > 10	10	11.8

*Source: Field survey, August, 2014*

#### **4.3 Extent to which procurement of essential water chemical conforms to the Procurement Act**

To be able to examine the procurement of essential water treatment in GWCL, there was the need to find out the extent to which such procurement was complying with the principles established by the Public Procurement Act, 663. Table 4.2, Figure 4.1 and 4.2 present responses on how procurement of essential water treatment conforms to the Act. All responses indicate that, the GWCL has a procurement officer. Respondents further mentioned the Department they work within GWCL as Procurements and materials (58.8%), Operations/Project management unit (11.8%) and Projects Planning and Development (29.4%). Responses again indicate that, the procurement principle used on chemicals for essential water treatment is competitive. This is likely to result in efficiency and fairness in

the procurement process as well as opening the market up for new players to enter. This is consistent with studies by Abebe (2012), IFAD (2008), Sánchez (2009) Sanchez (2009), Basheka (2008) and Fiorentino (2006)

The study again elicited information on the number of contracts awarded for essential water chemicals in the last year and the maximum days open to tenderers. All responses indicated that a maximum of 4 contracts were awarded such that a maximum of 6 weeks were open to tenderers. Majority 88.2% of respondents further indicated that, they make all contracts available to interested individuals to apply. This might help to achieve transparency, value for money, economy and efficiency, and limit favouritism (OECD, 2009, PPA 2006).

In addition, respondents mentioned that sources of making information available to the public were through the website of GWCL and Newspaper(Daily graphic). According to UNODC, 2013, Walker and Hampson, 2003, Matechak 2002, this is likely to attract the attention of potential bidders who become aware of any contract opportunity with a government agency or entity. This could induce fair competition among bidders as well as resulting in equal treatment given all prospective awardees.

Respondents further mentioned the stages involve in the procurement of essential water treatment to include; Tender Publication, Testing of Chemical sample, Tenders evaluations, Approval by Review Committee and Contract Award or Administration. On the average, a typical period of procurement of chemicals was 98 days as reported by the respondents. This collaborates with studies by Abrams (2013), UNODC (2013), Ayithey (2012), OECD (2009) and PPA (2006). These studies discussed the importance of the phases of procurement in the life of a project or purchase of items for a given public entity. In addition, the study asked respondents the extent to which procurement of chemicals at GWCL conforms to the PPA. Majority, 76.5% indicated that most of the time it conforms to the PPA whiles 21.2%

disclosed all the time. However, 2.4% indicated that procurement of chemicals sometimes conform to the Act. According to the responses, procurement handled at the head office use the competitive tendering process whiles at the regional level, there is not much strict adherence to the PPA guidelines in all cases.

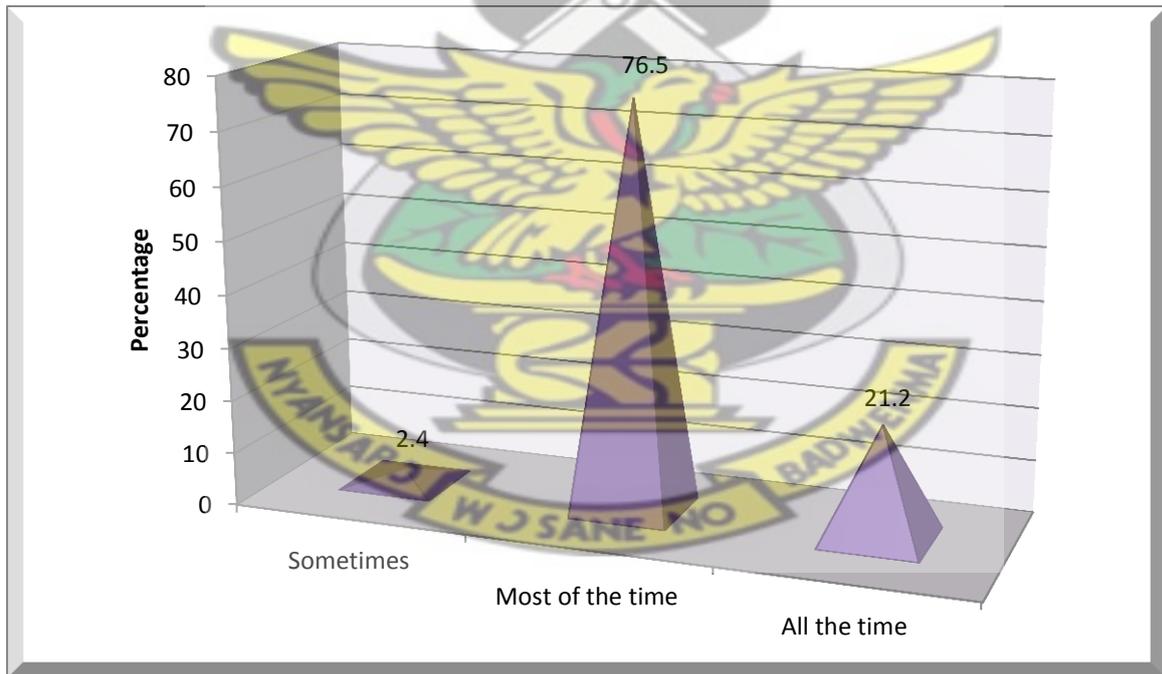
**Table 4.2: Extent to which procurement of essential water treatment conforms to the Procurement Act**

<i>Variable</i>	<i>Frequency</i>	<i>Percentage</i>
<b>Department worked within GWCL</b>		
▪ Procurements and materials	50	58.8
▪ Operations/Project management unit	10	11.8
▪ Projects Planning and Development	25	29.4
<b>Procurement methods used on chemicals for essential water</b>		
▪ Competitive	85	100
<b>Period for procurement of chemicals for essential water treatment</b>		
▪ 30days	5	5.9
▪ 90 days	54	63.5
▪ 100 days	11	12.9
▪ 150 days	15	17.6
<i>Average days</i>	98	
<b>Number of contracts awarded on chemicals for essential water in the last year</b>		
▪ 4 contracts	85	100
<b>Maximum time/days open to tenderers</b>		
▪ 6 weeks	85	100
<b>Sources of making information available to the public</b>		
▪ Through GWCL website	56	65.9
▪ Newspaper	29	34.1

**Source: Field survey, August, 2014**



**Figure 4.1: Availability of procurement officer and fair opening of contracts**  
*Source: Field survey, August, 2014*



**Figure 4.2: Extent to which procurement of essential water chemicals conform to PPA**  
*Source: Field survey, August, 2014*

#### **4.4 Challenges associated with the Procurement of essential water chemicals at GWCL.**

Procurement practices regarded as efficient play a major role in all sectors of economies (Thai, 2009, Ofori and Owusu, 2013). Effective procurement practices ensure transparency and efficiency in government purchasing which help to reduce wasteful activities. In most developing countries, there is the realization that a well-organized procurement system may contribute to good governance by increasing confidence in the fact that public funds are spent in the right direction (Hunja, 2003, Opong, 2013). However, achieving such procurement faces numerous challenges. This section sought to identify the challenges associated with the procurement of essential water chemicals at GWCL.

