EVALUATING THE PRACTICES OF SUSTAINABLE PUBLIC PROCUREMENT ON WORKS' CONTRACTS IN PUBLIC UNIVERSITIES IN GHANA

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DECLARATION

I hereby attest that I am the sole author of this dissertation and that its contents are only the result of the readings and research I have done.

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DEDICATION

This dissertation is primarily dedicated to my late father, Alhajj Is-haq Al-hassan and my mother, Hajia Amina Abubakar for their priceless sacrifices and their immense contribution towards my upbringing.

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LIST OF ABBREVIATIONS

Abbreviation	*Meaning*
ANOVA	Analysis of Variance
BBC	British Broadcasting Corporation
CIPS	Chartered Institute of Procurement and Supply
CSR	Corporate Social Responsibility
DEFRA	Department for Environmental, Food and Rural Affairs
EMCA	Environmental Management and Coordination Act, 1999
EU	European Union
GDP	Gross Domestic Product
GPP	Green Public Procurement
HSBC Holdings	Hong Kong and Shanghai Banking Corporation Holdings
KIPPRA	Kenya Institute for Public Policy Research and Analysis
MOF	Ministry of Finance
MTF	Marrakech Task Force
NEEMA	New England Environmental Marketing Association
NGOs	Non-Governmental Organisations
OECD	Organisation for Economic Co-operation and Development
PNDC	Provisional National Defence Council
PPA	Public Procurement Authority
PPB	Public Procurement Board
PWC	Price Waterhouse and Coopers
SMCD	Supreme Military Council Decree
SP	Sustainable Procurement
SPP	Sustainable Public Procurement
SPSS	Statistical Package for Social Sciences
TUC	Trades Union Congress
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNICEF	United Nations International Children Emergency Fund

ABSTRACT

There has been a major concern about how corporate entities, such as public universities apply the rules and regulations governing sustainable procurement in their quest to procure construction contracts. This research sought to evaluate the practices of sustainable public procurement as applied to works' contracts in public universities in Ghana. Thus, the objectives were to give account of the procurement reforms that gave rise to the enactment of the maiden public procurement Act and to assess the entire project life cycle for works' contracts in public universities in Ghana. In addition, the research sought to ascertain the implementation of sustainable public procurement policy by players/actors in procurement entities as well as the compliance of sustainable public procurement policy by works' contractors. Also, the research identified the challenges, potential benefits and proposed measures aimed at addressing the challenges associated with the implementation of sustainable public procurement policy in works' contracts in public universities in Ghana. The researcher randomly selected three (3) public universities out of fifteen (15) that represented the research location. The target population included procurement practitioners – Directors of procurement, finance, internal audit, works and physical development directorates. Based on the research objectives and questions, as well as the potential unit of analysis, both qualitative and quantitative research design was adopted as the main data collection instrument to gather information from a sample of twelve (12) respondents distributed evenly amongst the four respondents in the three public universities out of a population of sixty (60). The primary source of obtaining data for this study was by distributing self-administered questionnaires and conducting personal interviews on specific sustainable procurement issues on the works construction sites. Whiles all the questions in the questionnaire were closed-ended, most of the questions for the personal interview were semi-structured and the discussions were in-depth. Besides, secondary data was obtained from relevant professional journals, credible sources from the internet, previous related thesis, other tender documents for goods, works and services and current electronic library books on sustainable procurement. Purposive sampling method was used to determine the sample of the research under discussion. Due to the non-probability sampling techniques used, the sample members were carefully selected on the basis of their special relationship with the phenomenon under investigation, sufficient and relevant work experience in the field of construction projects, and active involvement in several works contract initiatives and partnerships.

The researcher sought permission from management of the three public universities under the study to introduce the researcher and the subject-matter of the research and to assure all the

key participants of confidentiality and anonymity in obtaining information from them. The respondents contributed immensely to the data finding exercise by way of completing their questionnaire and providing in-depth responses to the semi-structured interviews which was subsequently audio-taped, transcribed, coded into themes and analyzed accordingly. Descriptive statistics was used to analyze quantitative data such as frequency distribution tables, pie charts, and percentages, including mean and mode of the data collected. Furthermore, measures of dispersion such as the standard deviation, variance and skewness was computed from the data obtained from the study. The concept of multiple regression analysis was employed to determine the relationship between factors affecting sustainable procurement and the level of compliance and implementation by project contractors on one side and project actors/players resulting from the execution of the construction projects. The multiple regression analysis table was used to extrapolate the outcome of the study to ascertain whether there are future prospects of improving the level of compliance and implementation of sustainable procurement in construction projects in public universities in Ghana. Also, Analysis of Variance (ANOVA) was used to determine whether there are any statistically significant differences between the means of any two or more independent variables/factors associated with the study. The latest Statistical Package for Social Sciences (SPSS) software - version 1.0.0.1406 of 2022 and Excel (spreadsheet) - 2021 for windows version was used in processing data obtained from self-administered questionnaire and personal interview.

In relation to the questionnaire, most of the factors analyzed have contributed immensely to the procurement reforms leading to the enactment of the maiden public procurement Act and subsequently its amendments. All the stages involved in the project life cycle for the procurement of construction contracts as well as the inclusion of sustainability issues in project life cycle have duly been followed by respondents to the letter. Majority of the respondents agreed that contract administrators comply with the criteria used to ascertain sustainable public procurement policy when executing works' contracts. Arguably, whiles some of the respondents disagreed with five factors posing bottlenecks in the implementation of sustainable procurement policy, the others agreed with the other five factors in executing construction contracts. Therefore, the proposed measures in addressing the implementation challenges in relation to sustainable procurement in works' contract was adopted by all. Most respondents acknowledged the greater benefits accrued to the implementation of sustainable public procurement policy. The outcome of the personal interviews conducted revealed that all the thematic areas relevant to the compliance and implementation of SPP policy relating to

construction contracts in public universities attracted very positive response, with the exception of education and training in project sustainability issues which recorded low standard deviation and negatively skewed dataset, indicating little or no education and training in sustainability issues. Likewise, the awareness of punishment or sanction levelled against breach of sustainability requirements by actors/players and works' contractors, which also recorded negative skewness, indicating that most respondents were unaware of punitive measures for such breaches. The proposal to adopt a single regulatory body to have oversight responsibility over all construction contracts in public universities was upheld by most of the respondents. Even though the outcome of the research revealed that compliance and implementation of sustainability issues in the procurement of works' contracts to a large extent achieved the desired application and benefits, potential challenges still persist that requires to be managed and resolved from time to time by procurement practitioners, government and concerned stakeholders in order to meet socio-economic needs of the populace including the protection and conservation of the environment.

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

The procurement function plays a significant role in all facets of an organisation's activities. Organisations require goods and services to run the day-to-day business activities and procurement activity is responsible for carrying out these functions.

Basically, procurement requires the acquisition of goods, services and construction contracts. In public procurement terms; in acquiring such goods, services and construction contracts, the processes of procurement to be employed is required to be harmonized to secure a judicious, efficient and economic utilization of public funds and to make sure that the process of procurement is carried out in a fair, transparent and without discrimination amongst the parties involved in the contract to the extent that the process is executed in an environmentally and socially sustainable manner [(Section 2, Public Procurement (Amendment) Act 2016, Act 914)].

Over the last fifteen years, governments in developing and under-developed countries have leveraged public procurement activities to a higher pedigree. The budgetary allocation on public procurement activities in most developing countries around the world account for about 20 per cent of public expenditure (Mlinga, 2009).

In Ghana, it is believed that public procurement budget forms the second largest expenditure of government next to personal emolument. Thus public procurement expenditure constitute between 50 – 70 per cent of the national budget whiles it accounts for about 14 per cent of the gross domestic product of the country (Adjei, 2005). Thai (2004) also asserts that public procurement expenditure forms a significant amount of state resources. During the 2018/19 financial year, public procurement expenditure in Malawi accounted for about 58 per cent of the total national budget and this forms about 12.10 per cent of the Gross Domestic Product of the country (UNICEF, 2019), whereas that in Tanzania was 31 per cent of the total national budget representing 24.5 per cent of GDP in the same financial year (Tanzania Invest, 2019). Therefore, in industry sectors where government entities commonly constitute the largest client, such as in the building construction sector, government procurement practices have a significant impact on greening the industry.

In Ghana, a chunk of government expenditure is committed to managing decentralized local assemblies, public hospitals and public educational institutions such as public universities. The efficient and effective operation of procurement activities in these institutions requires the achievement of value for money in all manner of procurement. Value for money can only be achieved when the right caliber of staff, strengthened systems and controls, and the requisite procurement laws and other regulations are adhered to in the procurement process.

Over the last six decades, the agenda of past governments has been to institute policy objectives aimed at making public financial management system more efficient and effective. Most of these public procurement policy interventions were encapsulated in the following Acts of Parliament: Contract Act (1960); Ghana National Procurement Agency Decree (1976); Ghana Supply Commission Act (PNDC Law 245), and some other related laws. All these interventions were formulated to facilitate and regulate the public procurement processes in Ghana.

A review of the public procurement intervention laws revealed some grave inconsistencies and inefficiencies relating to its implementation including improper planning for the required goods, inadequate database, non-transparent procurement practices, corrupt practices, untimely release of funds by government which contributed to the late delivery of goods and execution of services, and the establishment of unsuitable administrative and organisational structure that prevented efficient and effective public procurement management. Due to the application of the review of these interventionist laws, value-for-money in public procurement was unachievable during those procurement regimes. Due to the inefficiencies and weaknesses in the public procurement system, most public entities at that time carried out procurement activities using a self-designed processes and procedures which were inconsistent with international best procurement practices.

In view of the above public procurement interventions, government initiated a comprehensive review of its public expenditure pattern in 1996 by attempting to tighten its financial management system through the institution of public financial management reform programme which formed part of public procurement reforms. In particular, the rationale behind the public procurement reforms was to ensure competition, advance national development, adopt best global public procurement practices, ensure efficient, transparent

and accountable buying and to make sure value for money is achieved in all situations of buying (Ministry of Finance, 2001).

It was the establishment of the public financial reform programme that necessitated the enactment of the maiden Public Procurement Act (2003), Act 663 which intended to address the severe inconsistencies and inefficiencies associated with the previous public procurement practices.

Accordingly, the maiden Public Procurement Act (2003), Act 663 was passed into law and took effect from August 27, 2004 to harmonize public procurement processes and to instill financial discipline on all public spending proposed by the public financial management agenda of government.

However, after about a decade and a half of its implementation some successes were achieved whiles some critical challenges were encountered in its operation. Notable administrative and operational challenges include extended bureaucratic tendencies in the processes of acquisition of goods and services; lower threshold levels for procured contracts; lengthy layers of tender review committees resulting into delays in approving contracts; improper classification and categorization of membership of Entity Tender Committee; undue delays in the payment system for delivered goods and executed services and works contracts, and many more has contributed largely to the inefficiencies and inconsistencies in the procurement practice in Ghana.

It is evident that the maiden Public Procurement Act (2003), Act 663 throughout its implementation in the last one and half decade had disregarded certain critical best international procurement practices such as the introduction of e-procurement, framework contracting and more importantly social, economical and environmentally sustainable procurement practices in all manner of public procurement. As a result of that society and the ecology were affected by the gruesome conduct of some procurement activities by public entities in general.

Sustainable Public Procurement (SPP) is about spending public funds on products, services and projects that foster sustainable development. With sustainability issues becoming vital in the developmental agenda of nations, it is time to shift the focus of public procurement systems from mainly immediate economic advantages to Sustainable Public Procurement

systems which will result in long-term benefits not just to governments but to all their constituents.

Sustainable Public Procurement is defined as a process whereby public entities meet their needs for goods, services and works in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organization but also to society and the economy, whilst minimizing damage to the environment. It is one of seven themes being promoted under the Marrakech Task Force. The other themes on sustainable procurement which was also promoted under the Marrakech protocol include; Sustainable Products (hosted by the UK) and Sustainable Buildings and Construction (hosted by Finland). These two other themes directly affect the construction industry and worthy to be acknowledged.

SPP considers the environmental, social and economic consequences of: design; non-renewable material use; manufacture and production methods; logistics; service delivery; use; operation; maintenance; reuse; recycling options; disposal; and suppliers' capabilities to address these consequences. It upholds the principles of transparency, fairness to the supplier and society, long term economy, and accountability from purchaser and supplier.

The execution of construction projects in general comes with vast socio-economic as well as disturbing environmental challenges to many countries particularly in developing countries due to inadequate technology to curb its associated environmental menace. Some social and economic commentators argue that by executing construction projects within human settlements, people may lose their livelihood, traffic congestion, road diversions, relocating families and businesses as well as obtain inadequate compensation package for demolished buildings and other landed properties affected by that construction activity (Mensah and Ameyaw, 2012). On the contrary, the socio-economic benefits attributable to the construction of public buildings and related projects in the developmental agenda of government cannot be over-emphasized.

Other environmental experts have held the view that the ecological effects of construction projects may cause air pollution, land vibration, noise pollution, and more importantly climate change among others. Therefore, there is the need to introduce and understand the concept of sustainable construction projects to mitigate these challenges. Sustainable (building) construction projects will also have the concept of sustainable procurement as its

segment which is the focal point of this study (Mensah and Ameyaw, 2012). Thus the construction of public buildings and related projects is an indispensable infrastructure for sustainable social and economic development.

Nevertheless, the construction of public buildings and related projects involves huge amount of sunk costs that requires proper sustainable procurement processes and procedures to ensure not only value for money for the projects, but also to minimize considerably the effects of executing such projects on the environment. Historically, public procurement in the construction sector in general has been met with strict regulations and competitiveness to ensure that the sector is much planned to conform to standards (Public Procurement Authority, 2013).

According to Doh (2014), the Public Procurement Act 2003, Act 663 merely sought to address a few of the sustainable public procurement issues in section 59 of Act 663 and recommended that the government ought to facilitate a review of the Public Procurement Act and include social, economic and environmental issues on sustainability in public procurement.

Subsequently, the Public Procurement (Amendment) Act 2016, Act 914 was passed to cure the bottlenecks and inefficiencies encountered in the maiden procurement law and to introduce amongst other best international procurement practices social, economic and environmentally sustainable public procurement which was hitherto not recognized under the previous procurement regimes. The main objective of the introduction of these public procurement innovations is to bring the public procurement system in Ghana in line with international best practice.

Indeed it is evident that procurement plays a critical role throughout the lifecycle of a construction project and serves to drive many sustainability outcomes (Hardy, 2013). Green procurement in particular can be used as a strategic tool to promote certain behaviour and as an environmental policy instrument to translate environmental policies into environmentally sustainable project processes, products and services (Faith-Ell, 2005). Green procurement, also known as environmentally sustainable procurement, refers to the practice of formulating environmental requirements in the tendering process (Parikka-Alhola and Nissinen, 2008), or more broadly to the process of applying environmental consideration into planning, contracting and monitoring the project delivery, including the

use of environmental criteria in contractor selection.

It is believed that traditional procurement focuses on achieving value for money whereas Sustainable Procurement involves achieving value for money on an entire life cycle basis by considering the three constituents of Sustainable Procurement – that is; environment, economic and societal considerations, related with the goods, works and services procured with the aim of reducing possible adverse impacts (Doh, 2014; Boomsma 2008).

Sustainable solutions can often cost less over the whole life of the purchase. Lysons and Farrington (2010) noted that some key benefits include: value for money, protection and enhancement of the environment, more efficient use of resources, greater social inclusion, air and ethical trade, support for innovation, better risk management, and lower whole-life costs improved supplier relationships, a diverse and flexible supply chain and a competitive edge.

Decision making in Sustainable Procurement must take into account greenhouse gas (GHG) emissions throughout the project lifecycle including emissions that are created before and after the structure is built and operational (Wyatt, et al., 2000). To achieve an environmentally sustainable construction project, sustainability should be introduced as a decision factor in all strategic, tactical, and operational levels (Vanegas, 2003).

This study seeks to assess the level of implementation and compliance by procurement actors, contract administrators and works contractors of the application of sustainable procurement requirements/policy on works contracts and their impact on social and economic lives and the environment in public universities in Ghana.

1.2 Problem Statement

Prior to 2003 the public procurement system was not backed by law. As a result of that public procurement practices by most procurement entities in Ghana was bedeviled with critical operational and administrative inefficiencies and bottlenecks.

The maiden public procurement law was passed and operationalized in August 2003 to cure the mischief posed by the previous public procurement practices. After nearly a decade and a half of the implementation of the Public Procurement Act (2003), Act 663 critical amendments were made to again cure some of the provisions that have caused greater

inefficiencies and inconsistencies in the application of the Act.

The Public Procurement (Amendment) Act 2016, Act 914 introduced amongst other best international procurement practices social, economic and environmentally sustainable public procurement which was hitherto not recognized under the previous procurement regimes.

Current trends in the field of public procurement require the application of sustainability principles and concepts and how they can be integrated and enforced in the procurement process. A complete approach to sustainable procurement should consider circumstances where private and public entities meet the requirements for the supply of goods, execution of services and works contract in a social, economic and environmental manner OECD (2012).

The need to improve organizational efficiency, reduce waste, protect ecology, overcome supply chain risk, and achieve competitiveness requires vigorous socio-economic and environmental considerations in the public procurement processes (Humphreys, 2003).

In spite of the evident associated with the benefits accrued to sustainable procurement, its application on the public procurement processes in developing countries such as Ghana is relatively new with inadequate human capacity and enforcement. Thus, a clear understanding of the concept of sustainability and how it is related to the procurement process and activity is still lacking especially within the context of developing countries (Kalubanga, 2012).
In spite of some studies conducted to sensitize and address the challenges associated with sustainable procurement practices, its expertise in the construction industry in Ghana remains relatively scarce. Undoubtedly, all stakeholders in government construction industry would have had the opportunity to access policy document relating to sustainable regulations on building construction projects, yet the enforcement of such regulations remains a mirage.

Indeed, the Public Procurement (Amendment) Act 2016, Act 914 was passed to conscientize public procurement entities and private-sector procurement players and stakeholders in public procurement on the need to put social, economic and environmental issues relating to public procurement processes into practice. Yet the application of sustainability issues in the public procurement process still requires adequate sensitization

and enforcement in order to achieve the desired goal.

It is as a result of these developments that this study intends to extensively consider the social, economic and environmental impact of the implementation and compliance of sustainable public procurement on works' contracts in public universities in Ghana.

1.3 Aim and Research Objectives

The main aim of this study is to evaluate the practices of sustainable public procurement as applied to works contracts in public universities in Ghana.

In particular, this research seeks to achieve the following objectives:

a. To give account of the procurement reforms that gave rise to the enactment of the maiden public procurement Act;

b. To assess the entire project life cycle for works contracts in public universities in Ghana;

c. To ascertain the implementation of sustainable public procurement policy by players/actors in procurement entities;

d. To ascertain the compliance of sustainable public procurement policy by works' contractors;

e. To identify the challenges in the implementation of sustainable public procurement policy in works' contracts;

f. To identify the potential benefits of the successful implementation of sustainable public procurement in works' contracts, and

g. To propose measures to address the challenges associated with the implementation of sustainable public procurement policy in works' contracts in public universities in Ghana.

1.4 Research Questions

This study seeks to investigate the following main research question:

"What are the social, economic and environmental impacts of the implementation of sustainable public procurement on works' contracts in public universities in Ghana?"

In particular, the specific research questions for this study will include:

a. What are the procurement reforms that gave rise to the enactment of the maiden public procurement Act?

b. What are the stages/phases involved in the entire project life cycle for works contracts

in public universities in Ghana?

c. What factors are used to ascertain the implementation of sustainable public procurement policy by players/actors in procurement entities?

d. What are the criteria used to ascertain the compliance of sustainable public procurement policy for works contractors?

e. What are the challenges associated with the implementation of sustainable public procurement policy in works contracts?

f. What are the potential benefits of the successful implementation of sustainable public procurement in works contracts? and

g. What are the proposed measures to be adopted to address the challenges associated with the implementation of sustainable public procurement policy in works contracts in public universities in Ghana?

1.5 Research Justification

The findings of the study will be beneficial to the Public Procurement Authority (PPA) in understanding the benefits and challenges associated with the implementation and compliance of sustainable procurement issues affecting construction contracts/projects in public universities in Ghana.

The Public Procurement Authority (PPA) in collaboration with the Ministry of Works and Housing and the Ministry of Finance will be able use the findings of the study to review and improve the quality of and to achieve value for money in construction contracts so far as sustainable procurement issues are concerned.

The findings of the study will also be used by policy makers in streamlining critical government policies regarding sustainable public procurement affecting construction projects related to public universities in Ghana. A streamlined public procurement system requires government the opportunity to provide social and economic infrastructure to the citizens in the form of health, education, roads and improve the quality of life, an avenue that has the potential of greatly improving productivity and service delivery by public entities (Public Procurement Authority, 2010).