Respondents were asked if Government interferes with the activities involved in the procurement as represented on Table 4.3, Figure 4.3, and 4.4. Majority, 87.1% disagreed that Government interferes whereas 12.9% admitted. This result is important as interference by Government will have negative effect on the work of GWCL. The result however fail to reinforce what researchers have established in developing countries that, procurement activities are manipulated by political environment (Osei-Tutu *et al.*, 2010, Schiele and McCue, 2006, Ameyaw *et al.*, 2011). Specifically, it refutes the observation in Liberia where Government interferes by frequently replacing procurement managers (Neufville, 2008, Kukutschka and Martínez, 2013).

The study further elicited information on the sources of funding for procurement of essential water treatment. The commonly mentioned sources were from the Internally Generated Fund (43.5%), Government (42.4%) and international donor agencies (12%). Majority 82.4% disclosed that, funds from these sources are received on occasional bases whereas 17.6% indicated they do not come regularly. Responses from an open-ended question further disclosed that, one major challenge is cash flow and difficulty in establishing letters of credit. This finding is consistent with similar challenges encountered by the Public Procurement

Authority. The PPA annual report in 2011 established that there is delay in the released of funds which substantially delayed the activities of the Departments (PPA, 2011).

The study indicates that, all respondents were aware of the existence of the Procurement Act. However, majority 51.8% disclosed they do not have copies of the Act with 48.2% admitting they do have copies. Also, respondents were asked if they have degree in procurement related courses and the in-service training they have received. Majority 57.8% disclosed that they do not have degree in procurement courses with 42.2% admitting they do have such courses. The implication of this finding is that, respondents may be limited when it comes to information on procurement. These results concur with the findings by Suleiman (2010) which established that staff dealing with procurement activities are not experts in the field. Despite this, majority, 65.9% disclosed that, they have received in-service training in procurement related activities whereas 34.1% indicated they have not received such training. The most common sources of such training mentioned were GWCL and PPA. This is a significant step which needs to be practiced on a continuous basis to equip procurement officers with the needed skills.

The study further asked respondents about their overall knowledge on procurement issues. Majority, 41.2% of respondents believe that, their knowledge level on procurement is high while 38.8% believes it is moderate. Despite this, 15.3% indicated that, their knowledge level on procurement is low. These findings demonstrate that most of the respondents have overall good knowledge about the procurement regulation which means that they may impact it on the procurement of essential water chemicals at GWCL.

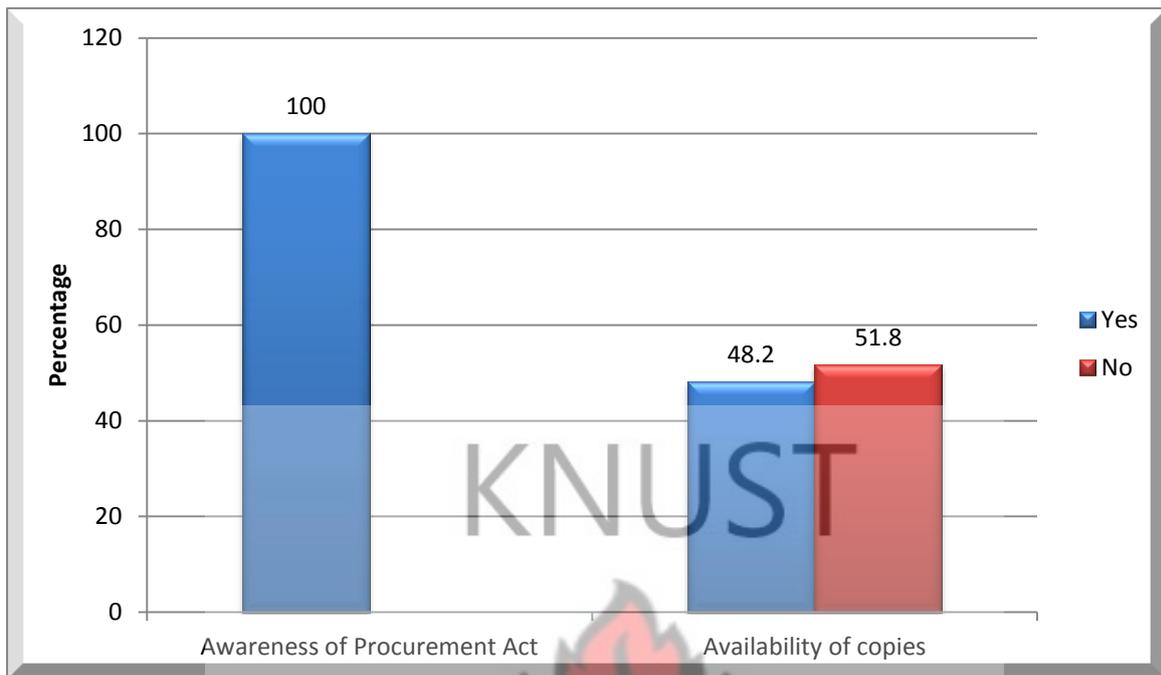
The study again asked respondents about the challenges they face with the procurement of essential water chemicals at GWCL. Respondents mentioned the problems they encounter to include delay in the approval process in procurement, shipping delays and congestion at the

port which affect timely clearance of goods, bureaucratic delays in testing samples of chemicals by the Ghana Standard Authority (GSA). These challenges go a long way to confirm Thai *et al.* (2005) observation that, procurement challenges are beyond procurement regulations. These challenges confirm the study by Oppong (2013) which attribute challenges in procurement at GWCL to human factor in the Act's implementation characterized by administrative delays.

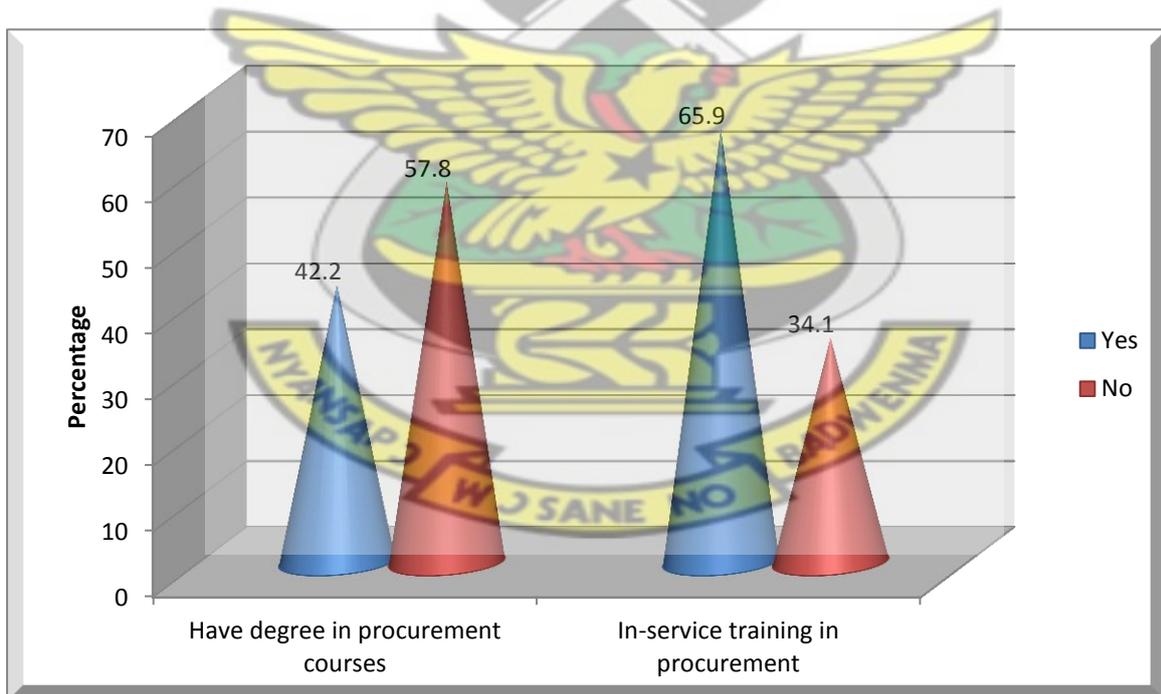
**Table 4.3: Challenges associated with the Procurement of essential water chemicals at GWCL**

<i>Variable</i>	<i>Frequency</i>	<i>Percentage</i>
<b>Government interference in the activities of GWCL</b>		
▪ Yes	11	12.9
▪ No	74	87.1
<b>Source of funding for procurement of essential water treatment</b>		
▪ Government	36	42.4
▪ International donor agencies	12	14.1
▪ Internally generated fund	37	43.5
<b>Frequency of receiving funds from various sources</b>		
▪ Not regularly	12	17.6
▪ Occasional	56	82.4
<b>Sources of training programme on procurement GWCL</b>		
▪ GWCL	48	70.6
▪ Public Procurement Authority	20	29.4
<b>Level of knowledge about procurement issues</b>		
▪ Very high	4	4.7
▪ High	35	41.2
▪ Moderate	33	38.8
▪ Low	13	15.3

*Source: Field survey, August, 2014*



**Figure 4.3: Awareness of Procurement Act**  
*Source: Field survey, August, 2014*



**Figure 4.4: Degree and training on procurement issues**  
*Source: Field survey, August, 2014*

#### 4.5 How the Procurement Act enhances Procurement of essential water chemical at GWCL

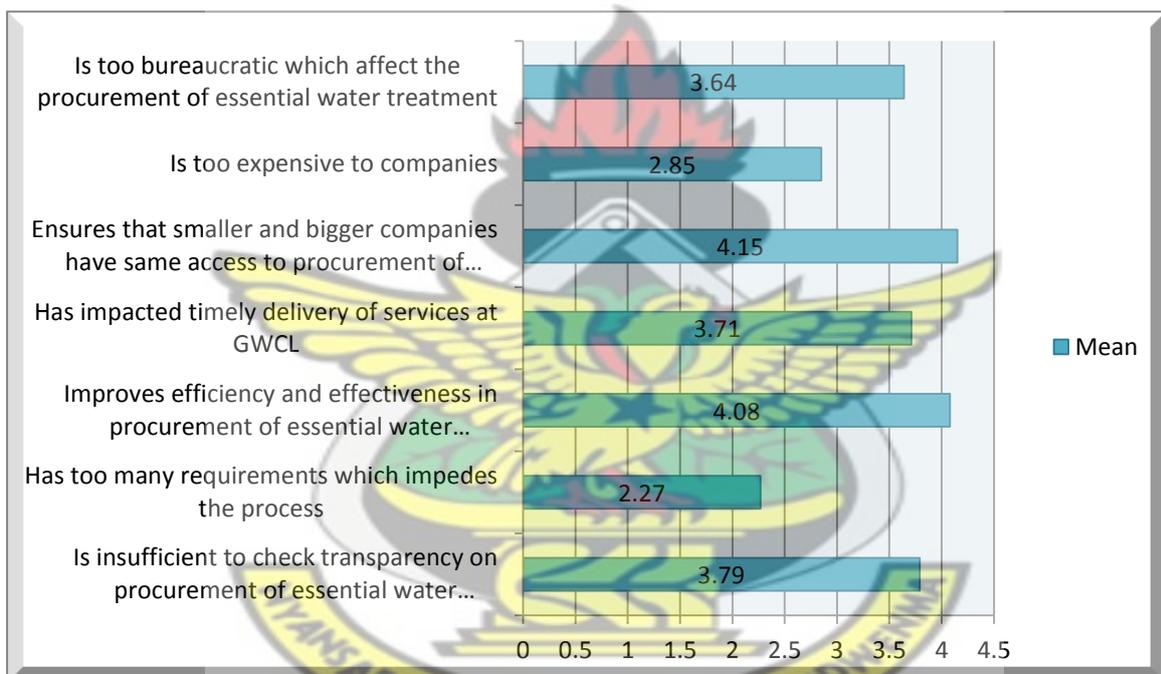
According to Oppong (2013), the PPA is carefully created to enhance the timely delivery of goods and services for Public Institutions like GWCL. Therefore, a strong and efficient procurement management in accordance with the PPA has significant effect on service delivery whereas a weak one may have adverse effects. As part of the objective of the study, the researcher sought to examine how procurement management using the PPA enhances procurement of chemicals for water treatment at GWCL. As shown on Figure 4.5 and 4.6, respondents view has been ranked with a Likert scale of five (5) responses ranging such as strongly disagree (1), disagree (2), not sure (3) agree (4) and strongly agree (5).

As shown in Figure 4.5, majority of respondents agree that using the PPA ensures that smaller and bigger companies have same access to procurement of chemicals at GWCL (mean=4.15). Also, respondents agree that procurement management improves efficiency and effectiveness in procurement of essential water chemicals (4.08). Responses were again in agreement that, management of procurement using the PPA is not sufficient to check transparency on procurement of essential water chemicals (mean=3.71). The mean responses indicate that, respondents agree that the PPA was too bureaucratic which affected the procurement of chemicals for essential water (mean=3.64). This is consistent with researchers who established that, there is an established bureaucracy and unnecessary delay arising out of administrative procedure (Oppong, 2013, Ofofu and Owusu, 2013, Ameyaw *et al.*, 2011). This study result further emphasized that the bureaucracy in the process comes from other institutions which are involved in the procurement process like the Ghana Standard Board.