The outcome of the study will be useful to scholars/researchers, procurement practitioners and other procurement stakeholders in understanding and accelerating the pace of implementing sustainable procurement in public construction projects.

It is also hoped that the research findings will stimulate further research in the area of sustainable procurement practices in public procurement projects.

1.6 Scope of the Study

The main focus of this study will be on the general works contracts within the public universities in Ghana with particular emphasis on projects that are executed under the supervision of contract administrators provided in the Public Procurement (Amendment) Act 2016, Act 914. Thus within the context of this study, the scope of works' contracts to be evaluated in the light of sustainable public procurement will include construction of new buildings – staff bungalows, offices, lecture theatres, library complex, computer laboratories, halls of residence; construction of internal roads, bridges, sports complex, and renovation of old buildings.

Due to adequate time but limited financial resources, only three premier public universities located in the southern, middle and northern belt of Ghana will constitute the research locations/area for the survey. Specifically, the University of Education, Winneba (UEW), Kwame Nkrumah University of Science and Technology (KNUST), Kumasi and University for Development Studies (UDS), Tamale will constitute the study locations for the research.

Also, due to the technical and professional nature of the study being undertaken, the target respondents will be selected amongst staff, works contractors and contract administrators whose expertise are directly related to building and construction projects in public universities.

1.7 Limitations

The limitations of this study cannot be over-emphasized. Thus the size of the sample relative to the population under the study will be small. A bigger sample may probably enhance the reliability of the research.

The study is likely to be constrained by financial and other logistical requirements. Thus the study will involve extensive travelling to research areas to collect data from respondents, acquisition of laptop and android phone including the acquisition and installation of appropriate computer software, costs of transmitting data and information relating to the study to the faculty supervisor and the host university.

In some cases, it will be expected that respondents may refuse to speak against their organizations regarding certain sensitive questions that may be posed by the researcher regarding sustainable procurement issues.

1.8 Structure of the Thesis

This research is divided into five (5) main chapters.

Chapter (1) will explain background of the study; problem statement; aim and objectives; research questions; research justification; scope of the study, and limitations of the study.

Chapter (2) will review literature on: overview of public procurement in Ghana including public procurement reforms; the works contract cycle including tendering process, contract award and contract administration process; the nature and concept of sustainable procurement; sustainable procurement frameworks; sustainable public procurement in other countries; sustainable procurement framework in Ghana; social, economic and environmental impact of sustainable procurement; challenges in the implementation of sustainable procurement policy, and potential benefits of implementation of sustainable procurement.

Chapter (3) will also explain the methodology that will be used in conducting the research. This will include the research strategy, the research method, the research approach, data sources, population and sample size, sampling technique, the methods of data collection, the selection of the sample, the research process, the type of data analysis techniques including correlation and regression analysis and Analysis of Variance (ANOVA), and the ethical considerations of the project.

Chapter (4) will present the analysis and discussion on the results of the study. This will include demographic information; Analysis of questionnaire retrieved, face-to face interview conducted, focus group discussions held, and personal observation in the following thematic/research objectives areas: overview of public procurement in Ghana including public procurement reforms; the works contract cycle including tendering process, contract award and contract administration process; the nature and concept of sustainable procurement; determining the current state of social, economic and environmental impact of sustainable procurement; challenges in the implementation of sustainable procurement policy, and

potential benefits of implementation of sustainable procurement.

Finally, chapter (5) will present the summary of the findings; conclusions on the analysis and discussions on the outcome of the study; recommendations, and propose suggestions for further research.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter reviews relevant research works conducted in sustainable public procurement. The focus of this chapter is to create an elaborate understanding of the concept of public procurement and to address theoretical and empirical issues about the implementation of sustainable procurement practices especially as it applies to the construction industry. The review was organized under the theoretical and empirical consideration as well as the identification of the research gap. The conceptual framework was also drawn to guide the study.

2.2 Theoretical Framework

The theoretical review is organized under the following sub-headings:

- Overview of Public Procurement Regimes in Ghana
- Overview of Public Procurement Practice in Ghana
- Definitions of Procurement, Public Procurement and Legal Regimes in Public Procurement Law
- Public Procurement Reforms
- The Standard Procurement Process Model
- Definitions of Sustainable Public Procurement
- Sustainable Public Procurement Framework/Policies
- Sustainable Public Procurement Policy/Framework in Ghana
- Sustainable Public Procurement Practices
- The Need for the Adoption of Sustainable Procurement Practices
- Integrating Sustainable Procurement into Public Procurement Process
- Challenges of Adoption of Sustainable Procurement Practices
- Potential Benefits of Implementation of SPP in Developing Countries

2.3 Overview of Public Procurement Regimes in Ghana

This section considers the public procurement regimes prior to the passage of the maiden Act and beyond.

2.3.1 Public Procurement Practices in Ghana Prior to the Passage of the Maiden Act

Prior to the passage of the maiden Public Procurement Act, 2003, (Act 663), state institutions

in Ghana were procuring goods, works and services using public funds in a manner that relegated value-for-money out of context. Public institutions were buying recklessly, sometimes without compliance with approved budget resulting into inefficient spending of state financial resources. The procedures and processes in procuring goods, services and works by state institutions were not uniform and so most people who were entrusted with or given the responsibility to procure or supervise procurement activities took advantage of the weaknesses and inefficiencies in the procurement system to commit all manner of financial malfeasance without being caught by the law.

As a result of the disharmony in the public procurement practices during the era prior to the passage of the maiden procurement Act, collusion, bribery and corruption among public officers responsible for procurement became common and the order of the day. A greater amount of procurement expenditure went down the drains because some public officers who were entrusted with procurement responsibility amassed huge sums of 'wealth' out of greed and selfish interest at the detriment of the welfare and progress of the state.

During that regime, each and every state institution treated its procurement processes and procedures differently in such a way that the system of procurement practice itself was opened to corrupt practices.

To sanitize the public procurement system and for that matter public procurement practice in Ghana, civil society organisations and international development partners such as the European Union, World Bank and the Swiss government championed the cause for Ghana to adopt a harmonized and robust procurement system that will instill financial discipline, accountability, efficiency in public spending and above all stand the test of time. This move gave birth to the promulgation of the Public Procurement Act, 2003, (Act 663) by the Parliament of the Republic of Ghana in 2003 which was accented by President John Agyekum Kuffour, the former president of Ghana which was operationalized from 27 August, 2003.

2.3.2 The Public Procurement Act 2003, (Act 663)

This Act was enacted as part of the good governance initiative and public financial management reform programme. The Act provided national rules on public procurement to foster competition, efficiency, transparency and accountability in the public procurement of goods, works and services. It was also to provide for the fair, equal and equitable treatment

of suppliers, service providers and contractors and promote the integrity of and public confidence in the procurement process.

Notwithstanding the above intentions, the implementation of Act 663 for the past fifteen years had revealed inconsistencies and inefficiencies in both the procurement structures and procurement practice that have created operational and administrative bottlenecks. As a result of that, procurement practitioners, researchers, local and international procurement partners realized the need for revolutionalizing the image of public procurement by consistently agitating for measures to be put in place by government to cure specific aspects of the maiden Act that has caused grave inefficiencies and inconsistencies in the procurement practice in Ghana.

2.3.3 The Public Procurement (Amendment) Act 2016, (Act 914)

This Act amended the Public Procurement Act, 2003, (Act 663) so as to take account of current international best practice to enhance the operation of the procurement system. The Act 914 is expected to remove the ambiguities and operational challenges that have bedeviled the operation of Act 663 since its inception. It will also correct editorial errors in Act 663. The amendment sought to remove the delays caused by the hierarchical structures of the procurement system and improve public procurement efficiency. The amendment also provides for decentralized procurement and includes new provisions from the revised United Nations Commission on International Trade (UNCITRAL) model law on procurement.

In particular, Act 914 was passed to amend sections of the existing Public Procurement Act, 2003, Act 663. Highlights of the newly amended provisions include:

Re-Constitution and Categorization of Entity Tender Committees: The reconstitution of Entity Tender Committees has become necessary in order to speed up procurement decision-making, minimize delays and avoid associated administrative and transaction costs. To ensure a continuous implementation process, powers of delegation are required for key members of an Entity Tender Committee. Again, procurement entities need to be re-categorized based on type, function, and spending levels to ensure adequate expenditure ceilings and authorization levels.

Dissolution of District and Ministerial Tender Review Boards: The functions of Tender Review Boards need to be ceded to strengthened and reconstituted Entity Tender

Committees. This is to ease the concurrent approval process and make it more relevant and accountable.

Revised Thresholds for Procurement Methods: Low procurement thresholds for high spending public institutions such as the Bank of Ghana, the Central Management Agencies, Ministries, Departments and Agencies (MDAs) as well as for the Metropolitan, Municipal, and District Assemblies (MMDAs) and State Owned Enterprises (SOEs) have also made it necessary for the law to be reviewed.

Introduction of New Procurement Structures for Local Government Agencies: Act 663 did not take into consideration the decentralization programme. Metropolitan, Municipal, and District Assemblies (MMDAs) are corporate bodies with legal personalities as provided for in section 4 (1) and (2) of the Local Government Act, 1993 (Act 462). District Assemblies are legislative bodies that also exercise executive authority through the Executive Committee of the District Assembly or Metropolitan Authority in the case of a Metropolitan Assembly. This role is expressed in article 241 of the 1992 Constitution of the Republic of Ghana.

The majority of the members of a District Assembly are elected as stipulated in article 242 (a) of the 1992 Constitution. Metropolitan, Municipal, and District Assemblies (MMDAs) take decisions and are responsible for the decisions. It is therefore unconstitutional to subject them to the supervisory control of other bureaucratic bodies.

Ministries, Departments and Agencies (MDAs), unlike Metropolitan, Municipal, and District Assemblies (MMDAs) are unelected bodies and their decisions are subject to legitimization by superior authorities. It is therefore appropriate for them to have bureaucratic oversight bodies. Due to the autonomy given to decentralized structures, Metropolitan, Municipal, and District Assemblies (MMDAs) do not have to rely on the Attorney-General for legal advice as do Ministries, Departments and Agencies (MDAs) as well as Regional Coordinating Councils. It is therefore necessary for them to have a separate regime for procurement but this was not factored into Act 663.

The amendment also introduced sustainable public procurement, framework contracting and electronic procurement which was hitherto absent in Act 663.

The amended Act became operational from Friday, 1st July, 2016. It must be noted that the Act 914 will be used alongside the Act 663.

2.4 Overview of Public Procurement Practice in Ghana

This section will consider the objective and scope of the Public Procurement (Amendment) Act (2016), Act 914; and the role of Public Procurement Authority and its structures.

2.4.1 The Objective and Scope of Public Procurement (Amendment) Act (2016), Act 914

The Public Procurement (Amendment) Act 2016, Act 914 focuses on harmonizing processes and procedures of public service as its main objective. The Act ensures that state resources are utilized judiciously, economically and efficiently in such a way to carry out public procurement in a transparent, fair, non-discriminatory, socially and environmentally responsible manner in the public sector. The scope of application of the Act includes procurement of goods, works and services that is wholly or partially financed from public funds; functions that pertain to the procurement of goods, works and services including the description of requirements and sources of supply, selection and award of contracts and the phases of contract administration; the disposal of public stores, vehicles and equipment; and procurement with public funds including loans procured by government, grants, foreign aid funds and internally generated funds except as exempted under section 96 [Section 1(a-d), Public Procurement (Amendment) Act 2016), Act 914].

Glavee-Geo (2008) indicate that, there are some exemptions to Act 914, in situations where there exist an international obligations arising from a grant or concessionary loan to the government as well as procurement arising from an-external loan and-commercial facility, secured by government, other than a concessionary loan and grants which specifies particular procurement procedures, the Act 914 shall cease to apply [Section 96 (1, 2), Public Procurement (Amendment) Act 2016), Act 914].

2.4.2 The Role of Public Procurement Authority and its Administrative Structure

The Procurement law establishes the Public Procurement Authority (PPA) and mandates it to have oversight responsibility of all public procurements in Ghana. The role of PPA has been encapsulated in Section 3 of the Act which elaborates specific functions of the Authority.

Notwithstanding the remarkable role played by PPA, the Authority has eight (8) operational departments which include; public affairs, legal, management information system, capacity development, finance and internal audit policy and strategy, monitoring and evaluation. The World Bank and other International partners have leveraged the nation's

public procurement framework as a model in Africa for the significant success the law has achieved since its implementation in 2004 (Frimpong *et al.*, 2013).

2.4.3 The Public Procurement Structure

The Public Procurement (Amendment) Act 2016, Act 914 establishes a Public Procurement Authority [(Section 1 (1)] and procurement structures such as Procurement Entity, Procurement Unit, Tender Evaluation Committee, Entity heads, Entity Tender Committees and Tender Review Committees with specific functions to facilitate the public procurement process. The Act stipulates rules, regulations, methods of procurement, tendering procedures, disposal of unserviceable public stores, equipment and vehicles and appeals procedure by tenderers. The Act also stipulates applicable penalties for various procurement offences and corrupt practices committed by tenderers and any other stakeholder in the subject-matter of the procurement transaction (Ohene-Addae, 2012). Furthermore, the Act specifies various procurement thresholds in specific schedules and regulations that can be enforced by law.

The Act applies to public entities such as: Central management agencies; Ministries, departments and agencies (MDAs);Subvented agencies; Governance institutions; State owned enterprises (SOEs) who utilize public funds; Public universities, public schools, colleges and hospitals; the Bank of Ghana and financial institutions including public trusts, pension funds, insurance companies and building societies which are wholly owned by the Republic or in which the Republic has a majority interest; institutions established by Government for the general welfare of the public or community; statutory funds, Commissions and other bodies established by Government for a special purpose; and the phases of contract administration as specified in the Contract Administration Manuals [Section 14 (2) of the Act].

2.5 Definitions of Procurement, Public Procurement and Legal Regimes in Public Procurement Law

This section discusses various researched definitions of procurement, public procurement and the legal regimes in public procurement law.

2.5.1 Procurement

Procurement, according to Conway (2012), entails the process through which goods and

services are obtained through the processing and preparation of requisition by issuing a receipt and approval of invoice for payment and services from preparation and processing of a requisition through to receipt and approval of the invoice for payment. It involves the plan for purchases, determination for standards, development for specifications, research and selection of appropriate supplier and value analysis of a product or a service to be delivered. It also entails the financing of goods and services, negotiations for effective price, making the purchase, administration of the contracts, inventory controls and disposal of waste and other related functions that involves the delivery of products and services. Procurement, in the view of Asare and Prempeh (2017) is defined as the process of acquiring goods and services from a supplier which could be an individual or organization. The process for procurement could be viewed as involving sourcing contracts, monitoring and evaluation of the contract and expedition based on a specified standard.

According to MOF (2017), in every procurement the primary purpose for achieving the correct balance between the cost of the item and the following requirements referred to as the 5 R's of the procurement process:

i) Right Quality procurement which ensures that the right quality of products needed is purchased with a specification that is very precise and meets the expectations of the entity. It should also meet the quality requirements of the bidder as well as maintaining the quality awareness.

ii) Right Quantity requirement which ensures that extra cost associated with the purchase and the systemic overheads involved within the procurement process is eliminated. This could be done by buying large quantities of the product instead of buying in small quantities. Therefore, there is the need to ensure that the right quantities of the commodity are bought in order to balance the extra cost which associates with buying smaller quantities.

iii) Efficient Pricing System. Usually the intention of public procurement should be geared towards the minimum price but should be such that it does not compromise quantity and quality.

iv) Right Time and Place. This requirement ensures that the organization gets the product purchased at the right time. The firm from which the commodity is bought from should

maintain that the product bought arrives at its destination at the right time and at the right place.

v) Right Source by making sure that the source of delivery of the purchased have meets all the requirements financially and technically for the product needs.

From the study of Seyram (2016), procurement is a means of purchasing, hiring or obtaining a commodity, a property or a facility on a value-added cost with the correct amount, at the right period, in the right place to be effectively used by a firm while marinating the pact agreement with the PPA, Act 914 enacted in 2016. With this concept in mind, the management of a firm ensures that they become economically self-controlled, become liable, clearness, behaves morally good and delivers their services that is in line with the objectives of the company. This is what pushed the amendment and guided the PPA, Act 914 in the country; to ensure that public expenditure is made with value-added in mind.

2.5.2 Public Procurement

Public procurement has been defined in various ways by different researchers and academicians the world over.

The Public Procurement Act of Ghana, 2003 (Act 663), defined the concept of public procurement as a means of acquiring the best products and services in the right quantity, with good quality and achieved at the right time and place which the society tend to be extensible benefit from [Public Procurement (Amendment) Act 2016, Act 914)]. This implies that the public procurement process ensures that organizations or firms acquire goods and services with public funds and hence ensuring sustainability is very necessary everything done with the public fund should benefit the mass. The public procurement process is very comprehensive and operates from proper planning of the procurement process, efficient allocation of funds or budget, inviting other firms for bidding, the evaluation of the bidding process, the awarding of the contract to a qualified contractor, ensuring proper contract management, measuring performance, ensuring effective monitoring auditing and reporting. Government procurement is one of those subjects that have been under study recently, perhaps due to the high levels of public corruption involved during the delivery of services. A study by Basheka (2009) revealed that, the concept of public procurement is one of the contributory factor for corruption in government and a breeding ground for most public

corrupt practices.

Public procurement is defined as the processes followed by public entities in securing a judicious, economic and efficient use of state resources and ensuring that procuring activities are carried out in a fair, transparent and non-discriminatory, environmentally and socially sustainable manner [Section 2, Public Procurement (Amendment) Act, 2016 (Act 914)].

Similarly, Frimpong *et al.,* (2013) defined public procurement as a system by which government agencies or departments buy goods, services and works from the private sector and takes place at both regional and national level. Kissi-Asare (2014) also cited the United Nations Development Programme UNDP (2007) and opined that public procurement is a procedure of acquiring goods, services and works and that comprises all functions such as the identification of requirements, solicitation and selection of providers, arrangement and award of contract, and all phases of contract administration and management through the useful life of an asset or end of a services' contract.

Frimpong *et al.,* (2013) indicates that public procurement process is generally subjected to definite rules, regulations and policies governing specifying how procurement choices are made. With respect to local laws, government officials have no option than to follow a set procedure for undertaking public procurement. The procedures entail ways by which advertisements are made for prospective bidders, enforcement and compliance of the bid requirements and the criteria for evaluating and selecting a deserving bidder for an award of contract. In most cases, public procurement is organized on competitive bases, allowing interested and eligible bidders to participate in the subject-matter of the contract in order to reduce the risk of corruption.

Ohene-Addae (2012) indicates that, it is advantageous that the goods and services are appropriately purchased at the most ideal price, quality, time, and location to meet the requirements of the purchaser.

The concept of public procurement is now recognized as a tool for government policy and a stage for maintaining wider economic, social and environmental change (OECD, 2007). However, there is argument as to which international regulations permits for a wide view of the procurement process than a business process. If the various countries become conscious

of the economic, social and environmental aspects of the procurement process, best criteria can be enacted to ensure that public procurement is implemented without damage to the society and the procurement process. With the concept of sustainability in public procurement now gaining grounds and becoming very necessary to include in every country's procurement process, it is time to embark on various studies to create awareness of the concept of sustainability in developing countries. These countries need to divert their attention from the previous focus on economic benefit of the procurement process to ensuring sustainable public procurement systems which includes environmental benefits of procurement. The concept of sustainability in procurement that was originally implemented in 2002 by the UN World Summit in Johannesburg included concepts such as planetary, socio-cultural, economic and environmental considerations (Borland, 2009). It entails the process, through which the procurement process looks beyond the traditional concepts of ensuring economic benefits and making decisions and plans to achieving a value-added cost in association with social benefits of the procurement and more importantly the environmental risks that could likely occur.

The process therefore ensures and maintains a balance in developments through economic, social and environmental implications against the needs of the business and the society. This concept of sustainability in public procurement if implemented effectively can be used to target the vulnerable and social disadvantage and the marginalized in the economy (Asare, 2016). Public procurement is a significant and yet understudied phenomenon in Ghana. The country has since independence struggled to eliminate the weakness and fraud that exist in public procurement. Recent efforts have been the quest to review the Public Procurement Law of 2003 to integrate clearly spelt out sustainable procurement component (Sewoanu, 2012).

2.5.3 Legal Regimes in Public Procurement Law

The Government of Ghana in 1960 enacted the Contracts Act, 1960 (Act 25) and Ghana Supply Commission Act which was reviewed later in 1990 by PNDC law 245. In 1976, the Ghana National Procurement Agency Decree, 1976 (SMCD 55) was passed by the Supreme Military Council. In 1979, another law, the Financial Administration Decree (SMCD 221) was also passed. The inadequacy of these laws has called for a paradigm shift in terms of focus on public procurement demanding for sustainability considerations. The Public Procurement Act (2003), Act 663 could not explicitly include sustainable procurement

in its provisions. Subsequently, the Public Procurement (Amendment) Act 2016, Act 914 made frantic effort to include sustainable and socially responsible procurement in section 2 of the Act. The integration of sustainable components in public procurement offers the added advantage of improving ethical behavior of suppliers and contractors especially, and the public at large, reducing harmful emissions and waste generation; improving air and water quality; increasing the wealth and health of the society (hence improve living standards),improving working conditions - health and safety, labour standards, reducing labour agitation.

Purchasing and supply chain plays a pivotal role that can be used as a booster for sustainable development. This strategic role is much more demonstrated now than it was before. Modern day commercial practices have shown that organizations and business ventures are focusing more on procurement strategies that reduce the environmental impacts of procurement and supply chain activities in their outfits (Agorku, 2014). Doh (2014) made particular reference to the World Summit on Sustainable Development held in 2002 which highlighted on the use of the Johannesburg Plan of Implementation that concerns public procurement practices which motivate improvement and dissemination of environmentally friendly goods and services. The Plan encourages the incorporation of social advancement, economic advancement and environmental protection which are the three pillars of Sustainable Procurement. Agorku (2014) argued that, sustainable procurement entails the procedure for purchasing goods, services and works that takes into account the economic, social and environmental impacts that people and communities encounter.

2.6 Public Procurement Reforms

This section will consider a broader perspective of public procurement reforms in Ghana and across major countries in the world. In particular, public procurement reforms in Ghana, major countries in the African continent, East Africa and Australia are considered.

2.6.1 Public Procurement Reforms in Ghana

In 1996, the government of Ghana commenced the Public Financial Management Reform Program (PUFMARP) to enhance the public financial management system in the country. By the beginning of 1999, the government had established the Public Procurement Oversight Group (PPOG) and tasked them to manage the establishment of an all-inclusive public procurement reform programme. The work of the Public Procurement Oversight Group

(PPOG) lead to the drafting of the Public Procurement Bill in 2002 and this was passed into law as the Public Procurement Act (2003), Act 663 on December 31, 2003 (Adjei, 2006). However, the maiden Act 663 bore critical operational and administrative bottlenecks as the implementation of some of the provisions in the Act over the past one and half decade was culminated with inconsistencies and inefficiencies in its application. As a result of that, the concerns of procurement practitioners, researchers and academicians, and other stakeholders were considered. Following these concerns, the Parliament of the Republic of Ghana on March, 18, 2016 passed the Public Procurement (Amendment) bill to take effect from 1st July, 2016 as the Public Procurement (Amendment) Act 2016, Act 914. This amended procurement law is currently in force.

2.6.2 Public Procurement Legislations in Africa

According to Bampo-Agyei *et al.,* (2015), records indicate that regulations affecting the practice of public procurement in many African countries were enacted from the year 2001. The following are the procurement laws enacted in some countries on the African continent: Public Procurement and Asset Disposal Act (2001) - Botswana; Public Procurement Act (2001) - Gambia; Public Procurement Act (2003) - Malawi; The act governing Ghana's public procurement was enacted in 2003 as the Public Procurement Act (2003), Act 663; the Public Procurement and Disposal of Public Assets (PPDA) Act (2003) - Uganda; Sierra Leone also in 2004; Public Procurement Act (2004) - Tanzania; Kenya had their Public Procurement and Disposal Act in (2005); Public Procurement and Concessions Act, (2005) - Liberia; Public Procurement Regulation (2006) - Lesotho; Public Procurement Code - Senegal but became a regulation in (2007); Public Procurement Law of Rwanda in (2007); In Zambia the Public Procurement Act was enacted in (2008); Public Procurement Code (2009) - Republic of Benin; and in 2009, the Public Procurement Regulation South Africa (Bampo-Agyei *et al.,* 2015).

2.6.3 Public Procurement Reforms in East Africa

According to Odhiambo and Kamau (2003), in the middle 80s, there was developing examination and persuasion within and outside to change the procurement procedure in three East African countries, it therefore became necessary to reform the public procurement system in these countries. Procurement stakeholders in these countries were the main brain behind the reforms. Public procurement affects different elements of the society. Stakeholders from these three east African nations expressed dissatisfaction about the public

procurement structure. These complaints were associated with the inadequacies and inefficiencies in the public procurement systems. The stakeholders criticized the misappropriation of funds, unproductive services, insufficient infrastructure, huge taxes, high risks and increasing indebtedness of the countries. The governments reacted to these concerns and recognized the need to review the public procurement process and the need for being more accountable to the various stakeholders of their countries (Odhiambo and Kamau, 2003).

2.6.4 Public Procurement in Australia

Australia has a history of designs, maintenance and construction management of public works which is directed by in-house professionals. Once in a while, these professionals are trained by outside advisors, with nearly all development embraced by private contractual workers (Furneaux et al., 2008). According to their research, the process of administering procurement changed as every public entity turned out to outsourced its procurement activities. (Furneaux et al. , 2008) indicates that, when scrutinizing public procurement activities specialists avoid to concentrate on financial examination of the expenses and advantages of outsourcing, and focus more on what is just right and great. They purported that, specialists have propelled the investigation of public values in three fundamental ways:

1. Universal approaches, that focuses on the regularizing component of public values.
2. Institutional approaches that focuses on public values such as place, time, and culture
3. Stakeholder approaches that focuses on values that are seen as the result of organized relations amongst partners.

2.7 The Standard Procurement Process Model

The traditional approach to project procurement in construction involves design development, tender, contract award and construction delivery phases (Walker and Hampson, 2003). Figure 2.1 below shows a general procurement process according to the United Nations Development Programme Procurement Support Office (UNDP, 2008). Under this model, 10 stages from the procurement planning phase to contract management form the tender lifecycle.

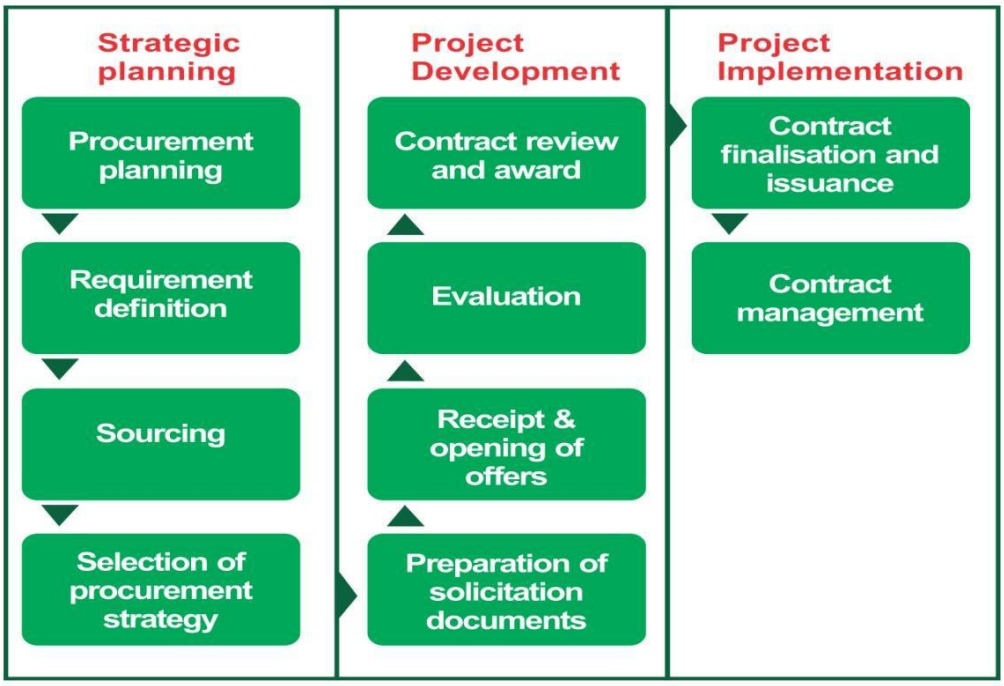

Figure 2.1: Procurement process as set out in the UNDP Contract, Asset and Procurement Management User Guide (UNDP, 2008) and classification of phases.

In order to simplify the evaluation framework, the procurement processes have been grouped in three overarching phases: strategic planning, project development and project implementation, as illustrated in Figure 2.1 above.

2.7.1 Stages in Public Procurement Process in Ghana

The standard procurement process model in Figure 2.1 above is similar to the general public procurement process model in Ghana so far as the procurement of goods, works and services are concerned. In particular, and for the purpose of this study, the standard procurement process model in Figure 2.1 will be adapted to works (or construction) contract in public universities in Ghana.

Accordingly, the three key stages in the public procurement process above will be considered in discussing the framework for the procurement of works (or construction) contract in accordance with the Public Procurement (Amendment) Act 2016, Act 914. Strictly speaking, the contract for procuring works or construction involves procuring relevant construction materials, engaging the services of sub-contractors, engaging consultants' services so far as public procurement is concerned.

2.7.1.1 Strategic Planning

The strategic planning stage involves four steps, namely; procurement planning, requirement definition, sourcing and the selection of procurement strategy to carry out the procurement process.

Procurement Planning

The planning of procurement of goods and, works and services represents the budgeting process in the procurement cycle. The planning of procurements by public entities in Ghana is backed by law. In particular, a procurement entity shall prepare a procurement plan to support its approved programme and the plan shall specify: the contract packages description or lots; estimated cost for each package; the procurement method approvals needed, and the processing steps and times.

The procurement plan shall be submitted to the procurement entity shall submit to the entity tender committee of the procurement entity, not later than one month to the end of the financial year for the following year for approval and the contents of the plan will be posted on the website of the Public Procurement Authority.

After the approval of the procurement budget and at quarterly intervals after that, a procurement entity shall submit an update of the procurement plan to the entity tender committee and shall post the update of the procurement plan on the website of the Authority. It must be noted that, it is an offence for a procurement entity to divide a procurement order into parts or lower the value of a procurement order to avoid the application of the procedures for public procurement under the Act (Section 21-Procurement Plan, Public Procurement Act 914).

Requirement Definition

This is the stage where technical specifications are developed and assigned to each procurement package. This important exercise is carried out, where necessary, by involving experts who have technical, commercial, legal and administrative knowledge on the subject-matter of the contract. In works contract, it is the duty of the relevant engineers to provide the appropriate technical specifications such as bills of quantities or materials for a construction project to the procurement unit as an input for the preparation of tender documents (Public Procurement Manual - 2003, Section 4.3 and 5.3).

Sourcing

The sourcing stage starts when the procuring authority searches for available suppliers and contractors who are capable of meeting its requirements. This means that from time to time procurement contracts may be advertised for such suppliers and contractors to participate using any one or more of the procurement strategies mentioned above. In small works contracts where the threshold value is limited, sourcing is done through request for quotation so that suppliers and contractors who are registered with the procuring authority can participate in the subject- matter of the contract.

On the contrary, in medium to large works contract where the threshold value involves a substantial amount of money, competitive tendering method is largely utilized for domestic participation rather than for foreign participation. This is to promote local industries, create employment opportunities for the domestic labour market, increase the tax base of the government, transfer of technology and promote socio-economic development [Section 69 (2) (c) (i, iii-v), Act 914].

Selection of Procurement Strategy

In public procurement competitive tendering is considered the preferred strategy to procure all manner of goods, works and services. However, in certain circumstances limited/restrictive, single-source or framework agreement is permitted except that written approval should be sought for from the Public Procurement Authority [Section 34A, 1 (a-b, d), Act 914].

In particular, the selection of consultants according to section 34A (c) of Act 914 is based on several stipulated criteria. Depending on the nature, value and complexity of the works contract, the procuring entity is expected to select the appropriate procurement strategy that will be more effective and provide value for money.

2.7.1.2 Project Development

The project development stage involves four steps, namely; the preparation of solicitation documents, receipt and opening of offers, evaluation, and contract review and award. The project development stage in public procurement is also backed by law in Ghana.

Preparation of Solicitation Documents

Solicitation documents, also called standard tender documents for goods, works and

services contracts has various components. The preparation and compilation of a complete set of standard tender documents may include: Invitation for Bids (IFB) or Invitation for Proposals (IFP); Instructions to bidders (ITB); Bid Data Sheet (BDS); General Conditions of Contract (GCC); Special Conditions of Contract (SCC); Schedule of requirements; Technical specifications, and Sample forms (Public Procurement Manual - 2003, Section 4.5 and 5.5). A set of these documents is used in inviting offers for tender for goods, works and services contract.

Receipt and Opening of Offers

Tenders shall be received and opened in the following circumstances: at the time specified in the tender documents as the deadline for the submission of tenders; or at the deadline specified in any extension of the deadline; and at the place and in accordance with the procedures specified in the tender documents.

The time for opening of the tenders shall be the same as the deadline for receipt of tenders or promptly after that deadline. A supplier or contractor, who has submitted a tender or a representative of that supplier or contractor, shall be permitted by the procurement entity to be present at the opening of tenders. In addition, the name and address of each supplier or contractor whose tender is opened and the tender price shall be announced to those present at the opening of tenders and communicated on request to a supplier or contractor who has submitted a tender but is not present or represented at the opening of the tenders. However, the tender price shall be recorded immediately in the record of tendering proceedings (Section 56, Act 914).

Evaluation of Tenders

The evaluation of tenders constitutes the assessment and possible selection of the preferred bid for an award of contract. It is the responsibility of the procurement entity to evaluate and compare tenders that have been accepted in order to ascertain the successful tender in accordance with the procedures and criteria set out in the tender invitation documents. In fact, the evaluation criteria relating to the subject matter of any public procurement to be made has some sustainable procurement issues addressed by the law [(Section 59 (2. a – g), 3(b), and 8, Act 914].

It must be noted that a procurement entity shall use only the criteria and procedures in the tender documents [(Section 59 (6), Act 914)] and shall apply criteria and procedures in

the manner disclosed in the tender documents [(Section 59 (1), Act 914)].

The successful tender after the evaluation process shall be the tender with the lowest evaluated tender price [(Section 59 (7a), Act 914)]and the lowest evaluated tender ascertained on the basis of the criteria specified in the invitation documents [(Section 59 (7b), Act 914)].

Contract Review and Award

In public procurement, contracts are reviewed according to the threshold level of the procurement package and this is linked with the appropriate tender review committee responsible for the contract review and award decision [(Section 20 (G), Act 914)].

The Public Procurement (Amendment) Act 2016, Act 914 has introduced new arrangements for reviewing and awarding specific contracts depending on the threshold level of the contract. The new arrangement for reviewing and awarding contracts is one of the landmark achievements of Act 914 aimed at ensuring efficiency and effective procurement process. Thus the new arrangement of contract review and award minimizes the delay in contract award and ensures that lead time is kept to the barest minimum in the supply chain process.

A procurement entity shall appoint a tender evaluation panel with the required expertise to evaluate tenders [(Section 20 (K), Act 914)] and the tender evaluation panel shall, in the performance of its functions, proceed according to the predetermined and published evaluation criteria [(Section 20 (K2), Act 914)].

In accordance with Act 914, tender review committees are established for Ministries, Departments and Agencies (MDAs) and Metropolitan, Municipal and District Assemblies

(MMDAs) as specified in the Fourth Schedule. The tender review committee of a MDAs is the central tender review committee, whiles the tender review committee of a MMDAs is the regional tender review committee. The members of the central tender review committee shall be appointed by the Minister in consultation with the Board, whereas the members of a regional tender review committee shall be appointed by the Regional Minister in consultation with the Minister. The central tender review committee, the regional tender review committee and each entity tender committee shall perform the functions of the tender review committee for the entities for which they are responsible [(Section 20 (F 1-6), Act 914)].

A tender review committee shall perform critical functions under the Act. These functions include: reviewing the activities at each step of the procurement cycle leading to the selection of the lowest evaluated bid or best offer by the procurement entity in relation to the particular procurement under consideration, in order to ensure compliance with the Act, its operating instructions and guidelines; provide concurrent approval or otherwise to enable the procurement entity continue with the procurement process subject to subsection (1) of section 16; and review decisions of heads of entities in respect of a complaint [(Section 20 (F 7), Act 914)].

The regional tender review committee shall furnish the Board of the Public Procurement Authority, MMDAs with reports pertaining to the regional tender review committee's operations in the prescribed format [(Section 20 (F 8), Act 914)].

However, a tender review committee may engage the services of consultants and advisers or co- opt persons with the specialized expertise that it may require for the proper arid efficient performance of its functions [(Section 20 (F 9), Act 914)].

2.7.1.3 Project Implementation

The project implementation stage involves two steps, namely; contract finalization and issuance, and contract management.

Contract Finalization and Issuance

In public procurement, contracts are finalized immediately after an approval authority approves the contract for an award. Following approval from the relevant review committee, the contract will be awarded to the tenderer who submitted the lowest evaluated tender [Section 5.17, Manuals - Public Procurement Act, 2003 (Act 663)].

Thus a successful tender shall be accepted and notice of acceptance of the tender shall be given to the supplier or contractor submitting the tender within thirty days of the acceptance of the tender. Where the tender documents require the supplier or contractor whose tender has been accepted to sign a written procurement contract relating to the tender, the procurement entity and the supplier or contractor shall sign the procurement contract within thirty days after the notice of acceptance of the tender is given to the supplier or contractor. Similarly, where a written procurement contract is required to be signed, the contract shall

enter into force on the commencement date indicated on the contract [(Section 65 (1-3), Act 914)].

It must be noted that between the time when the notice of acceptance of the tender is dispatched to the supplier or contractor and the entry into force of the procurement contract, neither the procurement entity nor the supplier or contractor shall take an action that interferes with the entry into force of the procurement contract or with its performance. With the exception of the provision provided in subsection (2), a procurement contract in accordance with the terms and conditions of the accepted tender enters into force when the notice is dispatched to the supplier or contractor that submitted the tender, if it is dispatched while the tender is in force. Thus the notice is deemed to be dispatched when it is properly addressed or otherwise directed and transmitted to the supplier or contractor or conveyed to an appropriate authority for transmission to the supplier or contractor in a manner authorized in section 26 of the Act [(Section 65 (4-6), Act 914)].

In situations where the supplier or contractor whose tender has been accepted fails to sign a written procurement contract within thirty working days of receipt of the notice of acceptance or fails to provide the required security for the performance of the contract, the procurement entity shall select a successful tender in accordance with section 59 (3) from among the remaining tenders that are in force, subject to the right of the procurement entity to reject the remaining tenders. In such circumstance, the notice provided for the previous supplier or contractor who failed to sign the written procurement contract within thirty working days of receipt of the notice of acceptance or failed to provide the required security for the performance of the contract shall be given to the other supplier or contractor that submitted the successful tender. A procurement entity shall therefore give notice of the procurement contract in writing to unsuccessful suppliers and contractors [(Section 65 (7-9), Act 914)]. Thus all unsuccessful tenderers should be notified immediately once the contract has been awarded. Tender securities of unsuccessful tenderers should be promptly returned after awards have been made [Section 5.17.2, Manuals - Public Procurement Act, 2003 (Act 663)].

Contract Management

The scope and application of Act 914 includes the phases of contract administration as specified in the contract administration manuals [Section 14 2(j), Act 914].

It must be noted that effective management of contracts is essential to ensure the objectives of the procurement process are achieved and that all contractual obligations and activities are completed efficiently by both parties to the contract. The Procurement Unit or the Technical Department concerned must ensure that routine monitoring of all current contracts is maintained so that swift remedial measures can be taken when problems arise, or preventative action taken when problems are foreseen [Section 5.18, Manuals - Public Procurement Act, 2003 (Act 663)]. It is against this background that the Act mandates the appointment of a contract administrator whose role is to; manage the obligations and duties of the procurement entity specified in the contract, and ensure that the supplier or contractor performs the contract in accordance with its terms and conditions [Section 14 (3), Act 914].

So far as works or construction contracts are concerned, there are many post-contractual issues that need to be dealt with, monitored and resolved before the contract reaches its conclusion. These include; contract effectiveness, appointment of a Project Manager, valuation of work done, preparation of interim and final payment certificates; deduction of retentions and payments to the contractor, contractual disputes, delays in performance, claims for damages, insurance claims, initial and final acceptance of the works, release of performance securities and retentions, and contract closure [Section 5.18, Manuals - Public Procurement Act, 2003 (Act 663)]. All these post-contractual issues have critical ramifications in works or construction contracts in public universities in Ghana.

2.8 Definitions of Sustainable Public Procurement

Sustainable Public Procurement (SPP) as identified by the European Commission is "a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact and other benefits throughout their life-cycle when compared to goods, services and works with the same primary function that would otherwise be procured."

In other words, the SPP is focused to meet consumers' needs, delivering a long-term value for money, maximizing social and economic benefits and minimizing damage to the environment and human health. It is a new format of relations between producers, suppliers and customers, when the weight of social and environmental factors become equivalent in importance with such criteria as "price" and "quality"; and customers realize their needs with

respect to environmental protection by obtaining benefits not only for the organization but also for society as a whole. Understanding and minimizing negative social, economic, and environmental impacts in the public procurement process are specific objectives of the Sustainable Public Procurement.