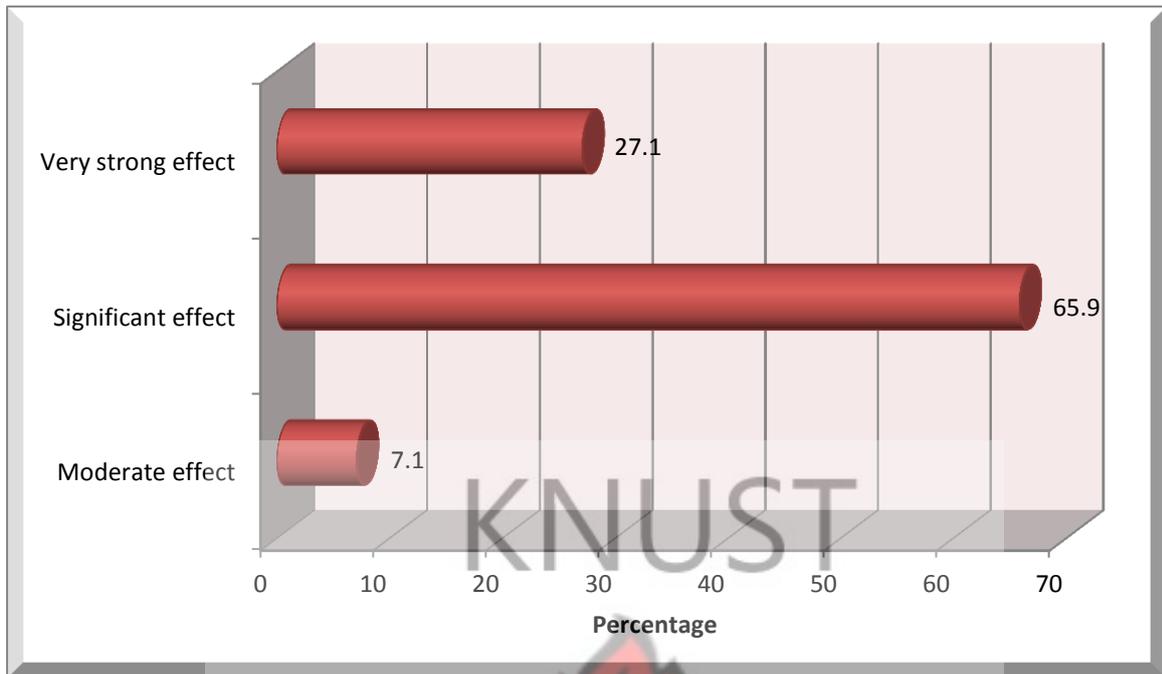
On the contrary, respondents disagreed that procurement management based on the PPA was too expensive to companies. They further disagreed that it has too many requirements which impedes the process (mean=2.27).

The study further elicited information on respondents overall view on the extent to which the procurement management has impacted positively on procurement of essential water chemicals. Majority 65.9% indicated that, it has significant effect whereas 27.1 cited very strong effect. The remaining 7.1% however believes that, procurement management using the PPA has moderate effect on procurement of essential water chemicals as shown on Figure 4.6. This findings contradict the findings by Oppong (2013) which revealed that, the implementation of the PPA has negatively impacted the timely delivery of goods and services at GWCL.

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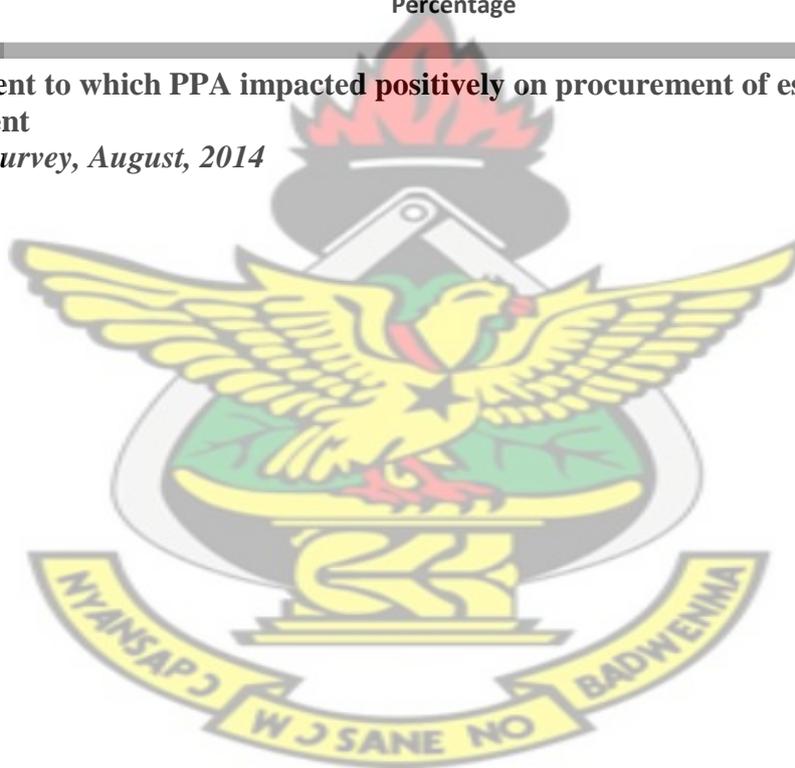


**Figure 4.5: Mean responses on how procurement management using the PPA enhances Procurement of chemicals for Water at GWCL**  
*Source: Field survey, August, 2014*



**Figure 4.6 Extent to which PPA impacted positively on procurement of essential water treatment**

*Source: Field survey, August, 2014*



## CHAPTER FIVE

### CONCLUSIONS AND RECOMMENDATION

#### 5.1 Introduction

The chapter presents the conclusion and recommendations of the study based on the findings and discussion in the previous chapter. The conclusion is presented per the objective of the study. The final section present the recommendation made to stakeholders.

#### 5.2 Conclusions

##### 5.2.1 Extent to which procurement of essential water chemicals conforms to the Procurement Act

Overall, the findings of the study in relations to whether procurement of essential water chemicals conforms to the Procurement Act of Ghana in the area of purchasing and awarding of contracts revealed that, the company adhere to various principles and procurement phases which are consistent with what has already been discussed by scholars in their various studies. Specifically, The GWCL has a procurement officer who is in charge of procurement activities at the department. The procurement principles used on chemicals for essential water was on competitive bases which will ensure efficiency and fairness. The procurement of essential water treatment was again open to all interested individuals to apply which is a significant step to achieve transparency, value for money, economy and efficiency and limit favouritism. The stages involved in the procurement of essential water treatment chemicals also conform to the Act.

## **5.2.2 Challenges associated with the Procurement of essential water chemicals at GWCL.**

The second objective of the study was to investigate the challenges associated with the procurement of essential water chemicals at GWCL. The study reveals that although most studies in Africa have confirmed that Governments interfere with the activities of procurement, it was not the case with the procurement of essential water chemicals at GWCL. The sources of funding for the activities of procurement of essential water chemicals at GWCL were through Government, International Donor Agencies and Internally Generated Funds. The findings of the study in relation to the challenges reveal inadequate cash flow and difficulty in establishing letter of credit. Although respondents were aware of the existence of the Procurement Act, however, most of them were not having copies at the time of the study. Also, the study results revealed administrative challenges in procurement of essential water chemicals characterized by delay in the approval process in procurement, shipping delays and congestion at the port which affect timely clearance of goods, bureaucratic delays in testing samples of chemicals by the Ghana Standard Authority (GSA).

## **5.2.3 How Procurement Management using the PPA enhances Procurement of chemicals for water treatment at GWCL**

The results from the study demonstrate that using the PPA in procurement management ensures that smaller and bigger companies have same access to procurement of chemicals for essential water treatment at GWCL. The study further concludes that using the PPA in procurement management ensures efficiency and effectiveness in procurement of essential water. Despite these, responses suggested that, using the PPA in procurement management is not sufficient to check transparency on procurement of chemicals for essential water treatment such that the process is too bureaucratic. Overall, the results from the study found

that procurement management has significant effect on the procurement of essential water chemicals at GWCL.