The main purpose of the Sustainable Public Procurement is searching of parity between environmental, social and economic aspects of production and consumption as well as harmonization of relations between market participants such as manufacturers, suppliers, consumers and the environment when purchasing goods and services.

Variety of social, environmental and economic objectives can be delivered through sustainable procurement. The Sustainable Public Procurement is focused on realization of few important strategic tasks:

- Provide a protection and restoration of the environment at the production and consumption of goods, services and works;
- Support the implementation of sustainable balanced system of nature use and conservation of natural ecosystems;
- Encourage environmentally innovative approaches and provide potential markets for environmental products; it may help local producers or service providers to gain competitive advantages at the national and international levels;
- Improve the image and confirm compliance with the principles of sustainable development and corporate social responsibility in general.

When procurement is carefully designed and implemented to include sustainability practices, the system leads to an improvement in efficiencies, reduction of potential cost and creates competitive advantage for the business as society now moves and embraces this principle (Fitzgerald & Shepherd, 2018). The concept of sustainability in procurement is therefore the means within which an institution strives to meet its stated goals by producing products or services that meet the expectation of the society and at the same time achieve value for money in terms of benefits to the individual or society and the economy as a whole with the intention of minimizing environmental damage (Njeru, 2015). Sustainable procurement can also be defined as ensuring the social and ethical responsible during the process of purchasing, minimizing environmental damage through the supply chain process

and delivering solutions that are economically sound and adheres to the ethics of the business industry (Abunyewah et al., 2016).

According to Kwadzo (2014), sustainable procurement includes all the processes of acquiring goods and services without neglecting the social benefit of the product and its environmental impact on the people and communities while maintaining value for the service rendered. It includes the process of buying goods and services that considers the social, economic and environmental impact that those actions will have on the people and community who are to benefit from the process. It is about the consideration of the type of products and services to be rendered, the place where these goods and services are coming from, whom these products and services belong, how these services will be beneficial to the society it is to serve, how the products and services would be delivered and how the remains will be disposed of to minimize its risk on the society. The process of sustainability also involves taking into consideration, the economic benefits of the service, the environmental benefits as well as the social benefits or impact in the choices to be made. The process therefore includes the optimization of the products or services in terms of price, quality, availability and its environmental impact and social impact that are linked to the products or services to be rendered (PWC, 2010).

Sustainable procurement is directly linked to sustainability which refers to 'making decisions that maintain the right balance between the environment, society and the economy to ensure long-term business success' (HSBC Holdings, 2013). There is no common definition of sustainable procurement and therefore the theoretical views and definitions vary across individual studies, organisations and countries (Walker et al., 2012).

According to the European Union, GPP is "a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured." (European Commission, 2010). Similarly, Kalubanga (2012) asserts that, sustainable procurement is the process through which a firm acquire goods and services from another firm or individual called a supplier with the aim of getting affordability in cost and benefits that will meet the requirements of a customer. It entails the process meeting the needs, utilities and services of the firm by ensuring that value for money is maintained for the organization, the society, the community and the economy as a whole

while ensuring minimization of damages and risks to the environment.

Sustainable procurement can be viewed as a method by which an organisation can improve the procurement of products or services by environmental, economic and social means (Oruezabala & Rico, 2012). Sustainable purchasing, as Van Weele (2010) labels it, is more often referred to as Corporate Social Responsibility (CSR). Related terms include environmental purchasing (Morton, 2002), socially responsible public procurement (SRPP) (EU Buying Social, 2010), green supply chain management (Lamming & Hampson, 1996), sustainable public procurement (Preuss, 2009), purchasing social responsibility (Carter and Jennings, 2002; Carter, 2005) and environmentally preferable purchasing and green procurement (Tripathi & Petro, 2010).

In its simplest terms, sustainable procurement refers to the ability to purchase products and equipment, usually on a large scale, without compromising resources for future generations. For example, according to the Sustainable Procurement Task Force (DEFRA, 2006), sustainable procurement is 'a process whereby organisations meet their needs for goods, services, works, and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organisation, but also to society and the economy, while minimizing damage to the environment'. For the purpose of this study, the DEFRA (2006) definition of sustainable procurement will be adopted.

In this modern time where sustainability issues are becoming very important in the developmental agenda of countries, it is necessary for countries to shift their focus of public procurement practices from just ensuring economic benefits to SPP systems resulting in long term benefits to every individual but not for governments alone. SPP addresses the environmental, social and economic outcomes of procurement practices from the design process through manufacturing and finally the usage and disposal. According to Asare (2016), inappropriate production and consumption practices have left many African countries with worsened climatic conditions, abject poverty, and environmental degradations. SPP takes the environment, social and economic factors of the procurement process into consideration. It supports the policies for ensuring free, fair and transparent services to both the supplier and society; and also ensures benefits to the long-term economy and maintains accountability.

2.9 The Nature and Concept of Sustainable Procurement

The term "sustainable procurement" appeared first time at the United Nations Conference on Environment and Development (UNCED), Rio de Janeiro, 3-14 June 1992. The informal name of the Conference was "The Earth Summit".

Over the past decade, sustainable procurement has become a growing concern in many countries. The World Summit of Sustainable Development (WSSD, 2002) asserts that the relevant authorities at local, national, and international levels should promote procurement policies to encourage the diffusion of environmentally sound goods and services to promote recycling (Srour et al., 2012), sustainable construction (Son et al., 2011), and sustainable consumption (Wahlen et al., 2012).

Sustainable procurement is considered a means of sustainable development due to the impact of procurement policies and strategies on the environment, the community, and the social and economic condition of those delivering and receiving the product or service (European International Contractors, 2004). Thus sustainable procurement is considered as the new link between environmental, economic, and social factors taken into account in purchasing decisions, and thereby portrayed the concept of sustainable development in practical and feasible ways. As a result, sustainable procurement is considered an important agenda by many private and public organisations in the Western and Eastern world. Yet sustainable procurement practices and policies in developing and less developed third world countries show little evidence of implementation.

It is undoubtedly clear that recent literature shows sustainable procurement studies are predominantly positioned in developed countries such as the UK and USA. These studies primarily focus on environmental purchasing in private sector organisations, particularly in the manufacturing sector (Walker & Brammer, 2009). Thus, more studies implementing holistic approaches and integrated analyses including the public sector, services, and developing countries are essential (Walker et al., 2012) so as to include organisations which are geographically, economically, legally, culturally, and politically diverse from the traditional Western norm.

Sustainable procurement draws its roots from the broad concept of sustainable development established as one of the current global agenda for the future (Argandona, 2014). The focus of sustainable procurement objective is to meet the varied requirements of

all individuals in current and future societies, to promote private well-being, social cohesion and to create equal opportunities (CIPS, 2014). It also enables organizations to satisfy their requirements for products, utilities, services and building works in a manner that achieves value for money on a life-long basis in terms of creating advantages not only for the organization, but also for culture and economy, while at the same time maintaining environmental ability (UK Governments Sustainable Procurement Task Force & CIPS, 2014).

Welsh Procurement Initiative (2015) affirmed that companies are anticipated to develop holistic procurement methods with responsibilities for social, ethical and environmental procurement. This is to minimize the environmental impact through the supply chain and also offer alternatives that are economically accepted. Thus, according to Rao (2014), these practices would generate values beyond use and not only for the buying organization, but also communicate the tangible advantages to society and economies that are usually referred to as Sustainable Purchasing Practices.

Organizations also need constant and rapid changes in today's competitive setting to gain fresh competitive benefits (Wu & Pagell, 2015). Purchasing plays an important role in sustainable development. These policies, procedures and strategies therefore need to be expanded across all supply chain levels regardless of the limits of companies (Luthra, 2014). This involves engaging vendors at all levels to generate a value in the process of conversion. Guiding principles on sustainability motivate procurement to carry out evaluations that incorporate the Triple Bottom Line's environmental, economic and societal aspects (Meehan & Bryde, 2015).

Environmental and social sustainability problems have risen globally in recent years, resulting in pressure to alter the manner organizations conduct themselves, especially in the supply chain (Steiner, 2015). Organizations need to embrace socially and environmentally accountable procurement (SP) procedures that affect all elements of the supply chain, including providers, customers and employees, with the main aim of reducing environmental and social impact by the activities of suppliers (Carter & Jennings, 2014).

Nderitu and Ngugi, (2014) stated that environmental issues have become a critical topic of concern for companies around the world in latest years. Environmental responsibilities have risen significantly as society becomes more aware of its surroundings and there is a growing awareness of environmental legislation requiring businesses to be environmentally

accountable (Zhu, Sarkis & Geng, 2015). In view of rising expenses of waste management, environmental degradation, public health issues, climate change, resource depletion and constant global poverty, the supply management profession is increasingly called upon to contribute to wider organizational objectives of sustainable development by including environmental criteria and social within procurement processes (Steiner, 2015).

Firms, especially in the developing countries are experiencing an increased variety of internal pressures caused by investors, employees and policy makers for the improvement of social and environmental activities of their supply chains (Karim, Smith, Halgamuge & Islam, 2016). While the traditional economic dimension of the Triple Bottom Line (TBL) is widely used in business and measurements are well understood and developed, the new environmental and social dimensions are less prevalent and much more difficult to measure and enforce in the Sub- Saharan African countries (Marc & Michael, 2015). This is due to the fact that there is little or no focus to long lasting environment concerns since most of the firms are exploitative and profit maximization (Marc & Michael, 2015).

Figure 2.2: Pillars of the Sustainable Public Procurement

In summary, Sustainable Procurement is established at the point where the economic, social and environmental factors affecting sustainability intersect (OECD, 2016; Doh, 2014), as indicated in Figure 2.2 above.

2.10 Sustainable Public Procurement Framework/Policies

To determine when the process of procurement is said to be sustainable it will require the introduction of sustainable procurement. One of the means of determining how sustainable procurement will be is by the Whole Life Cycle (WLC) approach. It can be applied at either an asset or multiple asset level (Berry and McCarthy, 2011). WLC analysis is typically used at either the sourcing strategy stage to help decide between competing procurement options and/or at the tender evaluation stage to ensure that contract award decisions are made on cost assumptions over the life of the goods, works or service and not just on the up-front capital costs. However, John Stewart (2008) cautions that the "cheapest whole-life cost does not necessarily equate to the most environmentally sustainable option". The practice of procurement in Ghana seems to have neglected sustainability considerations.

In an international comparative study of sustainable procurement in the public sector, Brammer and Walker (2011) identified that policy makers need to be mindful of the emphasis they place on the various aspects of SP, as different interpretations are apparent in different countries, and there is no right way to approach SP. This gives rise to the need to develop a sustainable procurement framework that suits public procurement in developing countries, especially Ghana.

A policy or framework should include planned development of targets for all environmental impacts and extension of the framework to cover social issues (www.sustainable- development.gov.uk, 2002). Such policy should also envelope economic and social implications of good sustainable procurement practices. These key features seem to be lacking in the existing procurement practices in Ghana. Many sustainability strategies emerging have bordered on the purchase of goods and services (Van Weele, 2005; Wynstra, 2006; Boomsma, 2008). Shayoh *et al.* (2003) focused on the role of supply-based timber firms in the rural areas, with the aim of improving processes, creating opportunity for continuous flow of employment and most important availability of the product at affordable price/rate.

2.11 Sustainable Public Procurement Policy/Framework in Ghana

Following a report issued by the Institute for Sustainable Development (IISD), the Government of the Republic of Ghana made a public commitment to the development of a Sustainable Public Procurement (SPP) policy as part of its nation's strategy towards sustainable development in December 2010 (Kissi-Asare, 2014). With the IISD acting as technical

consultant and managed by Ghana‘s Public Procurement Authority and supported by the Swiss Secretariat for Economic Affairs (SECO), the Ghana Task Force (GTF) for SPP comprising various stakeholders grouped and authorized to work with the Public Procurement Authority charged in the design and the application of the policy on sustainable public procurement (Kissi-Asare, 2014). His study mentioned that, sustainable public procurement policy is specifically calculated to:

1. Enable procurement entities to design and implement sustainable procurement action plans and
2. Promote compliance with relevant social and environmental laws and regulations as they apply to public procurement,
3. Recognize and rank spending categories to provide for incremental implementation,
4. Embed social, environmental and governance criteria in procurement decisions,
5. Raise capacities of buyers and enterprises that do business with the government,
6. Provide initiatives to support small-scale Enterprises (SME‘s),
7. Integrate environmental and social criteria into public procurement framework agreements, e- procurement initiatives and supplier diversity programs, and
8. Support the implementation of an internationally accepted procurement assessment program (Kissi-Asare, 2014).

2.12 Sustainable Public Procurement Practices

This section will provide sustainable public procurement practices in Ghana and other countries. According to Zhu et al. (2005), organisations in different countries and in different industries have differing sustainable procurement practices.

2.12.1 The Experience in Ghana

Sustainable Procurement (SP) should be run through local and national levels using legal instruments to implement policies. Also the use of a solid political will and initiative will move for a successful application course. Suppliers, contractors and service providers who are keen on immediate savings and increase in profit margins should be compelled to incorporate sustainability considerations in their business operations to improve economic advancement, social value and green sustainability.

Training compliance inspectors therefore becomes necessary for a successful implementation of Sustainable Procurement. Section 59 of Act 914 contains certain social and environmental

sustainable considerations. The main emphasis laid out in this Section is on economic aspects of procurement. Even though this is so, not all economic matters have been incorporated into the procurement processes. There are only few social considerations made, yet the concern for environmental considerations is negligible.

Though environmental issues have currently been factored into the Act, the enforcement of standalone regulations on the reduction in greenhouse gas emissions, energy efficiency standards, pesticides control and management, forest & wildlife management, mining and others environmental issues should be given further priority.

The labour Law Act (2003), Act 651 of the Republic of Ghana addresses social problems such as:

1. TUC-Employers dialogue,
2. Equal Opportunity for Employment,
3. Child labour, among others, and
4. Occupational Health & Safety.

Though the Public Procurement Act 663 does not integrate sustainability issues as a requirement in the tendering process, Act 914 has made it a mandatory requirement for all manner of public procurement.

2.12.2 Sustainability Public Procurement in Other Countries

Most nations have challenges in the introduction and enforcement of Sustainable Public Procurement (SPP) issues in their procurement. Like Ghana, every nation has to examine its rules and regulations to identify sustainability issues as well as attempt to bring them under the procurement law for effective implementation.

2.12.3 Policy Document on SPP for Kenya

Even though the Kenya government has put in place some range of institutional and legislatives policies like NEEMA and EMCA to govern business activities for ensuring the protection of -the environment, Odhiambo (2015) reported that the success factors in procurement related activities are still lacking. All organizations in the nation must comply with the regulations and policies of the Act (Martin, 2012). Many private companies in Kenya are working to enhance their operations' environmental efficiency and Sustainable

Procurement (SP) seems to have a more influence on the organizational adoption (Martin, 2012). KIPPRA (2016) showed that Kenya firms are struggling to balance the demand of sustainable procurement and the overall performance due to incremental in cost requirements to maintain the balance.

Sustainable procurement practices may include reducing packaging and waste, assessing vendors on their environmental performance, safety record, labour rights, ability to develop eco-friendlier products, and performance in reducing carbon emissions associated with transport of goods. For example, environmental purchasing is linked to traditional purchasing activity with an environmental management element (Zsidisin & Siferd, 2001). Sustainable transportation is defined as transportation that meets mobility needs while preserving and enhancing human and ecosystem health, economic progress, and social justice (Deakin, 2001).

Sustainable packaging is defined as packaging that adds value to society by effectively containing and protecting products during movement across the supply chain. Reverse logistics is defined as a process that guarantees the efficient and effective use and re-use of products (DeBrito, 2003). It also includes purchasing from minority or women-owned business enterprises (MWBEs) (Carter & Jennings, 2002) and local and small firms (Walker & Brammer, 2009).

Carter and Rogers (2008) stated that socially responsible purchasing practices impact on all aspects of the supply chain, including suppliers, employees, and customers. Carter and Rogers (2008) suggested five dimensions of sustainable procurement practices, which included concern for environment, diversity, working conditions and human rights, safety, and philanthropy and community involvement. These five aspects were extended by Walker and Brammer (2009) to include buying locally and buying from small suppliers. Subsequently, other sustainable supply chain and procurement studies supported these sustainable procurement practice dimensions (Brammer & Walker, 2011; Zailani et al., 2012; Islam et al., 2014).

2.12.4 Policy Document on SPP for Gambia

Under section 37(2) of the Procurement Law, The Authority is required to recognize and empower ways of encouraging involvement of smaller businesses in public procurement.

An example is an establishment of small-scale enterprises database who are first given the opportunity to enter into low-purchase offers in order to promote their businesses and provide domestic employment and improve the income levels of its citizenry for socio-economic development. Issues discussed under the varying legislations and laws are sustainability issues despite the fact that it might be contended that there seem to be defensive clauses that could trespass against World Trade Organization equal opportunity arrangements. A case of social sustainable issues in a tender document could contain a provision and have as portion of its specifications that:

i. Providers that do not administer fair salaries will be disqualified;
ii. Providers that use child labour in their construction will be disqualified, or
iii. Products that contribute to depletion of the ozone layer will be disqualified.

2.12.5 Policy Document on SPP for Tanzania

The main objectives of the SPP document are:

i. Social and environmental considerations in public procurement might contribute towards an effective public procurement and focused business segment.
ii. Public Procurement activities to focus on environmental issues, respect for human rights and to meet the basic needs of the working force.
iii. Tanzanian Procurement Regulation of (2005), Section 12 (1) states, "A procuring entity shall avoid, wherever possible, the acquisition of chemicals, pesticides or different merchandise which are known or suspected to affect the well-being of the populace, the earth, residential creatures, natural life and verdure".

2.12.6 Policy Document on SPP for Saudi Arabia

Saudi Arabia is a developing economy that has made steady progress with socio-economic development, gender equity, standard of living, health, education, and environmental legislation (Husain & Khalil, 2013). Economic and infrastructure developments of the country in last two decades have been phenomenal. The Saudi construction industry is booming with the current expenditure rising to more than $120 billion a year (Alrashed et al., 2014). The boom is linked to the rapid expansion of the essential infrastructure in the country. The construction of new highways and airports and the emergence of new urban centres in Saudi Arabia have attracted construction experts from around the world. Saudi Arabia's construction industry encompasses 15% of its workforce and consumes more than 14% of the country's energy (Dhahran International

Exhibition Company, 2015). The boom in the construction industry is a reflection of the rapid growth in Saudi Arabia's domestic economy.

However, most of the projects in the construction industry have no value for money to customers (Ali & Wen, 2011). About 70% of the construction works experience cost and time overrun (Al- Kharashi & Skitmore, 2009). For instance, between 2000 and 2010, 45 out of 76 private and public projects were not completed on time. Fatality in construction site is common. For example, a recent crane collapse in the grand mosque killed 107 people (BBC, 2015). Construction cost has been increasing rapidly due to unsustainable procurement practices.

In fact, the Saudi Arabia government issued a decree that would require all construction companies to meet new resource consumption standards in order to address this issue (The Guardian, 2015). In addition, there has been an increase in buildings collapsing before reaching the end of their lifespan. According to the Saudi Council of Engineers, the average lifespan of Saudi building is between 25 and 50 years compared with 100 years observed in other countries (AMEInfor, 2014). Yet sustainability issues are not being incorporated in the majority of purchasing decisions by both the private and public organisations. Contract bids or tenders in the country are awarded based on the economic rationalist model with the lowest bid winning (Bajaber & Taha, 2012) at the expense of social considerations such as the use of child labour and compromise with health and working conditions and environmental sustainability issues. In particular, the eco-efficiency and eco-effectiveness in the procurement practices are not being incorporated by the public and private organisations in Saudi Arabia in their efforts to move towards sustainable procurement. However, only the effective implementation of sustainable procurement practices (Son et al. 2011) and lean construction concepts can address these challenges (Al-Otaibi et al., 2013).

2.13 The Need for the Adoption of Sustainable Procurement Practices

Public procurement plays an important role in sustainable development because of its enormous procurement volume (McCrudden, 2004), its role as a policy tool (Lundberg and Marklund, 2013), and its natural affinity with sustainable development objectives in the long term (Walker et al., 2012). In line with the growing interest in sustainable procurement during the recent decade, the research on sustainability is comparatively well-developed for the private sector and developed countries. However, there is a need to advance

the research on this topic for the public sector and developing countries (Walker et al., 2012) such as the public universities in Ghana.

Sustainable procurement is "procurement that is consistent with the principles of sustainable development, such as ensuring a strong, healthy and just society, living within environmental limits, and promoting good governance." (Walker and Brammer, 2009). This study focuses on sustainable procurement practices on works contract in public universities in Ghana. It must be noted that there are some significant differences between sustainable procurement practices in the public sector and that in the private sector (New et al., 2002) for two reasons. First, public procurement is considerably different from the private sector procurement in terms of objectives, stakeholder's interest, constraints, purchase size, leverage over suppliers, structures, rules and regulations (Harland et al., 2013). Second, sustainable procurement in the public sector has a generally broader perspective in comparison to sustainable procurement in the private sector (Walker and Brammer, 2009) because it needs to take political factors into consideration (Walker et al., 2012).

Despite the uniqueness and importance of sustainable procurement in the public sector, there is a scarcity of research in this field (Walker et al., 2012a).

According to Fahimnia, Sarkis, and Davarzani (2015) increased deterioration of the environment has raised concerns amongst various researchers and academicians. Green procurement forms part of green supply chain management. As a result of that Green supply chain management is considered as the addition of environmental contemplation in business. Green procurement has been a useful measure in increasing the ecological performance of the enterprise and reducing the environmental risks (Mangla, Kumar & Barua, 2014). Green procurement is also known as sustainable procurement (Nderitu, & Ngugi, 2014), and some companies realized a long time efficiency in energy usage, waste generation and water consumption along with use of recycled materials resulted in reducing costs (Victor & John, 2009).

Business entities are confronted with various objectives and need to make appropriate decisions, facing challenges such as shareholder versus stakeholder, financial versus non-financial, single versus multiple measures. In research and practice, Green Public Procurement (GPP) is seen many times as a part of the sustainability strategy (Preuss, 2009).

Even though when purchasing a product, for instance, first you notice the economic aspect, such as the price; and then the environmental elements, which is determined by the characteristics of the product; and all these cannot come without a social impact, in the form of the work of the employees who produced the good. As such, it is challenging to separate the environment from the economic and social pillars.

It must be noted that the use and awareness of sustainable procurement is on the increase and in some organisations it has moved to a strategic level.

2.14 Integrating Sustainable Procurement into Public Procurement Process

Procurement plays an important role throughout the lifecycle of a construction project and serves to drive many sustainability outcomes (Hardy, 2013).

The public procurement procedure within the context of sustainability will be discussed in two stages, namely; key steps of the sustainable public procurement process and inclusion of sustainability criteria into tender documents.

2.14.1 Key Steps of Sustainable Public Procurement Process

The procedure of sustainable procures of goods, works and services should comply with the general principles and rules defined by the relevant legislation of Ghana. The awarding of public procurement contracts is strictly regulated by the Public Procurement (Amendment) Act 2016, Act 914 that aims to protect both the procuring entity and the bidder.

Basically, there are various threshold levels provided under specific schedules in the Public Procurement (Amendment) Act 2016, Act 914 that specify particular approving authority to approve contracts after the completion of evaluation. For the purpose of this study, the threshold levels of goods, works and services for Ministries, Departments and Agencies (MDAs) for which Public Universities fall under which requires public competitive tender is:

- Above Ghc100,000 – Ghc1,000,000 for procurement of goods;
- Above Ghc500,000 – Ghc15,000,000 for procurement of civil works; and
- Above Ghc150,000 – Ghc1,000,000 for procurement of services.

These are the threshold levels within the approval authority of Entity Tender Committee

as specified under the Second Schedule of Act 914.

If the procuring entity has intention to announce a tender, it is important to determine the requirements of tender regarding the subject of procurement - goods, services, and works, considering subject's functions, costs and available budget according to the current law.
Depending on sustainability policy and goals of an organization, the procurement process may set out additional criteria for evaluation based on sustainability. For example, pre-qualification stage may foresee an invitation of only those suppliers who meet specific sustainability requirements; specifications (mandatory and/or optional requirements) may include additional criteria, e.g., environmental criteria, or during the evaluation procedure bidders should demonstrate their correspondence to the desirable sustainability requirements defined by contracting authority.

Figure 2.3 below considers each stage of the procurement process where sustainability issues may be integrated**.**

Step 1: Demand Management and Market Analysis
This stage is about information gathering. It identifies what the current needs of the organization such as goods, works and services are and their estimated price. In other words, conduct a demand analysis; and re-think about opportunities for demand reduction and consuming less. During demand analysis, consideration should be given to the procurement where the "need" can be met by a more sustainable alternative.

By involving cross-functional stakeholders in this process and utilizing their expertise, organizations may find a way to optimize orders.

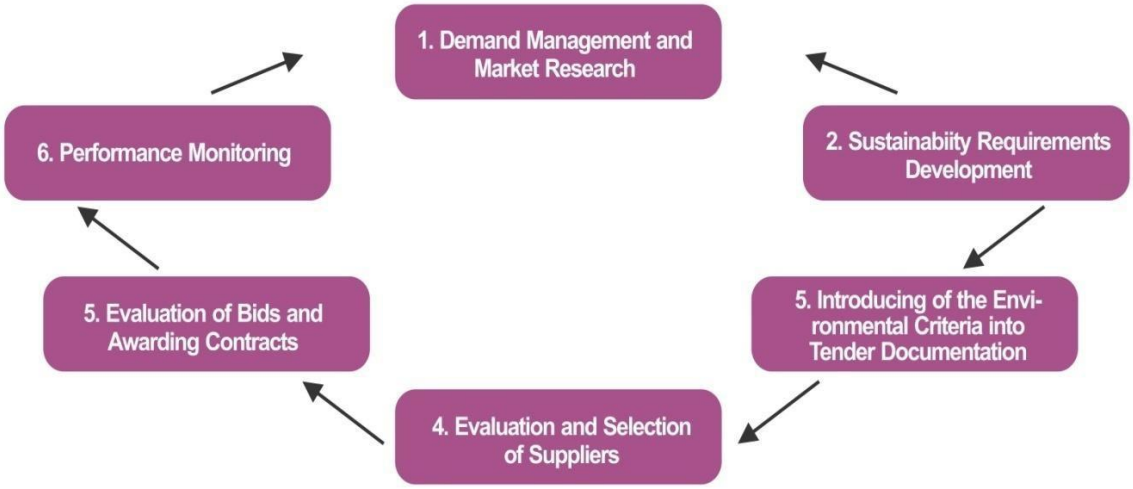

Figure 2.3: Key Steps of the Sustainable Public Procurement Process

Source: adapted from The Procura+ Manual, Third Edition

The purpose of conducting a market analysis with regards to sustainable procurement is to:

- Develop an understanding of the current level of capability and performance in the market with regard to sustainability, and the capacity and potential of the supply base to move towards, and advance, best practice;
- Determine the degree of influence the contracting authority has within the supply market to drive sustainable procurement objectives.

Step 2 - 6: Inclusion of Sustainability Criteria into Tender Documents

This step includes sustainability requirements development, the introduction of environmental criteria, evaluation and selection of suppliers and contractors, evaluation of bids and award of contracts and performance monitoring or contract administration into tender documents. Traditionally, tender documentation contains information about volumes, service level agreement and terms and conditions along with a detailed technical specifications to ensure consistency on pricing, product quality, operational functionality and that product are fit for purpose. Sections of a tender document where environmental criteria can be introduced are as follows:

- The subject matter of the contract;
- The technical specifications for the goods, works, and services;
- The selection criteria for bidders;

- The qualification and contract award criteria, and
- The contract administration or performance clause.

The Subject-matter of the Contract

The subject-matter of the contract reflects exactly what goods, services and works are to be purchased by the public entity. Procurement laws do not limit organizations' needs in general, thus proving a free choice to authorities to choose suppliers and contractors which meet their demands and requirements within the limits of the budget.

The subject-matter of the contract is a key element in contract formation and should state all the important sustainability considerations, which are to be taken into account in the procurement process. In this case, a transparency of the procurement procedure will be achieved.

Drawing up Technical Specifications

After the subject-matter of the contract is defined, the next step is to translate intentions into measurable technical specifications about what the product, works, or service must meet.

The principal purpose of drawing up technical specifications is to ensure that the contracting authority purchases products, services or works that it sets out to procure. The inclusion of specifications relating to environmental and social considerations means that tenderers who are unable to comply with them will be excluded from the tendering process. If the contracting authority is seeking to procure a product that has a low impact on the environment, it might look at the impacts that occur during the production, use, and disposal phases of the product's life cycle and wish to make specifications relating to each of those phases. For instance, if the contracting authority intend to contract a cleaning service with low impact on the environment and, that is why technical specifications may include assessment of impacts that occur during different stages of the service's life cycle and wish to make specifications relating to each of stage, it is possible to ask the contractor to offer alternative proposals. This gives more flexibility to procurers in case there are no offers that meet all the environmental specifications. Contractors should be informed in the bidding documents that alternative proposal with better environmental performance are accepted. Public entities should note in the technical specifications the types of evidence that can be provided to demonstrate compliance with the sustainability criteria specified.

Qualification and Selection criteria

Identification of the winner of the procurement procedure is carried out in two stages:

1. Selection Stage - to assess a capacity and ability of tenderers to perform and meet the requirements of the contract;
2. Award stage - to examine the offers in order to choose the best option, i.e. the best evaluated tender or the most economically advantageous tender.

Contract Award

The last stage of the procurement procedure is the contract award. In this stage, the contracting authorities evaluate the quality of the offers that complied with the technical specifications in order to choose the most appropriate one. Award criteria enable the contracting authorities to value more sustainable tenders over less sustainable tenders without compromising price for sustainable contract.

For the purpose of Act 914, there are two ways of awarding a contract based on:

a) Lowest price; or
b) Most economically advantageous offer or least evaluated tender.

In the first case, the final decision is based solely on the price of the bids. Therefore, if no environmental criteria have been defined in previous stages, it will be needless to include them in this stage. Where this option is chosen, it should be ensured that environmental criteria are introduced in the technical specifications. On the other hand, if the principle of the "most economically advantageous offer" is applied, other award criteria can be taken into account, along with the price. These criteria may concern quality, delivery date, technical merit or environmental characteristics for example. In this case, it is very important that environmental award criteria are:

- Related to the subject-matter of the contract;
- Objectively quantifiable,
- Weighted in relation to the other award criteria and clearly defined in the tender documents in order to guarantee transparency.

Using the award phase to introduce environmental criteria can be a good idea if there is uncertainty about the availability or cost of the more environmentally friendly product or service.

By introducing environmental award criteria, it means preference is being give to "greener" products; however if they are much more expensive they will not be selected. However, the "weight" that is given to the environmental criteria in the evaluation will determine how much extra the procuring authority is willing to pay. It is possible to include environmental award criteria even if environmental minimum standards have already been included in the specifications – this provides an opportunity to reward even better performance. For example, if contract of computer leasing service is to be awarded the technical specifications may include a certain energy consumption level. In the award criteria, preference may be given to equipment that consumes even less energy. Therefore the award criteria may be set as follows:

- for the economic offer: up to 80 points;
- for energy consumption, even lower than that defined in the technical specifications: up to 20 points.

In considering the economic offer, it is important to consider the life-cycle costs of the product and/or service to be contracted and not the price. This includes not just the purchase price but also the usage costs such as electricity or water consumption, maintenance costs, and final disposal costs.

Contract Administration Clause

Where a contract includes sustainability issues, public entities should monitor contractor compliance with identified provisions. In order to measure the benefits associated with sustainable procurement, it is vital that related performance measures and reporting requirements are specified in the tender documents. It must be noted that contract administration is applicable in most civil works and services contract situations [(Section 14, 2(j) and 3 (a, b) - Public Procurement Act 914)].

2.15 Challenges of Adoption of Sustainable Procurement Practices

There are factors that hinder an organisation's effort to adopt sustainable practices. These factors vary across countries, organisations, and sectors. For example, perceived costs or financial constraints pose the most significant barrier in the UK, Eastern and Western Europe,

the USA, and Canada (Brammer & Walker, 2011; Blair & Wrigh, 2012). Awareness is identified as the main barrier in Malaysia (Islam et al., 2014), while the lack of sustainable procurement policies and strategies are found as top ranked barriers in the United Nations (Hasselbalch et al., 2012). A lack of knowledge about sustainability is identified as the main barriers in Norway (Dolva, 2008) along with misalignment of short-term and long-term strategic goals (Giunipero et al., 2012).

Most procurement practitioners have to constantly weigh the trade-offs between conflicting procurement objectives. However this study identified the following challenges likely to affect sustainable practices in works contracts in public universities in Ghana.

2.15.1 Adoption of green procurement and Cost Trade-off

Purchasing and procurement in general is growing in importance in companies and is also assuming a more strategic role. In tandem with this growth, a greater understanding, appreciation and concern has developed of the environment. Together purchasing and supply chain management can exert more influence on the market place. One issue or perceived problem with sustainable procurement is the cost element. Does environmental or greener purchasing negate achieving savings or imply a reduction in quality standards? This is certainly a challenge for companies (Morton, 2002; Sharma et al., 2010; Oruezabala & Rico, 2012).

Public procurement officials constantly face difficult choices between cost and environmental quality especially in developing countries where the lowest bid carry the day. Should they always select a firm with the least evaluation bid for an award of a particular contract and risk the consequences of potential harm to the environment, or to award the contract to the highest evaluated bid for a similar contract that will conserve the environment? It must be noted that environmental consideration cannot be acceptable without regard to cost (Shen & Daskin, 2005). Often, green technology and products come at a higher premium. Such additional costs are offset by savings due to energy and material efficiency and increased demand. In addition, according to Stevenson and Hojati (2007), there are periodic reviews and supplier audits that increase the costs to the public entity procuring the goods or services.

Bowen et al. (2001) put forward the argument that financial incentive is the main reason for implementing a green supply chain in organisations. This is confirmed by Rao and Holt (2005) who state that a positive relationship occurs between green supply chain management

practices and organisations competitiveness and economic performance. The limited resources of small companies and government pressure to aggregate contracts to extract financial savings are combining to have an effect on the use of Sustainable Procurement (Walker & Preuss, 2008). Sustainable Procurement is often viewed as opposing the main goal of procurement which is to reduce costs and attempts to implement Sustainable Procurement can falter as a result of the cost, or perceived cost, implications (Walker et al., 2009). These costs are often a significant obstacle when trying to integrate environmental practices into standard supply practices (Min & Galle, 1997, 2001). That performance measurement can focus mainly on savings and other economic aspects of an organisation, procurement managers will therefore be less motivated to introduce or implement sustainable practices (Preuss, 2005).

2.15.2 Adoption of Green Procurement and Lead Time Trade-off

Lead time management involves adjusting production to fit actual customer demand as it materializes. According to De Treville, Shapiro and Hameri (2004) lead time management aims at reducing transaction uncertainty in the chain, which can be conceptualized as the primary goal of supply chain management. Assume that a public procurement official has two offers for an item. Firm A, proposes GHc 100,000 for a green contract and will deliver the item within two days after receiving an order, and Firm B, proposes GHc 95,000 for a similar green contract and it takes two extra days as compared with Firm A. Which firm should receive the contract? Studies have shown that green suppliers are few, often serving several clients who have no alternative (Chen, Drezner, Ryan, & Simchi-Levi, 2000). As such, it takes longer to supply customer orders. This implies that many procurement managers will not prefer green inputs from this perspective, unless there are policy directions which allow preference for green inputs notwithstanding the delays.

2.15.3 Adoption of Green Procurement and Risk

According to Chopra and Sodhi (2004), risks associated with the supply chain may result into disruptions in the supply chain which ultimately affects production. In recent times, these risks include terror attacks, natural disaster disruptions, political violence and depletion of natural raw materials. Risk in procurement may arise from placing orders for products that do not exist at the moment, but are being developed. Such green products could be in their development stage such as solar systems and batteries and recycling technologies among others (EU, 2010). It can also include public procurement officials deciding to pay a higher

price to a responsible firm than to take a risk on a firm that cannot affirm its responsibility. In addition, public procurement officials may decide to select the highest evaluated bid based on an evaluation of the relative technical and financial management strengths in order to succeed in meeting government sustainable objectives. According to Rolfstam (2009), there may also be an inverse relationship between the goals of minimizing risk and maximizing competition. If minimizing technical risk were the only procurement goal, public procurement officials would tend to award only to firms who successfully performed the same or similar work on their previous contracts. Green procurement, being a new concept would not be easily integrated into public procurement.

2.15.4 Adoption of Green Procurement and Socio-economic Objectives

According to McCrudden (2004) the socio-economic objectives in procurement considers the use of procurement to promote equality on the basis of ethnicity, promotion of human rights, gender mainstreaming and spread of economic benefits through public procurement. Procurement entities often pay a premium, explicitly or implicitly, to accomplish socio-economic goals. Bolton (2008) includes creation of employment, conserving the environment, promotion of culture, building the image of the procurement entity among others as comprising socio- economic objectives. In America for example, the Buy American Act authorizes government entities, under certain circumstances, to pay a higher price for domestic-made goods vis-à-vis foreign made goods. On the other hand, in Ghana a procurement entity may grant a margin of preference for the benefit of tenders for work by domestic contractors or for the benefit of tenders for domestically produced goods or for the benefit of domestic suppliers of services or any other preference authorized by the Board or required by Regulations or any other enactment [PPA, Section 60 (1)]. Despite their cost, socio-economic initiatives have arguably contributed to accomplishing other procurement goals. In Kenya, the public procurement system has provided the youth, women and persons with disability small businesses to cater for their livelihood and for the creation of new sources of supply. Such legal frameworks would go a long way to promote green procurement in the developing world.

2.15.5 Adoption of Green Procurement and Competition

According to Hayes (2009), adoption of green procurement has two consequences to a firm. To begin with, it might raise cost of production making an organization's products uncompetitive. The impact of this has been aggravated by opening up of domestic markets to

foreign companies. Should the environmental regulations be very stringent for local organizations, their costs might be higher than those of competitors whose countries do not have stringent regulations (Chan, Li
& Zhang, 2013). An alternative view, according to Ambec, Cohen, Elgie and lanoi (2013) is that environmental regulation may foster innovation in environmentally friendly technologies, which might help regulated firms achieve technological leadership and boost greater economic growth. Although competitiveness has not been an important consideration in the public sector, changing times are leading to demands that public service be run as efficiently as the private sector. This is supported by a study by Yang, Lu, Haider, & Marlow (2013) which indicated that a firm's green performance and external green collaboration act as mediator variables between internal green practices and firm competitiveness, and they influence firm competitiveness positively.

2.15.6 Adoption of Green Procurement and Management Commitment

There is often no strategic role for procurement, sustainable or otherwise, at a high level of some organisations. Tripathi & Petro (2010) argue that functions within an organisation must be aligned in order to implement practices effectively. Hence to incorporate sustainable procurement, a company must have an objective from top management to improve their environmental and sustainability performance (Oruezabala and Rico, 2012). Sweeney's (2007) study found that "All firms agreed strongly that the interest and involvement of top management is crucial to the successful implementation of CSR." In contrast with a similar study, Quinn (1997) established that the existence of a positive relationship between the outlooks and interests of the managing directors and the level of CSR carried out by these organisations in the Irish sector.

Organisations today have competing objectives each ensuring to achieve business success and this is reflected by top management's commitment in encouraging and enabling these objectives are implemented and practiced. As a result management needs to nurture core values such as Sustainable Procurement and integrate these into the culture of the organisation (Trevino et al., 2000; Joyner et al., 2002; Hammer, 2004). Similarly, if there is no management commitment then objectives like Sustainable Procurement will not work (Min and Galle 1997; New *et al.*, 2000). In addition, Walker et al.'s (2009) research recognizes that a lack of organisational commitment is an impediment to Sustainable Procurement. Hawkins (2006) speculates as to the reason why sustainability factors are not a priority for management.

In terms of leadership, Menon and Menon (1997), Banerjee et al. (2003) and Hammer (2004), accentuate the importance of the role of management, proposing that leadership is vital in adopting green marketing strategy. Egri and Herman (2000) found that leadership styles and the personal values that leaders' have, such as an openness to change, can have a positive influence of a company's environmental strategy. If leaders are not open to change then this can negatively affect the strategy of a company. Walker et al. (2009) recognizes that barriers to Sustainable Procurement experienced by practitioners include a lack of organizational commitment short- term thinking.

2.15.7 Adoption of Green Procurement and Further Training

In terms of increasing compliance with public procurement directives, educating and training purchasers will be of significant assistance (Gelderman et al., 2006). The lack of training has been found to be a challenge to the application of Sustainable Procurement in public procurement processes. Further training is therefore a pre-requisite to overcome these challenges (Bowen et al., 2001; Walker & Phillips, 2006). Walker and Preuss (2008) note that individual training for procurers should emphasize the importance of Sustainable Procurement along with the financial targets. Hayes and Allison (1998) state that learning at all levels of an organisation is of vital importance in order for them to adjust to changes in the internal and external environments. However as the role of Sustainable Procurement increases in importance, especially from a political perspective, training has been recommended to help procurers implement SP (Helm et al., 2005; DEFRA, 2006).