#### **5.2.4 Lessons for the Liberian water sector**

In this section, the researcher sought to address the lessons that could be used to address the procurement issues in the Liberian Water sector. The study result revealed that the procurement of essential water treatment at GWCL adheres to the various principles and procurement phases. In Liberia for example, there is also a procurement Act (Public Procurement Concessions Act, 2005) which guides all procurement activities both in public and private sectors of the country. It is therefore recommended that, the Liberia water sector should institute measures to ensure that procurement of water treatment in the country follows the principles stipulated in the Procurement Act. For instance, the study found that the procurement process is competitive such that it is open to all interested parties to apply and also ensures that smaller and bigger companies have same access to procurement. Such practices could be factored into the procurement of water treatment in the Liberia Water sector. To put it another way, if procurement of essential water treatment adheres to the regulations and procurement process in Liberia, it is recommended that efforts be made to strengthen the current practices to further make the procurement of essential water treatment more effective.

The study further revealed some challenges in the procurement of essential water chemicals which is characterized by delay in the approval process in procurement, shipping delays and congestion at the port, bureaucratic delays in testing samples of chemicals. All these challenges are associated with administrative delays. These challenges are consistent with what has already been discussed by scholars in their various studies such that, the challenges are similar across Africa. There is an indication that the challenges in the present study are likely to be the case in the Liberia water sector. It is therefore recommended that, the Liberia

Water sector should institute measures to monitor administrative activities in the procurement of essential water chemicals to prevent such delays. Similar measures should be put in place in areas outside the procurement Department of Liberia Water sector especially those who work in collaboration with the Water sector to facilitate the process.

Moreover, the study results revealed that, although respondents were aware of the existence of the Procurement Act, yet they were not having copies. In order to ensure that such situation do not happened to the Liberia water sector, efforts should be made to institute measures that will make available copies of the Act to all workers in the procurement section. It is further learnt from the GWCL that, training on procurement are organized for the staff. It therefore recommended to the Liberia Water sector that such training should be practiced on regular basis to update them on modern ways of procurement. This would further improve their knowledge on the regulation.

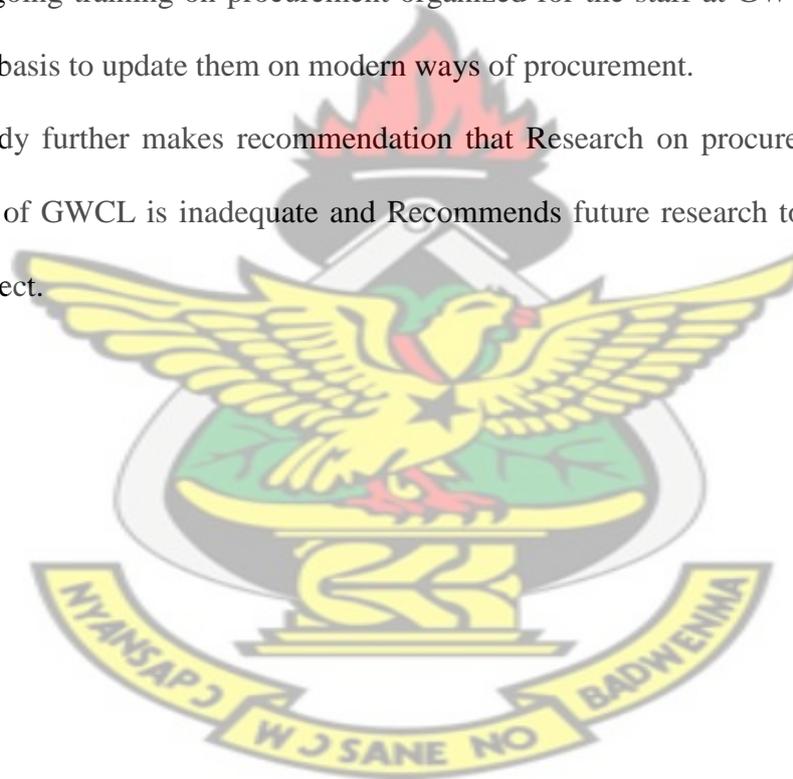
### **5.3 Recommendations**

This section of the study makes recommendation to the Ghana Water Company Limited (GWCL) based on the conclusions made from the previous section. Below are the recommendations;

- The study result demonstrated that the procurement of essential water treatment at GWCL indeed adheres to various principles and procurement phases such that procurement was on competitive bases. It is therefore recommended that efforts be made to strengthen the current practices to further make the procurement of essential water treatment more effective.
- The study found that there are challenges in the procurement of essential water chemicals which is characterized by delay in the approval process in procurement, shipping delays and congestion at the port, bureaucratic delays in testing samples of chemicals. All these challenges are associated to administrative delays. It is therefore

recommended that, GWCL should institute measures to monitor administrative activities in the procurement of essential water chemicals to prevent such delays. Similar measures should be put in place in areas outside the department of GWCL such as the GSA to facilitate the process.

- The study revealed that, although respondents were aware of the existence of the Procurement Act, yet they were not having copies. It is therefore recommended on the basis of this empirical evidence that, efforts should be made to institute measures that will make available copies of the Act to all workers in the procurement section. Also, the on-going training on procurement organized for the staff at GWCL should be on regular basis to update them on modern ways of procurement.
- The study further makes recommendation that Research on procurement within the context of GWCL is inadequate and Recommends future research to focus much on the subject.



## REFERENCES

- Abebe, G. Efficiency, Accountability and Transparency In Public Procurement: The Level of Compliance in Africa (Ethiopian Case) 5th International Public Procurement Conference, August 17 - 19 2012 Seattle, Washington Washington, United States: International Public Procurement.
- Abeillé, B. Overview of Procurement Reforms in Africa. Joint World Trade Organisation/World Bank Regional Workshop on Procurement Reforms, 2003.
- Abrams, J. 2013. Procurement for local development: A guide to best practice in local government procurement in least developed countries. *In: LYNCH, J., YANG, D. & ENGEN, J. (eds.)*. New York: UN Capital Development Fund.
- Abubakari, M., Buabeng, T. & Ahenkan, A. 2013. Implementing Public Private Partnerships in Africa: The Case of Urban Water Service Delivery in Ghana. *Journal of Public Administration and Governance*, 3, Pages 41-56.
- Adu, J. A. 2011. Managing Public Sector Procurement In A Developing Country. November 17, 2011 ed. Accra, Ghana: Ghanaweb.
- Agaba, E. & Shipman, N. 2007. Public procurement reform in developing countries: The Ugandan experience. *Advancing Public Procurement: Practices, Innovation and Knowledge-Sharing*, 373-391.
- Agyenim, J. B. & GUPTA, J. 2010. The evolution of Ghana's water law and policy. *Review of European Community & International Environmental Law*, 19, 339-350.
- Akech, J. 2004. Development partners and governance of public procurement in Kenya: enhancing democracy in the administration of aid. *NYUJ Int'l. L. & Pol.*, 37, 829.
- Ameyaw, C., Mensah, S. & Osei-Tutu, E. Challenges facing the smooth implementation of Ghana's Public Procurement Law, 2003, Act 663. West Africa Built Environment Research (WABER) Conference 19-21 July 2011 Accra, Ghana, 2011. 237.
- Ameyaw, C., Mensah, S. & Osei-Tutu, E. Improving Transparency in Public Procurement in Ghana. 5th International Public Procurement Conference, 2012 Seattle, Washington. International Public Procurement.
- Amoah, S. T. & Yahaya, A.-K. 2013. Evolution of Water Systems and its Challenges in the Wa Municipal of Ghana. *Journal of Environment and Earth Science*, 3, 15-24.
- Anvuur, A., Kumaraswamy, M. & Male, S. Taking forward public procurement reforms in Ghana. 2006. CIB.
- Arrowsmith, S. 2010. *EU Public Procurement Law: An Introduction*, United Kingdom University of Nottingham.
- Arrowsmith, S. & Wallace, D. 2000. *Regulating public procurement: national and international perspectives*, Kluwer Law International.