2.15.8 Adoption of Green Procurement and Conflict with e-Procurement

It is possible that there may be conflict between the advantages that e-procurement can provide and Sustainable Procurement particularly in relation to small and/or domestic suppliers. For example Walker and Brammer's (2009) research found that a large part of Sustainable Procurement practiced in the UK is centred on purchasing from small and domestic suppliers (Walker and Brammer, 2009). However later research conducted by the same researchers discovered that e-procurement policy and Sustainable Procurement policy are conflicting policy objectives. This can occur for instance where domestic or small suppliers do not have or cannot afford the technology to use e-procurement and as a result cannot reduce the amount of paper work used in invoicing as opposed to e-invoicing (Walker & Brammer, 2012).

2.15.9 Adoption of Green Procurement and the Individual Employee

A relationship has been found to exist between motivation and sustainability which emphasizes the importance of "environmental values" (Egri & Herman, 2000) and for the championing of environmental issues (Anderson & Bateman, 2000). If individuals consider compliance withn environmental regulations as important, then these individuals will achieve greater success in instigating green practices (Sharma, 2000; Min & Galle, 2001). On the other hand, these factors may decrease the motivation of an individual to assume the task of introducing sustainable development practices thereby creating a barrier (Preuss & Walker, 2011). Sutinen and Kuperan (1999) contend that individuals' own personal values influence their behaviour in terms of compliance. Compliance will decrease with regulations if moral responsibility is weakened and will influence others to imitate non-compliance thus creating further barriers. Therefore is actual enforcement the only way of changing this behaviour?

2.15.10 Adoption of Green Procurement and Reluctance to Change

Altering how procurement staff work can be fraught with a pervasiveness of inertia and risk aversion (Preuss and Walker, 2011). This reluctance to change is common with change, whether organisational or departmental. Their research also found that "intra-organisational adaptation processes within public sector organizations can create psychological barriers for sustainable procurement initiatives too" (Preuss & Walker, 2011).

2.15.11 Adoption of Green Procurement and Supplier Knowledge

Another barrier found was that supplier expertise was poor in the implementation of aspects of Sustainable Procurement (Oruezabala & Rico, 2012). Research by Vachon and Klassen (2008) and Walker and Brammer (2012) shows that the greater the communication and collaboration with suppliers the better the sustainability and Sustainable Procurement measures that can be introduced. If no real buyer-supplier relationship exists it is possible that this can restrict or even prevent the use of Sustainable Procurement. If suppliers do not possess the requisite knowledge to provide information for a life cycle assessment (LCA) of a particular product (Tarantini, Loprieno, & Porta, 2011) a buyer will not be able to utilize this aspect of Sustainable Procurement.

2.15.12 Other Challenges to Sustainable Procurement

Other significant challenges to sustainable procurement include the lack of cultural

integration, lack of transparency, decentralised purchasing structures, time pressures, conflicting priorities, lack of quality of sustainable products, lack of political support and government regulations including contract processes for commercial firms, lack of contract management, and conflicting environment or social factors, lack of guideline and poor supplier commitment, (Boomsma, 2009; Brammer & Walker, 2011; Ageron et al., 2012; Blair & Wrigh, 2012; Hasselbalch et al., 2012; Genovese et al., 2013; Mathiyazhagan et al., 2013; Islam et al., 2014). The above literature tends to identify that the majority of challenges to sustainable procurement tend to be internal rather than external to the organisation.

2.16 Potential Benefits of Implementation of SPP in Developing Countries

The benefits of adopting and implementing sustainable procurement practices cannot be over- emphasized. For instance, green innovations could produce monetary advantages such as the creation of financial opportunities, occupation and skill development which have social and environmental ramifications like resourceful and effective use of funds.

The development of the social, economic and environmental aspects of businesses has been evident for some years now. For instance ideas of social responsibility have been debated for decades. Davis (1960 cited in Carroll 1979), Eels and Walton (1961 cited in Carroll 1979) and Milton Friedman (1962 cited in Carroll 1979) all give their arguments concerning what they believed the social responsibilities of businesses to be. Inter alia McGuire (1962 cited in Carroll 1979) put forward the opinion that "the idea of social responsibilities supposes that the corporation has not only economic and legal obligations, but also certain responsibilities to society which extend beyond these obligations". Manne and Wallich (1972) believed that any act of CSR (Corporate Social Responsibility) on the part of an organisation should be purely voluntary.

Archie Carroll's (1979) corporate social performance model looked at, among others, the legal, ethical, economic and environmental responsibilities that come with CSR both from a management and business perspective. His model was intended to assist management in understanding that social responsibility and economic performance of businesses were not separate entities but a whole one. Consideration of social, economic and environmental factors by businesses is difficult as Hawkins (2006) states that "it is a complex task to factor sustainable, economic, environmental and social objectives into business decision making".
Organisations are increasingly adopting the concept of sustainability to assist in their quest

for greater market share. Media, academic literature and company practices trends show that there has been an increase in concern in relation to sustainable development and also the effect that businesses can have on the environment and society (Boykoff & Boykoff, 2007). However is it possible for companies that engage in sustainable practices to achieve greater economic performances than companies who simply focus on economic performance alone? Hoffman and Bazerman (2005) encapsulate and diagnose this question succinctly.

The key to resolving this debate is the recognition that social and environmental behaviours are sometimes profit-compatible and sometimes not. When parties acknowledge this simple fact, it becomes easier to convince corporations to adopt environmental and social initiatives that are mutually beneficial. In terms of procurement an assumption can be made to this effect also. However when compliance with EU public procurement directives is required it becomes a much more complex task.

The potential benefits of Sustainable Public Procurement will be discussed alongside the three pillars of sustainability. These will include the benefits accrued to social, economic and environmental considerations.

2.16.1 Social Aspects

Thus, SPP may improve obligations to social advancement objectives, for example, traditions that boycott child labor and establishes the privilege to frame trade unions and guarantee is non- discriminatory. Further, SPP may add to improving consistency in national and worldwide labor and social rules. It can also contribute to reducing poverty and improving living conditions in developing countries as it promotes voluntary social standards; example, it will lead to the promotion of fair Trading. SPP can also motivate social inclusion as well as fight for social justice. An example is South Africa, which acquainted a framework to stimulate the progression of individuals generally burdened by non-discriminatory (such as gender, age, colour, religion and the like). Also in Brazil, prospective advantages and boundaries of SPP in creating the nation's law were presented in 2007 which sets up criteria expected to promote small-scale businesses to compete in public procurement. Social elements included complying with core labor standards, recognizing diversity and equality, ensuring fair working conditions, developing local communities and increasing employment and skills (European Commission, 2010; United Nations, 2008; IISD, 2012; UNEP, 2011).

2.16.2 Economic Aspects

An outright purchase tag of a good, service or works is one and only component of the entire cost of ownership. To guarantee worth for cash over the more extended span, building up the most reduced entire life expense of an item can bring about major monetary- related investment funds. An organized methodology can be utilized to deliver a spend profile of the item or administrations over its expected life range and it will incorporate the expense for procurement, use, upkeep and transfer of the product or service. Even a forthright cost for sustainable items could be lowered due down to the use of a sustainable production process (Berry, 2011; European Commission, 2010; United Nations, 2008). The sectors which are liable to have the most effects incorporate welfare, general transportation, and construction as well as information technologies. SPP can also drive markets to drift towards cleaner methods of income generation and enhanced intensity of providers broadly and comprehensively. Procuring data innovations for people with handicaps can aid as a model for different purchasers and can create even grounds and economies of scale. Through SPP, the advancement of small and medium-scaled businesses and may bring about enhanced entrance to the business sector (Berry, 2011; European Commission, 2010; United Nations, 2008).

2.16.3 Environmental Aspects

Public entities and authorities may have an affirmative effect on environmental difficulties through the implementation of SPP. They could do so by contributing to meet environmental challenges such as:

i. Soil degradation,
ii. Climate change,
iii. Access to fresh water, and
iv. Loss in biodiversity.

2.17 The procurement process of UNDP & UNEP (2007)

These entities and authorities can also contribute by decreasing the environmental risk impacts on safety and health as well as wellbeing of a nation‘s environment caused by public procurement. Also, savings can be generated by waste reduction and judicious resource consumption and conservation. The procurement process should consider the following:

i. Renewable raw materials,
ii. Greenhouse gas emissions,

iii. Production processes,
iv. Durability,
v. Product lifespan,
vi. Energy and water consumption,
vii. Air pollutants,
viii. Reuse and recycling products, or
ix. Refuse, packing and transportation.

SPP can back on a specified national environment strategy, adopt universal environmental traditions, ensure conformance and add to accomplishing worldwide targets; for example, the decrease of gas emissions. It has a great prospective for natural advantages at the local level. A case may include, the utilization of low-emitting vehicles for transportation can enhance air quality and buying of harmless cleaning items can improve the environment for students especially (United Nations, 2008; World Bank, 2011; European Commission, 2004).

CHAPTER THREE

RESEARCH METHODOLY

3.1 Research Methodology

The main aim of this study is to evaluate the practices of sustainable public procurement as applied to works contracts in public universities in Ghana.

3.2 Introduction

The research methodology will address the research strategy, the research method, the research approach, data sources, population and sample size, sampling technique, the methods of data collection, the selection of the sample, the research process, the type of data analysis, and the ethical considerations of the project.

3.3 Research strategy

This research will be an applied one. The purpose is to add to the existing literature on sustainable procurement. As a result of that, it is important to examine existing research designs in order to fully benefit from these existing insights and to progress the methodology of sustainable procurement further. Thus the proposed research will take the form of a new research but on an existing research subject.

3.4 Research Method

Most research in sustainable procurement has been conducted using quantitative, qualitative or mixed-method research designs. However, in order to fully satisfy the objectives of this study, qualitative and quantitative research methods of research design will be used to obtain and analyze data.

Both qualitative and quantitative research methods are used in mixed-method research where a more pragmatic research is used "that views knowledge as being both socially constructed and based upon the reality of the world we experience and live in" (Johnson et al., 2007, in: Gray, 2009). Mixed-method research is defined as "the collection or analysis of both quantitative and qualitative data in a single study in which data are collected concurrently, or sequentially, are given a priority, and involve the integration of data at one or more stages of the process of the research" (Creswell & Clark, 2011).

The choice for a research method should be based on the objectives of the research, as well as the characteristics of the empirical phenomenon being studied and the research question being asked (Gerring, 2007; Swanborn, 2002). Based on the research objectives and questions, as well as the potential unit of analysis, a mixed-method of research design will be the most appropriate design for this research.

3.5 Research Approach

The research approach that will be followed for the purposes of this study will be the inductive one. According to this approach, researchers begin with specific observation, which are used to produce generalized theories and conclusions drawn from the research. The reasons for adopting the inductive approach are to take into account the generation of new theory that may emerge from the data collected for the study. Thus the aim of using an inductive approach in this study is to generate new theories based on the data collected. However, the main weakness of the inductive approach is that it produces generalized theories and conclusions based only on a small number of observations, thereby the reliability of research results being under question (Denzin & Lincoln, 2005).

3.6 Data Sources

For the purpose of this study, various data collection methods and tools will be employed in obtaining primary and secondary data.

3.6.1 Sources of Data

According to Jain (2008), primary study comprises securing unique or direct data from the research subjects at hand. The primary source of obtaining data for this study will be by distributing self-administered questionnaires, conducting personal interviews, holding focus group discussions and conducting direct observation of specific sustainable issues on the works construction sites.

Similarly, McDaniel & Gates (2008) describes secondary data to comprise information that has earlier been collected and might be appropriate to the issues at hand. Thus, secondary data will be obtained from relevant professional journals, credible sources from the internet, previous related thesis, standard tender documents for goods, works and services, tender evaluation reports, contract awards and very current electronic library books on sustainable procurement.

3.6.2 Methods of Data Collection

The methods to be employed in obtaining data for the study will include self-administered questionnaire, personal interviews, focus group discussions and direct observation.

According to McDaniel and Gates (2008), a self-administered questionnaire is a list of inquiries answered by means of no meeting for asking questions. Self-administered questionnaires will be distributed only to key personnel of the contract awarding public universities who have expertise and directly involved in the subject-matter of the works contract under the study. Thus written questionnaires will be administered to procurement directors, directors of works and physical development as well as contract administrators of the public universities under the study.

Similarly, self-administered questionnaires will be distributed to works contractors who are directly involved in the execution of construction contracts within the public universities under the study.

The Likert scale approach will be used in designing the questions for the self-administered questionnaire. All the questions in the self-administered questionnaire will be structured and closed-ended. The reason for distributing the self-administered questionnaires to the respondents is for ease of obtaining information pertaining to the bio-data of respondents as well as obtaining technical information on the level of implementation and compliance with sustainable procurement issues on the award and execution of the respective works contract.

Direct observation of the respective construction projects and project sites will be made by the researcher to ascertain the critical social, economic and the environmental benefits and consequences likely to affect the project and its beneficiaries. In this case, the researcher will design a checklist or make field notes of the critical success factors and consequences affecting the respective deliverables on the construction projects and write his comments on the outcome of the observations for further analysis. During the observation process, photographs will be taken on the actual construction projects and sites, where necessary, and the researcher will subsequently write notes covering the outcome of the observations for further analysis.

In order to affirm the observations of the researcher or otherwise, personal interviews will

be conducted to further obtain detailed information on sustainable procurement issues on the works contract that will otherwise not be obtained from the completed self-administered questionnaire and also to consolidate the efforts made in the observation process. In particular, the same procurement directors, directors of works and physical development as well as contract administrators of the public universities under the study will be engaged in the face-to-face interview. Most of the questions for the personal interview will be semi-structured and in-depth; the aim is to probe further from respondents' questions that require elaborate answers. Whilst conducting the interview, audio recordings will be made, and at the same time the researcher will write notes covering the outcome of the personal interviews for further analysis.

Focus group discussions will also be held on each university campus for selected staff of the procurement directorate and works and physical development directorate who take active part in the implementation process of works contract within the public universities; while contractors who are directly involved in executing construction projects and who are supposed to comply with the sustainable procurement issues will also be selected on campus basis for a focus group discussions. Again, the questions for the focus group discussions will be semi-structured. This is to afford the group discussion to provide and generate in-depth responses to meet the objectives of the study. Whilst conducting the focus group discussions, audio recordings will be made, and at the same time the researcher will write notes covering the outcome of the discussions for further analysis.

The questions for the self-administered questionnaire, checklist for the direct observation, personal interview and focus group discussions will be designed and categorized in order to fully address the research questions in such a way that it will answer each of the research objectives so as to achieve the goal of the research.

3.7 Population, Sample size and Sampling Technique

The size of population for the study will be seventy (70). This figure is arrived at by multiplying the number of recognized public universities (10) in Ghana by the selected sample size (7) for each public university.

Purposive sampling method will be used to develop the sample of the research under discussion. According to this method, which belongs to the category of non-probability

sampling techniques, sample members are selected on the basis of their knowledge, relationships and expertise regarding a research subject (Freedman et al., 2007). In the current study, the sample members will be selected on the basis of their special relationship with the phenomenon under investigation, sufficient and relevant work experience in the field of construction projects, active involvement in several works contract initiatives and partnerships, as well as proven research background and understanding of raw data concerning construction projects in general. Within this context, the intended participants/respondents of this study will include:

(i) Procurement directors (3 participants);
(ii) Directors of works and physical development (3 participants);
(iii) Contract administrators/works inspectors/supervisors (3 participants), and
(iv) Selected staff of the procurement directorate and works and physical development directorate (12 participants: 2 from each directorate from the three selected public universities)

3.8 Research process

Meetings will be held during specific periods in 2020 with respondents in 1.6 above. Specifically, the meetings will be held with (i), (ii) and (iii) of the contract awarding public universities concerned so as to gain acceptance of their participation in the research. More specifically, the researcher will get in touch with and ask the respondents to participate in the research after explaining the nature and scope of the study. In general terms, it is expected that the respondents will be willing to participate in the entire research process and the entire period for collecting data for the study will be categorized and commenced at agreed time frames to suit both the researcher and the respondents. The discussions of the meetings with the specific respondents will take place at their offices and is expected to last between 25 to 30 minutes.

3.9 Data analysis and Processing

Content analysis will be used to analyze the data which will be gathered from all the data collection instruments. According to Moore & McCabe (2005), this is the type of research where data gathered is categorized in themes and sub-themes so that they can be compared. One of the main advantages of content analysis is that it helps the data collected to be summarized and simplified, while at the same time producing results that may be measured using quantitative techniques. Moreover, content analysis provides researchers the

opportunity to structure the qualitative data collected to achieve the research objectives. However, human error is highly involved in content analysis, since there is the risk for researchers to misinterpret the data gathered, thereby generating false and unreliable conclusions (Krippendorff & Bock, 2008).

As indicated above, the content analysis will be analyzed qualitatively and quantitatively.
In respect of the qualitative research design such as personal interview, personal observations and focus group discussions, the researcher will use the following steps/procedure to record and analyze the data; (i) conduct and audiotape the interview and focus group discussions together with written notes, (ii) transcribe or write the data in Microsoft word format. Thus, audible and visual data will be interpreted into written form, (iii) data obtained will be coded into themes; thus similar words or descriptions mentioned by the interviewees will be put or categorized together, and (iv) the identified themes will be generalized to ascertain whether indeed sustainable issues pertaining to public procurement of construction contracts have been well implemented and complied with in accordance with the objectives of the study. The outcome from the themes will be interpreted in line with the relevant literature in the study.

Quantitative data will be analyzed using frequency distribution tables, pie charts, and bar charts. In addition, quantitative data will be analyzed using descriptive statistics such as mean and mode for further statistical analysis. Furthermore, measures of dispersion such as the standard deviation and variance will be computed from the data obtained from the study. The concept of correlation and regression analysis will be employed to determine the relationship between factors affecting sustainable procurement and the level of compliance by project contractors resulting from the execution of the construction projects. Similarly, correlation and regression analysis will be used to determine the relationship between factors affecting sustainable procurement and the level of implementation by construction project actors/players resulting from the execution of the construction projects.

The regression analysis graph will be used to extrapolate the outcome of the study to ascertain whether there are future prospects of improving the level of implementation and compliance of sustainable procurement in construction projects in public universities in Ghana.

Also, Analysis of Variance (ANOVA) will be used to determine whether there are any

statistically significant differences between the means of any two or more independent groups of respondents of the study.

The latest Statistical Package for Social Sciences (SPSS) software and Excel (spreadsheet) applications will be used in processing data obtained from self-administered questionnaire, personal interview and focus group discussions; whilst the data obtained from personal observation will be transcribed into Microsoft word format before inclusion into the main research outcome.

3.10 Ethical consideration

Written permission will be sought from all the key participants of the study including procurement directors, works and physical development directors, construction project directors, and project/contract administrators directly related to the construction projects. Upon acceptance, the researcher will assure all the respondents of the confidentiality in obtaining information from them by hiding their identity.

CHAPTER FOUR

ANALYSIS AND DISCUSSION OF RESULTS

4.1 Introduction

The rationale behind this chapter is to analyze, discuss and present the outcome of the study obtained through the administration of questionnaires and conducting personal interviews.

4.2 Results obtained using Questionnaire

The questionnaire was segmented into demographic data of respondents and the objectives of the study.

4.2.1 Demographic Data Analysis

The tables below represent the frequency tables for the various bio-data of respondents including the age distribution, highest academic level of education, professional qualifications related to their work, affiliated professional bodies, work experience and possible training in aspects of public procurement.

4.2.1.1 Age Distribution

Table 4.1: Age of respondents

Age (In years)	Frequency	Percent	Valid Percent	Cumulative Percent
31 - 40	4	33.3	33.3	33.3
41 - 50	5	41.7	41.7	75.0
51 - 60	3	25.0	25.0	100.0
Total	**12**	**100.0**	**100.0**	

Table 4.1 above shows that out of the 12 respondents: 4 are within the age range 31-40, representing 33.33%; 5 are within the age range 41-50, representing 41.7%, and the remaining 3 fall within age 51 -60, representing 25% of the entire respondents of the study. The indication is that about 75%, representing 9 respondents have 10 years or more to retire from the service of the University, and this provides some level of leverage to sustain such professionals in future.

4.2.1.2 Highest Academic Level of Education

Table 4.2: Highest academic level of education

Academic Qualification	Frequency	Percent	Valid Percent	Cumulative Percent
MBA/MSC/MPHIL	**12**	**100.0**	**100.0**	**100.0**

From Table 4.2 above, all the 12 respondents were masters' degree holders, indicating that they had the requisite academic qualifications to execute their work.

4.2.1.3 List of professional qualification related to work

Table 4.3: List of professional qualification related to work

Professional Qualifications	Frequency	Percent	Valid Percent	Cumulative Percent
CIPS-UK	2	16.7	16.7	16.7
Others	10	83.3	83.3	100.0
Total	**12**	**100.0**	**100.0**	

Table 4.3 above represent the list of professional qualifications related to respondents' area of work. 2 respondents, representing 16.7% had obtained The Chartered Institute of Procurement and Supply (CIPS), UK qualifications, whiles 10 respondents, representing 83.3% had obtained professional qualifications including, Association of Certified and Chartered Accountants (ACCA), UK, Institute of Chartered Accountants (ICA), Ghana, Ghana Institute of Surveyors (GIS), and Ghana Institute of Engineers (GIE). Clearly, the list of professional qualifications gathered from respondents is a true representation of their area of expertise and therefore relevant to the study.

4.2.1.4 Affiliated Professional bodies

Table 4.4: Affiliated professional bodies

Affiliated Professional Body	Frequency	Percent	Valid Percent	Cumulative Percent
CIPS - UK	2	16.7	16.7	16.7
Others	10	83.3	83.3	100.0
Total	**12**	**100.0**	**100.0**	

In relation to Table 4.3 above, Table 4.4 represent the various professional bodies related to the respondents' area of work. 2 respondents, representing 16.7% belong to The Chartered Institute of Procurement and Supply (CIPS), UK qualifications, whiles 10 respondents, representing 83.3% belong to professional associations including, Association of Certified and Chartered Accountants (ACCA), UK, Institute of Chartered Accountants (ICA), Ghana, Ghana Institute of Surveyors (GIS), and Ghana Institute of Engineers (GIE). Clearly, the list of professional bodies affiliated to respondents provides a high sense of responsibility and accountability in their area of expertise and therefore relevant to the study.

4.2.1.5 Work Experience

Table 4.5: Work experience

Work Experience (In years)	Frequency	Percent	Valid Percent	Cumulative Percent
5 – 10	3	25.0	25.0	25.0
11 - 16	5	41.7	41.7	66.7
17 - 22	4	33.3	33.3	100.0
Total	**12**	**100.0**	**100.0**	

Table 4.5 above shows that 3 of the respondents, representing 25% had previous work experience between 5 – 10 years; whereas 5 respondents, representing 41.7% had worked for 11 – 16 years, followed by 4 respondents, representing 33.3% had worked in their area of expertise between 17 – 22 years. On the average, the respondents had reasonable and adequate

number of years of experience in their area of expertise to enable them understand and implement sustainable procurement policy.

4.2.1.6 Training in Public Procurement

Table 4.6: Training in public procurement

Training in Public Procurement	Frequency	Percent	Valid Percent	Cumulative Percent
Acceptance	**12**	**100.0**	**100.0**	**100.0**

Table 4.6 above indicate that all the 12 respondents have some form of training in aspects of public procurement. Accordingly, the areas captured from the responses of respondents indicates that they had training in the preparation of procurement budgets, preparation of requirements in tender documents, tender opening and evaluation, bills of quantities and bills of materials, not to mention a few. However, only 3 out of the 12 respondents acknowledged being trained in various aspects of sustainable public procurements due to their direct involvement in issues of the nature in works' contracts.

4.2.2 Analysis of Research Objectives

This section analyzes the responses obtained from respondents in the questionnaires administered to them.

4.2.2.1 Objective 1:

To give account of the procurement reforms that gave rise to the enactment of the maiden public procurement Act

Hypothesis (H_1): The hypothesis tested if respondents understand the procurement reforms that gave rise to the enactment of the maiden Public Procurement Act. The factors were analyzed using frequency distribution tables and pie charts to test the hypothesis. There was an indication of a significant understanding of the procurement reforms that gave rise to the enactment of the maiden Public Procurement Act by respondents.

4.2.2.1.1 Frequency Distribution Tables

Table 4.7a: Disharmony in public procurement procedures

Response		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	5	41.7	41.7	41.7
	Strongly Agree	7	58.3	58.3	100.0
	Total	**12**	**100.0**	**100.0**	

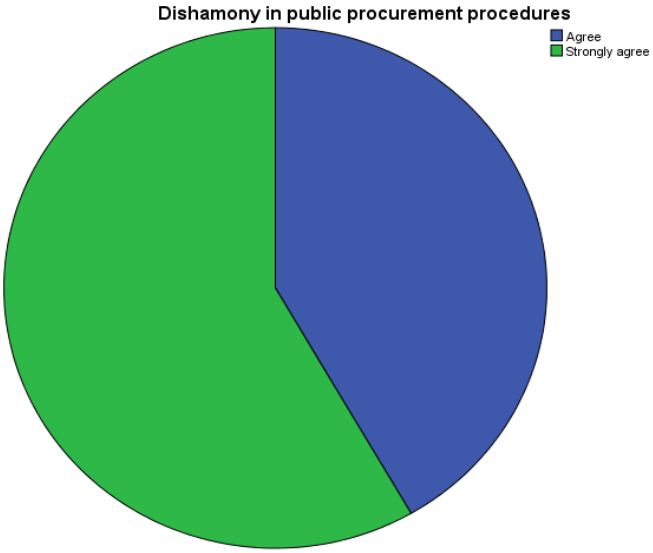

Figure 2.4: Disharmony in public procurement procedures

Table 4.7a above clearly shows that 5 respondents, representing 41.7% 'Agree' and 7 respondents, representing 58.3% 'Strongly Agree' to the fact that disharmony in public procurement processes and procedures could affect the attainment of value for money and this necessitated the procurement reforms leading to the enactment of the maiden Public Procurement Act (2003), Act 663. Figure 2.4 above presents a pictorial chart of the outcome of the survey in percentage terms.

Table 4.7b: Weakness and inefficiencies in the procurement system

Response		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	8.3	8.3	8.3
	Neutral	2	16.7	16.7	25.0
	Agree	3	25.0	25.0	50.0
	Strongly Agree	6	50.0	50.0	100.0
	Total	**12**	**100.0**	**100.0**	

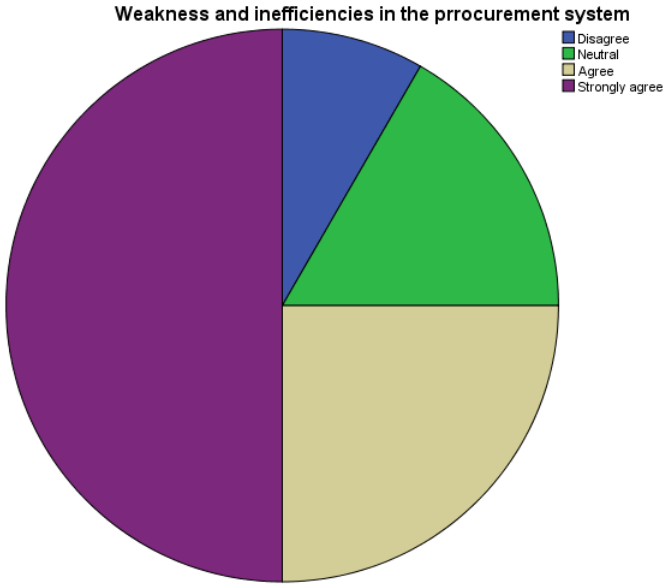

Figure 2.5: Weaknesses and inefficiencies in the procurement system

Table 4.7b above clearly shows that, out of the twelve respondents; 6 strongly agree (50%), 3 agree (25%), 2 remain neutral (16.7%) and 1 respondent disagree (8.3%). The indication is that about 75% of the respondents, representing 9 respondents expressed their agreement that weaknesses and inefficiencies in the procurement system could warrant possible procurement reforms leading to the enactment of the maiden Public Procurement Act. However, only 8.3%, representing 1 respondent 'Disagree' that weaknesses and inefficiencies in the procurement system would not give rise to any procurement reforms resulting in the promulgation of the maiden Public Procurement Act. Nevertheless, the findings indicates that majority of the respondents agree to the reformation/amendment of the maiden Public Procurement Act

(2003), Act 663, due to its administrative and operational bottlenecks. Figure 2.5 above presents a pictorial chart of the outcome of the survey in percentage terms.

Table 4.7c: Promotion of competition by maiden procurement Act

Responses		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	8.3	8.3	8.3
	Neutral	1	8.3	8.3	16.7
	Agree	5	41.7	41.7	58.3
	Strongly agree	5	41.7	41.7	100.0
	Total	**12**	**100.0**	**100.0**	

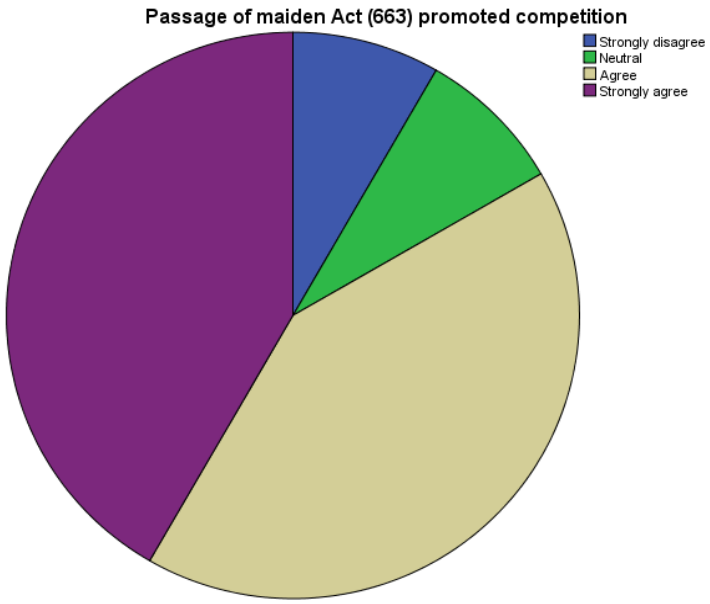

Figure 2.6: Promotion of competition by maiden procurement Act

Similarly, Table 4.7c above clearly shows that, out of the twelve respondents; 5 strongly agree (41.7%), 5 agree (41.7%), 1 remain neutral (8.3%) and 1 respondent disagree (8.3%). The indication is that about 83.4%, representing 10 respondents expressed their agreement that the enactment of the maiden public procurement Act could promote competition amongst competing tenderers. However, only 8.3%, representing 1 respondent 'Strongly Disagree' that the enactment of the maiden public procurement Act is unlikely to promote competition amongst competing tenderers. In spite of the administrative and operational inefficiencies and

weaknesses associated with the maiden Public Procurement Act (2003), Act 663, the research findings matched up with section 2 of the Act. Figure 2.6 above presents a pictorial chart of the outcome of the survey in percentage terms.

Table 4.7d: Promotion of fair, equal and equitable treatment by maiden procurement Act

Response		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	16.7	16.7	16.7
	Agree	8	66.7	66.7	83.3
	Strongly Agree	2	16.7	16.7	100.0
	Total	**12**	**100.0**	**100.0**	

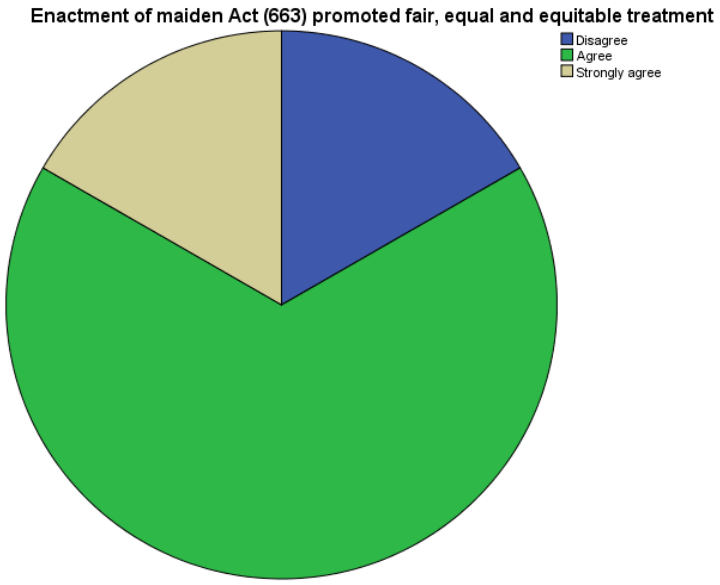

Figure 2.7: Promotion of fair, equal and equitable treatment by maiden procurement Act

Furthermore, Table 4.7d above shows that, out of the twelve respondents; 2 strongly agree (16.7%), 8 agree (66.7%), and 2 respondents disagree (16.7%). The indication is that about 83.4%, representing 10 respondents expressed their agreement that the enactment of the maiden public procurement Act could promote fair, equal and equitable treatment amongst competing tenderers. However, only 16.7%, representing 2 respondents 'Disagree' that the enactment of

the maiden public procurement Act is unlikely to promote fair, equal and equitable treatment amongst competing tenderers. Again, in spite of the administrative and operational bottlenecks associated with the maiden Public Procurement Act (2003), Act 663, the research findings affirmed section 2 of the Act. However, Figure 2.7 above presents a pictorial chart of the outcome of the survey in percentage terms.

Table 4.7e: Improvement in attainment of value for money as a result of amended Act 914

Response		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	3	25.0	25.0	25.0
	Agree	6	50.0	50.0	75.0
	Strongly Agree	3	25.0	25.0	100.0
	Total	**12**	**100.0**	**100.0**	

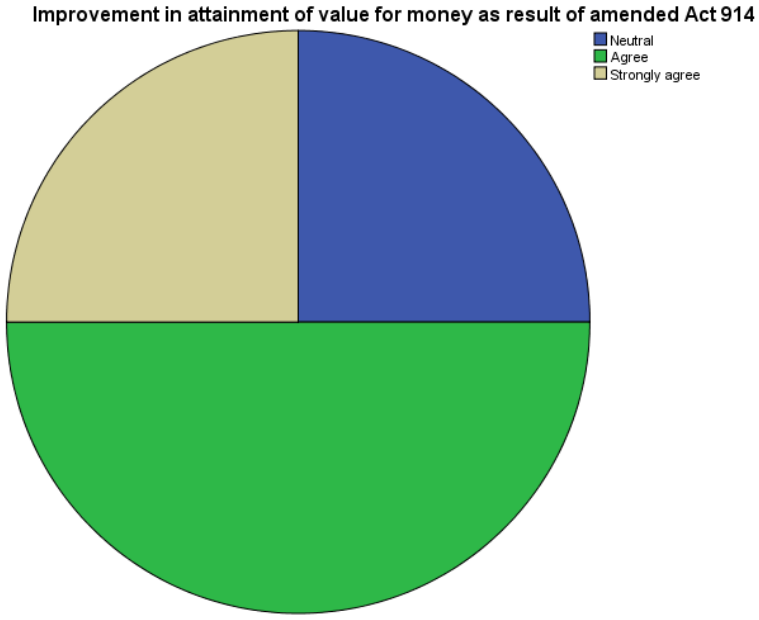

Figure 2.8: Improvement in attainment of value for money as result of amended Act 914

In addition, Table 4.7e above shows that, out of the twelve respondents; 3 strongly agree (25%), 6 agree (50%), and 3 respondents (25%) were neutral. The implication is that about 75%, representing 9 respondents expressed their view that the enactment of the amended public

procurement Act could improve the attainment of value for money (Section 2) in procuring goods, services and particularly works contract. Figure 2.8 above presents a pictorial chart of the outcome of the survey in percentage terms.

Table 4.7f: Minimization of bottlenecks and inefficiencies in the maiden Act by Act 914

Response		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	1	8.3	8.3	8.3
	Agree	6	50.0	50.0	58.3
	Strongly Agree	5	41.7	41.7	100.0
	Total	**12**	**100.0**	**100.0**	

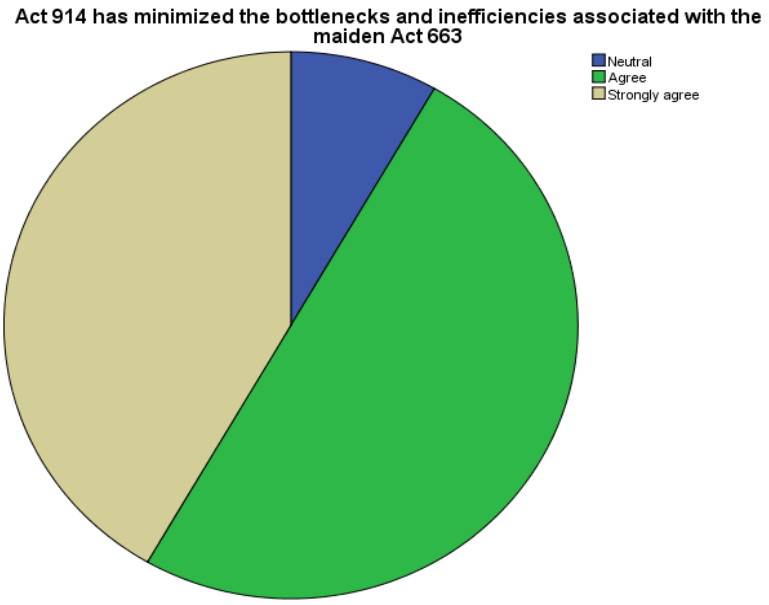

Figure 9: Minimization of bottlenecks and inefficiencies in the maiden Act by Act 914

In addition, Table 4.7f above shows that, out of the twelve respondents; 5 strongly agree (41.7%), 6 agree (50%), and 1 respondent (8.3%) appeared neutral. In this case, 91.7%, representing 11 respondents expressed their agreement that the enactment of the amended public procurement Act has minimized the bottlenecks and inefficiencies associated with the implementation of the maiden public procurement Act. This clearly implies that the introduction of the amended public procurement Act 914 has further cemented public

procurement reforms in Ghana. Figure 9 above presents a pictorial chart of the outcome of the survey in percentage terms.

Table 4.7g: Introduction of international procurement practices

Response		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	10	83.3	83.3	83.3
	Strongly Agree	2	16.7	16.7	100.0
	Total	**12**	**100.0**	**100.0**	

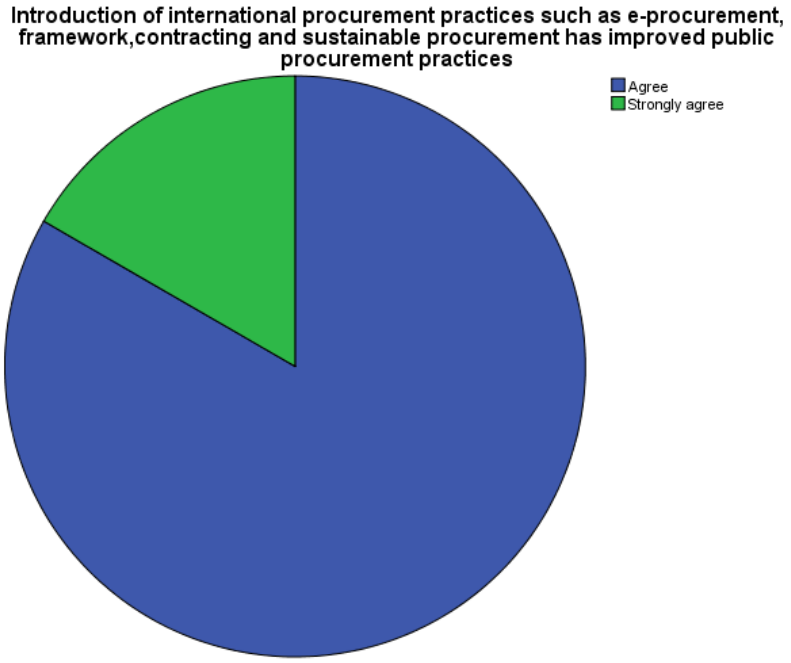

Figure 2.10: Introduction of international procurement practices

From Table 4.7g above, out of the twelve respondents; 2 strongly agree (16.7%), and 10 agree (83.3%), which indicates that most of the respondents expressed their agreement that the introduction of international procurement practices such as e-procurement, framework contracting and sustainable procurement has improved public procurement practices in Ghana. The findings of this study affirm the MTF framework (PPA, 2017) that sought to promote SPP in procurement practices in Ghana. In addition, the findings of the study acknowledged sections 2 and 34A (1) (d) of the Public Procurement (Amendment) Act 2016, Act 914 to have

improve the procurement system in Ghana. Furthermore, the findings of the Institute for Sustainable Development (IISD), according to (Kissi-Asare, 2014), contributed immensely to the reformation of public procurement process in Ghana. Figure 2.10 above presents a pictorial chart of the outcome of the survey in percentage terms.

The outcome of the findings displayed in the Tables and pie charts, including the relevant research findings above, clearly provides a strong affirmation that most of the factors analyzed above have contributed immensely to the procurement reforms leading to the enactment of the maiden public procurement Act and subsequently its amendments in Ghana.

4.2.2.2 Objective 2:

To assess the entire project life cycle for works' contracts in public universities in Ghana

Hypothesis (H_2): The hypothesis tested if respondents adhere to the implementation of the entire project life cycle for works' contracts in the procurement process. The variables were analyzed using frequency distribution tables and pie charts to test the hypothesis. The results from the survey indicates that most of the respondents followed the prescribed processes of the total project life cycle for works' contract to the letter.