- Australian National Audit Office 2007. *Fairness and transparency in purchasing decisions : probity in Australian Government procurement : best practice guide.*, Australia, Canberra : Australian National Audit Office.
- Ayitey, F. K. 2012. *Assessing the level of compliance with the Public Procurement Act 2003, (663) in Public entities in Ashanti Region of Ghana* Commonwealth Executive Masters of Business Administration, Kwame Nkrumah University of Science and Technology.
- Babbie, E. R. 2013. *The practice of social research*, Cengage Learning.
- Basheka, B. C. 2008. Procurement planning and accountability of local government procurement systems in developing countries: Evidence from Uganda. *Journal of Public Procurement*, 8, 379-406.
- Bokpe, S. J. 2014. Project to promote transparency in public procurement unveiled. *Daily Graphic*.
- Bower, D. 2003. *Management of procurement*, Thomas Telford.
- Burnett, M. 2009. Using competitive dialogue in EU public procurement-Early trends and future developments. *EIPAScope*, 2009, 17-23.
- Byrne, A. 2013. Government procurement in Western Australia Beyond compliance. *Keeping Good Companies*, 65, 394.
- Chathampilly, S. K. 2012. Transparency in Public Procurement. Available at SSRN 2182105.
- Creswell, J. W. 2013. *Research design: Qualitative, quantitative, and mixed methods approaches*, Sage.
- David, M. & Sutton, C. D. 2004. *Social research: The basics*, Sage.
- Davis, P., Love, P. & Baccarini, D. 2008. Building Procurement Methods. Austraria CRC Construction Innovation.
- Dendauw, I. 2000. New WTO agreement on government procurement: an analysis of the framework for bid challenge procedures and the question of direct effect. *J. Energy & Nat. Resources L.*, 18, 254.
- Department Of Finance And Deregulation 2005. Guidance on Ethics and Probity in Government Procurement *In: Deregulation*, D. O. F. A. (ed.). Australia: Commonwealth of Australia.
- Dza, M., Fisher, R. & Gapp, R. 2013. Procurement Reforms in Africa: The Strides, Challenges, and Improvement Opportunities. *Public Administration Research*, 2.
- Edquist, C. & Zabala-Iturriagoitia, J. M. 2012. Public Procurement for Innovation as mission-oriented innovation policy. *Research Policy*, 41, 1757-1769.
- Elliott, F. J. Procurement Reform in Sierra Leone: A Public Choice Model of Analysis. International Public Procurement Conference Proceedings, 2004.

- Fiorentino, L. Public Procurement and Competition. Second International Public Procurement Conference: Proceedings, 2006. 21-23.
- Frimpong, Y., Oluwoye, J. & Crawford, L. 2003. Causes of delay and cost overruns in construction of groundwater projects in a developing countries; Ghana as a case study. *International Journal of project management*, 21, 321-326.
- Fuest, V. & Haffner, S. A. 2007. PPP-policies, practices and problems in Ghana's urban water supply. *Water Policy*, 9, 169-192.
- Ghana Water Company (GWCL). 2012. *History of Water Supply in Ghana* [Online]. Accra, Ghana: GWCL. Available: <http://www.gwcl.com.gh/pgs/history.php> [Accessed June 15 2014].
- Goodchild, B. & Chamberlain, O. 1999. Building Procurement in social housing in Britain: A review of the main issues. *Housing Studies*, 14, 861-880.
- Hany, B. 2009. *From Civil Strife to Peace Building: Examining Private Sector Involvement in West African Reconstruction*.
- Hunja, R. R. 2003. Obstacles to public procurement reform in developing countries. *Public Procurement: The Continuing Revolution, Kluwer Law International*.
- International Fund For Agricultural Development (IFAD) 2010. Project Procurement Guidelines. Rome, Italy: IFAD.
- Jaafar, M. & Radzi, N. M. 2013. Level of satisfaction and issues with procurement systems used in the Malaysian public sector.
- Jones, D. S. 2009. Curbing corruption in government procurement in Southeast Asia: challenges and constraints. *Asian Journal of Political Science*, 17, 145-172.
- Kihwelo, P. F. & Bullu, S. L. 2014. Application of public procurement law in Tanzania with reference to the open university of Tanzania. *Open University Law Journal*, 4.
- Kukutschka, B. & Martínez, R. 2013. Liberia: Overview of public procurement. Transparency International.
- Kumaraswamy, M. Growth strategies for less developed construction industries. Tenth Annual ARCOM Conference: Advances in Construction Management Research, 1994. 154-163.
- Lloyd, R. E. & Mccue, C. P. What is public procurement? Definitional problems and implications. International Public Procurement Conference Proceedings, 2004. John Wiley & Sons, 2-18.
- Lynch, J. 2013. *Public Procurement and Contract Administration: A Brief Introduction*, Leanpub.
- Matechak, J. P. 2002. Fighting Corruption in Public Procurement. *Center for International Private Enterprise CIPE. Feature Service Articles*. Retrieved February, 12, 1047-1055.

- Mccaskie, T. 2009. " Water Wars" in Kumasi, Ghana. *African Cities: Competing Claims on Urban Spaces*, 3, 135.
- Miller, G., Furneaux, C. W., Davis, P., Love, P. & O'donnell, A. 2009. Built environment procurement practice: impediments to innovation and opportunities for changes.
- Mokaya, J. M. K. 2013. *The Historical evolution of Public Procurement in Kenya* [Online]. Kenya: University of Nairobi. Available: <http://procurement.uonbi.ac.ke/node/844> [Accessed May 12 2014].
- National Transitional Government Of Liberia/World Bank And United Nations 2004. Joint Needs Assessment. Liberia: Government of Liberia.
- Neufville, S. J. 2008. Public Procurement & Concessions Commission Progress Report On The Public Procurement Reform Program Of Liberia. Liberia: PPCC.
- Nkingu, N. Public procurement reform: The Tanzanian experience. Joint WTO-World Bank Regional Workshop on Procurement Reforms and Transparency in Public Procurement for Anglophone African Countries, 2003. 14-17.
- Nolan, M. 2014. *The History of Procurement: Past, Present and Future* [Online]. United States: BidNet. Available: <http://www.sourcesuite.com/procurement-learning/purchasing-articles/history-of-procurement-past-present-future.jsp> [Accessed June, 10 2014].
- Nyame, M. 2011. *Optimal production of portable water: Case study of Agona Swedru-Ghana Water Company Limited (GWCL)*. Master of Science Industrial Mathematics, Kwame Nkrumah University of Science and Technology.
- Odhiambo, W. & Kamau, P. 2003. Public procurement: lessons from Kenya, Tanzania and Uganda. OECD Publishing.
- OECD 2009. OECD Principles for Integrity in Public Procurement. France: OECD.
- OECD 2011. AID Effectiveness 2006 - 10: Progress in Implementing the Paris declaration. In: OECD (ed.). OECD.
- Ofori, S. A. & Owusu, J. A. 2013. Procurement Practices in Urban Water Supply in Ghana. *Research Desk*, 237-248.
- Ohashi, H. 2009. Effects of transparency in procurement practices on government expenditure: A case study of municipal public works. *Review of Industrial Organization*, 34, 267-285.
- Oluka, P. N. & Sennoga, F. Tackling corruption in public procurement: A case of local governments in Uganda. third International Public Procurement conference, Amsterdam, 2008. Citeseer.
- Opong, D. 2013. The Impact of the Implementation of Public Procurement Act 2003 (Act 663), on the Timely Delivery of Goods and Services: A Case Study of Ghana Water Company Limited (GWCL). *International Journal of Application or Innovation in Engineering & Management (IJAIEM)*, 2, 107 - 121.

- Osei-Tutu, E., Badu, E. & Owusu-Manu, D. 2010. Exploring corruption practices in public procurement of infrastructural projects in Ghana. *International Journal of Managing Projects in Business*, 3, 236-256.
- Osuala, E. C. 2005. *Introduction To Research Methodology*, Onitsha, Nigeria, Africana–First Publishers Limited.
- Payne, G. 2004. *Key concepts in social research*, Sage.
- Public Procurement & Concessions Commission (PPCC) 2010. Annual Report 2010. *Ensuring Economic and Efficient use of Public funds*. Liberia: PPCC.
- Public Procurement Authority (PPA) 2006. Manuals-Public Procurement Act, 2003 (Act 663). Accra, Ghana: PPA.
- Public Procurement Authority (PPA) 2011. Annual Report 2011. Accra, Ghana: Public Procurement Authority.
- Public Procurement Authority (PPA) 2013. Act 663- Antidote to corruption in public procurement. PPA.
- Public Procurement Oversight Authority (PPOA) 2011. Final report Procurement review of National Social Security Fund (NSSF). PPOA/NSSF: PPOA.
- Rashid, R. A., Taib, I. M., Ahmad, W. B. W., Nasid, M. A., Ali, W. N. W. & Zainordin, Z. M. 2006. Effects of procurement systems on the performance of construction projects. Malaysia: Universiti Teknologi Malaysia
- Rasmus, J. 2010. Accountability in Public Procurement-transparency and the role of civil society. New York, United States: United Nations Procurement Capacity Development Centre (UNPCDC).
- Raymond, J. 2008. Benchmarking in public procurement. *Benchmarking: An International Journal*, 15, 782-793.
- Ren, Z., Kwaw, P. & Yang, F. 2012. Ghana's public procurement reform and the continuous use of the traditional procurement system: The way forward. *Built Environment Project and Asset Management*, 2, 56-69.
- Roos, R. 2012. Sustainable Public Procurement: Briefing Note. *United Nations Development Programme Available at: [http://www.unpcdc.org/media/390120/spp\\_brief\\_en\\_2012-02-06.pdf](http://www.unpcdc.org/media/390120/spp_brief_en_2012-02-06.pdf)*.(accessed 15 February 2012).
- Rwelamila, P., Talukhaba, A. & Ngowi, A. 1999. Tracing the African project failure syndrome: the significance of 'ubuntu'. *Engineering Construction and Architectural Management*, 6, 335-346.
- Sánchez, G. A. 2009. Competition and the Public Buyer Towards a More Competition-Oriented Procurement: The Principle of Competition Embedded in EC Public Procurement Directives. Available at SSRN 1928724.

- Sarfo, P. A. & Baah-Mintah, R. 2013. Assessing the Effect of the Procurement Act (663) on the Public Financial Management in Ashanti Region. *Nature*, 1, 91-98.
- Schapper, P. R., Malta, J. V. & Gilbert, D. L. 2006. An analytical framework for the management and reform of public procurement. *Journal of public procurement*, 6, 1.
- Schiele, J. J. & Mccue, C. P. 2006. Professional service acquisition in public sector procurement: a conceptual model of meaningful involvement. *International Journal of Operations & Production Management*, 26, 300-325.
- Søreide, T. 2002. *Corruption in public procurement. Causes, consequences and cures*, Chr. Michelsen Institute.
- Soudry, O. 2007. A principal-agent analysis of accountability in public procurement. *Advancing Public Procurement: Practices, Innovation and Knowledge-sharing*, 432-451.
- Stephens, T. 2010. *Manual on small earth dams: a guide to siting, design and construction*, Food and Agriculture Organization of the United Nations.
- Suleiman, Y. 2010. *Overview of Public Procurement Reforms in Commonwealth Africa: strategy, successes and challenges (Botswana, Ghana, Nigeria)* [Online]. St. Lucia. [Accessed May 30 2014].
- Swedish Competitive Authority. 2010. *Transparency and Secrecy* [Online]. Stockholm, Sweden: Swedish Competition Authority. Available: [http://www.kkv.se/t/Page\\_6773.aspx](http://www.kkv.se/t/Page_6773.aspx) [Accessed June 12, 2014].
- Thai, K. V. 2001. Public procurement re-examined. *Journal of Public Procurement*, 1, 9-50.
- Thai, K. V. Measuring losses to public procurement corruption: The Uganda case. 3rd International Public Procurement Conference Proceedings. <http://dx.doi.org/10.1201/9781420054590>, 2008.
- Thai, K. V. 2009. International public procurement: concepts and practices. *International handbook of public procurement*, 2-24.
- Thai, K. V., Araujo, A., Carter, R. Y., Callender, G., Drabkin, D., Grimm, R., Jensen, K., Lloyd, R. E., Mccue, C. & Telgen, J. 2005. *Challenges in Public Procurement: an international perspective*, PrAcademics Press.
- Turina, N. & Car-Pušić, D. "Design and build" in comparison with the traditional procurement method and the possibility of its application in the Croatian construction industry. 8th International Conference: Organization, Technology and Management in Construction, 2008.
- United Nations Office On Drugs And Crimes (UNODC) 2013. Guidebook on anti corruption in public procurement and management of public finances. *Good practices in ensuring compliance with article 9 of the United Nations Convention against Corruption*. Vienna: UNODC.
- Walker, D. H. & Hampson, K. D. 2003. *Procurement choices*, Oxford: Blackwell Publishing.

- Wittig, W. A. 2003. Public procurement and the development agenda. *International Trade Centre, Geneva.*
- Wittig, W. A. & Jeng, H. 2004. Challenges in Public Procurement: Comparative Views of Public Procurement Reform in Gambia. *Challenges in Public Procurement: An International Perspective.* Boca Raton, FL, USA: PrAcademics Press.
- Wollmann, H. 2003. *Evaluation in public-sector reform: concepts and practice in international perspective,* Edward Elgar Publishing.
- Wood, B., Kabell, D., Muwanga, N. & Sagasti, F. 2008. *Evaluation of the Implementation of the Paris Declaration: phase one: synthesis report,* Ministry of Foreign Affairs of Denmark.
- World Bank. 2013. *Ghana's Comprehensive Approach to Public Procurement Reform* [Online]. Washington, USA: World Bank. Available: <http://www.worldbank.org/en/news/feature/2013/02/04/Ghana-8217-s-Comprehensive-Approach-to-Public-Procurement-Reform> [Accessed June 3 2014].
- Yin, R. K. 2009. *Case study research: Design and methods,* sage.



## APPENDIX

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

COLLEGE OF ARCHITECTURE AND PLANNING

DEPARTMENT OF BUILDING TECHNOLOGY

### ***PROCUREMENT OF ESSENTIAL WATER TREATMENT CHEMICALS AT THE GHANA WATER COMPANY LIMITED***

**Dear Sir/Madam**

The purpose of this questionnaire is to *assess the procurement of essential water treatment chemicals at the Ghana water company*. It would be greatly appreciated if you could complete this questionnaire. The study is for academic purposes. You are, however, assured of the confidentiality and anonymity. Thank you

**JAYLEE SYNYENLENTU – Student (MSc. PROCUREMENT MANAGEMENT)**

Please answer the following questions with a tick [√]

#### ***SECTION A: DEMOGRAPHIC CHARACTERISTICS***

1. Age.....
2. Gender: a) ... Male [ ] b)... Female [ ]
3. Marital status  
a) Single [ ]  
b) Married [ ]  
c) Divorce [ ]  
d) Widow [ ]  
e) Co-habitation [ ]
4. Religion: .....

#### ***SECTION B: THE EXTENT TO WHICH PROCUREMENT OF ESSENTIAL WATER TREATMENT CHEMICALS AT GWCL CONFORMS TO THE PROCUREMENT ACT***

1. Do you have a procurement officer?  
a) Yes  
b) No
2. If no, who is in charge of the procurement process in your organization?  
a) Accountant & Audit [ ]

- b) Operations
  - c) HR Personnel
  - d) Projects
  - e) Other
3. Which department do you work within the GWCL?
- a) Procurements
  - b) Materials
  - c) Operations
  - d) Projects
  - e) Audit and Finance
  - f) Other
4. How long have you worked with GWCL? .....
5. What procurement method do you use on chemicals for essential water treatment?
- a) Competitive
  - b) restricted
  - c) two-staged
  - d) sole source
  - e) request for quotation
  - f) request for proposal
6. For a typical procurement of chemicals for water treatment, how long does it take? ...
7. How many contracts and procurement have you awarded in the last year on chemicals for essential water treatment? .....
8. What are the maximum time/days open to tenderers? .....
9. What is the source of making information available to the public?
- a) Television
  - b) Radio
  - c) Through our website
  - d) Newspaper
  - e) Other
10. What are the stages involved in the Procurement of essential water chemicals at GWCL. ....
11. Do you make available all tenders to interested firms to apply?
- a) Yes
  - b) No
12. On a scale of 1 to 5, where 1 is “never”, 2, is “rarely”, 3 is “sometimes”, 4 is “most of the time” and 5 is “all the time”, To what extent does the GWCL conform to the PPA?
- a) 1

- b) 2
- c) 3
- d) 4
- e) 5

Please explain your answer to Q.12 above.....

On a scale of 1 to 5 where 1 is “Not at all”, 2 is “only slightly”, 3 is “moderate effect”, 4 is “significant effect”, 5 is “very strong effect”, to what extent has the PPA impacted POSTIVELY on procurement at the GWCL?

- a) 1
- b) 2
- c) 3
- d) 4
- e) 5

Please explain your answer to Q.13 above.....

KNUST

***SECTION C (i): CHALLENGES ASSOCIATED WITH THE PROCUREMENT OF ESSENTIAL WATER CHEMICALS AT GWCL.***

1. Does Government interfere with the activities of the Procurement process in GWCL?
  - a) Yes
  - b) No
  
1. If yes, in which way does the government interfere in the work of the Procurement process of GWCL.....
  
2. What is the source of funding for the activities of the procurement department in your organization?
  - a) Government
  - b) International donor agencies
  - c) None
  - d) Other
  
3. How often do you receive funds from the source of funding?
  - a) Not regularly
  - b) Occasional
  - c) Yearly
  - d) Half year
  - e) Other

4. How are staffs at procurement department motivated?:  
.....
5. What challenges do you face with procurement of chemicals for essential water treatment at GWCL
- i. ....
  - ii. ....
  - iii. ....
  - iv. ....
  - v. ....

# KNUST



**SECTION C (ii): CAPACITY OF PROCUREMENT OFFICIALS AT GWCL**

1. How many years have you served as a member of Entity Tender committee.....
2. Highest level of education obtained
  - a) SHS/O'Level
  - b) A' level  Polytechnic
  - c) 1st Degree
  - d) Masters
  - e) PHD
  - f) Other, specify.....
3. Are you aware of the existence of the procurement Act 2003(Act 663) and procurement manual?
  - a) Yes
  - b) No
4. If yes, do you have copies?
  - a) Yes
  - b) No
5. Do you have any degree in procurement or its related courses?
  - a) Yes
  - b) No
6. Do you receive in-service training in procurement?
  - a) Yes
  - b) No
7. If yes, how often do you receive such training?
  - a) Not regularly
  - b) Occasional
  - c) Yearly
  - d) Half year
  - e) Quarterly
  - f) Monthly
  - g) Other
8. Who organizes the training programme?
  - a) Ghana Water Company
  - b) Public Procurement Authority
  - c) Ministry of finance
  - a) Others specify.....
9. What is your level of knowledge about procurement issues?
  - a) Very high
  - b) High
  - c) Moderate
  - d) low
  - e) Very low

**SECTION D: HOW THE PROCUREMENT MANAGEMENT ENHANCES THE  
PROCUREMENT OF ESSENTIAL WATER CHEMICALS**

1. *Please tick [*
2. *]* **to indicate your opinion on the following statements in Table 1.**

*Table 1: Opinion of respondents on how procurement management enhance procurement of essential water chemicals at GWCL*

<b>Statement: The Procurement Act 2003 (663)...</b>	<b>SA</b>	<b>A</b>	<b>N/A</b>	<b>D</b>	<b>SD</b>
1. delays the timely delivery of services					
2. is insufficient to check transparency in the GWCL					
3. has too many requirements which impedes it timely implementation					
4. Improve efficiency and effectiveness in the performance in procurement of essential water chemicals					
5. has impacted timely delivery of services at GWCL					
6. ensures that smaller and bigger companies have the same access to procurement of essential water chemicals					
7. is too expensive to companies					
8. is too bureaucratic which affect procurement of essential water chemicals					

**Scale**

**Strongly agree** (SA)

**Agree** (A)

**Not applicable** (N/A)

**Disagree** (D)

**Strongly disagree** (SD)

**THANK YOU FOR YOUR TIME!!!**