4.2.2.2.1 Frequency Distribution Table

Table 4.7h below summarizes the overall outcome of the responses provided by respondents in respect of their engagement in the processes involved in the entire project life cycle for works' contract.

Table 4.7h: Responses on the processes of project life cycle for works' contract

Processes of Project Life Cycle	N	Frequency (Response)		Percent (Yes)	Percent (No)	Valid Percent
		Yes	No			
Procurement Planning/budgeting	12	12	0	100	0	100%
Requirement definition	12	12	0	100	0	100%
Sourcing	12	11	1	91.7	8.3	91.7%
Selection of procurement strategy/ methods	12	12	0	100	0	100%
Preparation of solicitation/tender documents	12	12	0	100	0	100%
Receipts and opening of offers/tenders	12	12	0	100	0	100%
Tender evaluation	12	12	0	100	0	100%
Contract review and awards	12	12	0	100	0	100%
Contract finalization	12	12	0	100	0	100%

From Table 4.7h above, all the 12 respondents of the study clearly indicated that the processes leading to the entire project life cycle for works' contracts have been followed by them to the letter. In particular, processes such as procurement planning/budgeting, requirement definition - technical specifications, selection of appropriate procurement strategy or method, preparation of solicitation documents, receipt and opening of tenders, evaluation of tenders, contract review and award, contract finalization and contract management – post-contract performance and supervision. However, only 1 respondent responded otherwise as against 11 respondents who expressed their awareness that sourcing constitutes part of the processes involved in the procurement life cycle in the procurement of works' contract.

The outcome of this section is in line with the findings of Walker and Hampson (2003), who indicate the various stages of project procurement in construction works to include design development, tender, contract award and construction delivery. However, the UNDP (2008) 10-stage model on the general procurement process in Figure 2.1 (in Chapter 2), which seeks to commence from the procurement planning phase to contract management phase and constitute the procurement lifecycle was highly acknowledged in the research findings.

The overall result displayed in Table 4.7h and the related research findings above, clearly affirm that all the processes involved in project life cycle for works' contracts are adhered to by actors/players during the procurement process, an indication similar to the findings of UNDP (2008).

Therefore, the test of hypothesis (H_2) provides a strong affirmation that most of the stages proposed by UNDP (2008) in the project life cycle flowchart for works procurement have been followed by the respondents including the actors in procurement, accordingly. However, the findings of (Hardy, 2013) concludes the important role procurement plays throughout the lifecycle of a construction project and serves to drive many sustainability outcomes.

4.2.2.3 Objective 3:

To ascertain the implementation of sustainable public procurement policy by players/actors in works' contracts

Hypothesis (H_3): The hypothesis tested if respondents are aware of the inclusion of sustainable procurement practices in the project life cycle for works' contracts. Again, all the variables were analyzed using frequency distribution tables and pie charts to test the hypothesis. The outcome of the survey indicates that most of the respondents were aware of the inclusion of sustainable procurement practices in the project life cycle for works' contracts.

4.2.2.3.1 Frequency Distribution Table

Table 4.7i below summarizes the overall outcome of the responses provided by respondents on the inclusion of sustainable procurement practices in the project life cycle for works' contracts.

Table 4.7i: Responses on the inclusion of sustainable procurement practices in stages of project life cycle

Inclusion of Sustainable Procurement Practices in Project Life Cycle	N	Frequency (Response)		Percent (Yes)	Percent (No)	Valid Percent
		Yes	No			
Procurement Planning/budgeting	12	12	0	100	0	100%
Requirement definition	12	12	0	100	0	100%
Sourcing	12	11	1	91.7	8.3	91.7%

Selection of procurement strategy/methods	12	12	0	100	0	100%
Preparation of solicitation/tender documents	12	12	0	100	0	100%
Receipts and opening of offers/tenders	12	12	0	100	0	100%
Tender evaluation	12	12	0	100	0	100%
Contract review and awards	12	11	1	91.7	8.3	91.7
Contract finalization	12	12	0	100	0	100%

From Table 4.7i above, all the 12 respondents of the study clearly indicated that there is inclusion of sustainable procurement practices in the project life cycle for works' contracts. In particular, stages such as procurement planning/budgeting, requirement definition - technical specifications, selection of appropriate procurement strategy or method, preparation of solicitation documents, receipt and opening of tenders, evaluation of tenders, contract finalization and contract management – post-contract performance and supervision have been confirmed by most of the respondents as being considered in the implementation of sustainable procurement. However, from Table 4.7i, only 1 respondent each disagreed as against 11 respondents, who indicated that sourcing, contract review and award are not necessary for inclusion in the implementation of sustainable public procurement.

Generally, the research findings above are in consonance with the findings of (WSSD, 2002), which asserts that it is imperative to encourage and include the requirements of environmentally sound goods and services into the procurement processes in order to promote sustainable construction (Son et al., 2011).

The findings of the research also provide a similar assertion by (Gelderman, Semeijn, & Bouma, 2015; Keulemans & Van de Walle, 2017) which identified the evaluation of tenders to move beyond price and other commercial criteria but to include social and environmental considerations that control the production and consumption behaviours of suppliers and contractors.

Furthermore, this study confirmed Uttam et al. (2014) assertion that GPP (also known as sustainable procurement) can be infused into the technical specifications, award criteria, and contract performance in all procurement activities, including construction contracts. Testa et al. (2016) also shared the views of (Palmujoki et al., 2010; Uttam et al., 2014; Testa et al., 2016; Fuentes-Bargues et al. 2017) and emphasized that the selection and award criteria for all procurements should include environmental considerations.

The UK Government's Sustainable Procurement Task Force & CIPS (2014) reveals the significance of organisations' to be committed in inculcating and maintaining environmental requirements in their procurement activities, including building works, to obtain value for money. This requirement satisfies Section 2 of the Public Procurement (Amendment) Act 2016, Act 914, which has been acknowledged in this research findings.

As Zhu, Sarkis & Geng (2015) indicates, environmental commitments are on the increase as society becomes more conscious of its surroundings and this requires environmental legislation, such as stipulated in Section 2 of the Public Procurement (Amendment) Act 2016, Act 914 that will compel businesses to be environmentally accountable.

However, the overall result displayed in Table 4.7i and the related research findings above, clearly affirm to a large extent, the respondents' acknowledgement of the inclusion of sustainable procurement practices in the project life cycle by procurement practitioners when executing works' contracts in public universities in Ghana.

4.2.2.4 Objective 4:

To ascertain compliance of the implementation of sustainable public procurement policy by contract administrators/actors

Hypothesis (H_4): The hypothesis tested if contract administrators/actors comply with the criteria used to ascertain sustainable public procurement policy when executing their work.

Multiple regression was carried out to determine whether contract administrators comply with the criteria for implementation of sustainable public procurement in executing the works' contract.

In this analysis, two variables were identified and utilized:

(a) Dependent variable: Adherence/compliance of criteria for implementation of sustainable public procurement policy by contract administrators, and

(b) Predictors/Independent variables (constant): This includes all the criteria in Table 4.7l below used in ascertaining sustainable public procurement policy by contract administrators.

Table 4.7j: Regression Statistics (Model Summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.999[a]	.999	.986	1.07169

The result of the regression in Table 4.7j above, indicates that the regression statistics explains 99.9% of the variance and the model is a significant predictor of adherence/compliance of criteria used by contract administrators in the implementation of sustainable public procurement policy in executing their works' contracts.

From Table 4.7j above, R^2 indicate .999 of the models explaining 99.9% of the variance is independent. In this study, 99.9% of the R square implies that the independent scores can explain 99.9% of the variation in the chance of admittance. This result clearly indicates the positive impact of the dependent variable on the independent variables/predictors. The standard error of 1.07 represents standard error of the estimate of the regression equation and is a good measure of the accuracy of the regression line.

From Table 4.7k below, the regression sum of squares is 871.5 and the total sum of squares is 872.7, which means that the regression model explains about 871.5/872.7 (approximately 99.86%) of all the variability in the dataset. The residual sum of squares is about 1.15 which is less than 1%, hence the smaller the error, the better the regression model explains the variation in the dataset. The total sum of squares which is the sum of both the regression and residual sum of squares is 872.7. However, Table 4.7k indicate sig. (p-value) of 0.039 which indicate that there is a significant relationship between the dependent variable and the independent variables. The cumulative independent variables significantly predicted the dependent variable, hence the F = 75.882, where p <0.005 level. Similarly, the independent variables predicted the dependent variable, with p-value of .089, which indicate that the dependent value can play a significant role in shaping the independent variables.

Table 4.7k: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	871.518	10	87.152	75.882	.039[b]
	Residual	1.149	1	1.149		
	Total	**872.667**	**11**			

Since the p-value is below 0.05, there is an indication of 95% confidence that the slope of the regression line is not zero and hence there is a significant linear relationship between the dependent and independent variables.

Table 4.7l: Criteria used to ascertain sustainable public procurement policy by contract administrators

Criteria for Ascertaining SPP Policy		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	24.128	6.691		.617	.648
	Obtain training in project sustainability issues	3.105	1.335	.364	2.327	.026
	Employment of the services of sustainability expertise	.255	.604	.030	.422	.053
	Adherence to sustainable contract terms and conditions	3.755	3.454	.217	1.087	.004
	Meeting consumer/ consumer needs - quality, safety and security, timely completion, etc	-2.625	3.185	-.154	-.824	.024
	Creation of pollution - air, water, noise, vibration etc	-.079	.521	-.011	-.152	.261
	Creation of jobs/ employment within the project sites	-.248	1.656	-.020	-.150	.031

Existing market for procurement of sustainable project materials, equipment and machinery	2.324	1.390	.157	1.671	.012
Relatively cheaper sustainable project materials, equipment and machinery	.947	.667	.196	2.912	.047
Proper waste disposal of construction materials, equipment and machinery	3.959	1.787	.442	2.485	.001
Re-cycling of waste construction materials and equipment	3.313	1.270	.134	.834	.002
Evidence of adherence to sustainable issues on previous execution of similar construction contracts	3.079	2.402	.315	1.246	.000
Engagement in corporate social responsibility	3.079	2.402	.315	1.246	.000
Application of sustainable procurement regulation minimizes overall project cost	3.313	1.270	.134	.834	.002
Accountable to a government regulatory body	1.373	.858	.086	.163	.035

Delivering Long-term value for money	3.959	1.787	.442	2.485	.001

Table 4.7l above depicts the coefficients of regression of the independent variables against the dependent variable. Eventually, after the dependent variable was regressed against the fifteen (15) independent variables, the output indicates that thirteen (13) independent variables tested positive with p -value < .05, whiles the remaining two (2) tested negative with p-value >.05. The implication is that, all the thirteen criteria/factors have shown significant impact on the

dependent variable, whiles the other two criteria/factors indicate that they are not significant predictors of the dependent variable.

Generally, the research findings above are in consonance with the findings of (WSSD, 2002), which asserts that it is imperative to encourage (include) the requirements of environmentally sound goods and services (Doh, 2014) into the procurement processes in order to promote recycling (Srour et al., 2012).

The UK Government's Sustainable Procurement Task Force & CIPS (2014) reveals that, value for money (World Bank, 2012) can be achieved if organisations are committed to inculcating and maintaining environmental requirements in their procurement activities, including building works. This requirement also satisfies Section 2 of the Public Procurement (Amendment) Act 2016, Act 914, which has been acknowledged in this research findings.

Furthermore, Zhu, Sarkis & Geng (2015) asserts that, organisations require environmental commitments in their procurement activities and they should be accountable to a government regulatory agency, such as the Building and Roads Research Institute (BRRI) of Council for Scientific and Research Institute, Environmental Protection Agency, Ghana Standards Authority and other related statutory bodies in Ghana, through relevant environmental legislation, as stipulated in Section 2 of the Public Procurement (Amendment) Act 2016, Act 914, and this observation was also reflected in this research findings.

Grandia & Meehan (2017) suggest that numerous public policy initiatives can be achieved by government through modern public procurement practices and Erridge (2007) maintained that the public can achieve a lot of value and opportunity from it, as shown in the findings in Table 4.7l above.

The research findings of CIPS (2014) confirmed some of the criteria for ascertaining sustainability in procurement, including the promotion of private well-being, social cohesion and the creation of equal opportunities such as creation of job opportunities for the indigenes of the community where the construction project resides, as indicated in this research findings. Thus, Bolton (2008) added that, the creation of employment, conserving the environment, promotion of culture, building the image of the procurement entity (European Commission, 2010; United Nations, 2008; IISD, 2012; UNEP, 2011), among others, as comprising socio-economic/sustainability objectives. In addition, Asare (2016) maintained that the concept of sustainable procurement could be implemented effectively to resuscitate the vulnerable, socially disadvantaged and marginalized in the society, otherwise known as corporate social responsibility. Rao (2014) replicated the findings of CIPS (2014) and argued that sustainability

will require society and economies (DEFRA, 2006; Kalubanga, 2012; and Oruezabala & Rico, 2012) to benefit from its outcomes.

Parker & Hartley (1997) and Grandia & Meehan (2017) shared a similar view that public organisations can achieve a wider scope of public policy initiative, such as sustainable procurement, when they utilize procurement expertise in executing their work. Unfortunately, this view was not supported by the findings of this study in Table 4.7l above.

The outcome of this study supported the view of the World Bank (2012), which indicates some of the pre-requisites of sustainable procurement to be enhanced delivery of public service, value for money, and a supportive environment for private sector growth. Thus, (United Nations, 2008; European Commission, 2010; & Berry, 2011) asserts that, the requirement for small and medium-sized enterprises to advance into sustainable procurement is to enhance entrance to the particular business sector. However, Fitzgerald & Shepherd (2018) added that, the practice of sustainable procurement is likely to create competitive advantage for businesses (Kwadzo, 2014 & Abunyewah et al., 2016) as society now moves towards embracing this principle, which has been acknowledged in the findings of this research.

Ohene-Addae (2012) contended that, procuring goods and services at the most suitable price, quality, time, and location to meet the requirements of the purchaser or consumer is considered as one of the requirements for achieving sustainability in procurement, as affirmed by this research findings.

Furthermore, Borland (2009) opined that, the procurement process could pose some environmental risks (Mangla, Kumar & Barua, 2014) associated with the particular procurement activity; such as in executing construction projects where pollution and improper waste disposal of construction inputs could have devastating effect on the environment. Nevertheless, the findings of this study supported proper waste disposal of construction inputs as a requisite for determining sustainability in procurement of works contracts.

The findings of Victor & John (2009) coincided with the outcome of this research findings to the extent that, some organisations realized the pre-requisite for meeting sustainability in procurement to include long-time efficiency in energy usage, waste generation, water consumption and recycling materials, which resulted in reducing costs.

In contrast to Brammer and Walker (2011), Keulemans and Van de Walle (2017) concludes that sustainable products and services tend to be more expensive as it attracts additional

administrative cost to the purchaser. In contrast, Brammer and Walker (2011) indicate that relatively cheaper cost is achieved when procuring goods and services, and this confirms the findings of this research.

Procurement is described as sustainable when it integrates requirements, specifications and criteria that are compatible and in favour of the protection of the environment, and in support of economic development, while also accounting for other societal considerations, such as social justice and equity (Schwerin & Prier, 2013; Brammer & Walker, 2011).

Thus, the hypotheses tested above in (Table 4.7l) and the related research findings above, indicates that majority of the respondents affirm that contract administrators in public universities comply with the criteria used to ascertain sustainable public procurement policy when executing the works' contract, in particular.

4.2.2.5 Objective 5:

To identify the challenges in the implementation of sustainable public procurement policy in works' contracts

Hypothesis (H_5): The hypothesis tested if respondents experience challenges in the implementation of sustainable public procurement policy in executing works' contracts.

Multiple regression was executed to find out whether respondents encounter any challenges when implementing sustainable public procurement policy in executing their works' contracts. Also, two variables were noted and used in this analysis:

(a) Dependent variable: Challenges encountered by respondents in the implementation of sustainable public procurement policy in works' contract, and

(b) Predictors/Independent variables (constant): These are the challenges in Table 4.7o associated with the implementation of sustainable procurement policy by respondents.

Table 4.7m: Regression Statistics (Model Summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.995[a]	.991	.951	1.44110	2.011

The result of the regression in Table 4.7m above indicate that the regression statistics explains 99.1% of the variance and the model is a significant predictor of the challenges encountered by respondents in the implementation of sustainable public procurement policy in works' contracts.

From Table 4.7m above, R^2 indicate .991 of the models explaining 99.1% of the variance is independent. In this study, 99.1% of the R square implies that the independent scores can explain 99.1% of the variation in the chance of admittance. This result clearly indicates the positive impact of the dependent variable on the independent variables/predictors. Again, the standard error of 1.44 represents standard error of the estimate of the regression equation and is a good measure of the accuracy of the regression line.

From Table 4.7n below, the regression sum of squares is 457.513 and the total sum of squares is 461.667, which means that the regression model explains about 457.513/461.667 (approximately 99.10%) of all the variability in the dataset. The residual sum of squares is about 4.15 which is less than 1%, hence the smaller the error, the better the regression model explains the variation in the dataset. The total sum of squares which is the sum of both the regression and residual sum of squares is 461.667. However, Table 4.7n indicate sig. (p-value) of 0.040 which indicate that there is a significant relationship between the dependent variable and the independent variables. The cumulative independent variables significantly predicted the dependent variable, hence the F = 24.478, where p <0.005 level. Similarly, the independent variables predicted the dependent variable, with p-value of .040, which indicate that the dependent value can play a significant role in shaping the independent variables.

Table 4.7n: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	457.513	10	50.835	24.478	.040[b]
	Residual	4.154	1	2.077		
	Total	**461.667**	**11**			

Since the p-value is below 0.05, there is an indication of 95% confidence that the slope of the regression line is not zero and hence there is a significant linear relationship between the dependent and independent variables.

Table 4.7o: Challenges associated with the implementation of sustainable procurement policy by respondents

Challenges in Implementation of SPP Policy		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.145	5.578		-.384	.738
	Lack of awareness of SPP issues by procurement entities	5.257	1.092	.836	4.812	.001
	Absence of sustainable procurement policy and strategy	.126	.858	.021	.147	.137
	Delays in the delivery or completion of sustainable contracts	2.134	1.330	.358	1.604	.231
	Competition amongst contractors may retard compliance to sustainability issues	4.175	1.223	.734	3.413	.007
	Lack of management commitment to sustainable procurement issues	3.677	.882	.797	4.167	.002
	Application of e-procurement may prevent small / domestic contractors from utilizing sustainable procurement regulation	.259	.680	.048	.380	.689

Individual employees are not motivated in complying with sustainable practices	2.374	1.471	.455	1.614	.138
Procurement staff may resist to the adaptation of sustainable practices	5.257	1.299	.360	1.393	.001
Poor / Limited supplier knowledge in the application of sustainable regulation	5.522	1.724	.712	3.203	.009
Implementation of sustainability creates additional cost	2.868	1.338	.561	2.143	.058

Table 4.7o above displays the coefficients of regression of the independent variables against the dependent variable. However, after the dependent variable was regressed against the ten (10) independent variables, the output indicates that five (5) independent variables tested positive with p -value < .05, whiles the other five (5) tested negative with p-value >.05. The implication is that, five (5) of the factors identified by respondents to be the challenges in implementing sustainability in public procurement have shown significant impact on the dependent variable, whiles the other five (5) factors indicate that they are not significant predictors of the dependent variable. Thus, the outcome of this analysis clearly indicates that respondents' views and opinions was divided equally between the factors that militate against the implementation of sustainable public procurement policy in executing works' contracts.

According to (www.sustainable-development.gov.uk, 2002), sustainable policy framework should be systematic and target all environmental issues including social and economic factors. In emphasizing this, (Hasselbalch et al., 2012) indicate that lack of sustainable procurement policies and strategies are found as top ranked barriers in the United Nations. Contrary to this view, the findings of this research shows that the absence of sustainable procurement policy and strategy has not been a challenge in the implementation of sustainability issues in public procurement.

It must be noted that environmental consideration cannot be acceptable without regard to cost (Shen & Daskin, 2005). Similarly, (Bowen et al., 2001; Rao and Holt, 2005) put forward the argument that financial incentive is the main reason for implementing a green supply chain in organisations. In contrast, according to (Walker et al., 2009; Brammer & Walker, 2011; Blair & Wrigh, 2012)), sustainable procurement is often viewed as opposing the main goal of procurement which is to reduce costs and attempts to implement sustainable procurement can falter as a result of the cost, or perceived cost, implications. These costs are often a significant obstacle when trying to integrate environmental practices into standard supply practices (Min & Galle, 1997, 2001). It may raise cost of production, making an organization's products uncompetitive (Hayes, 200). On the contrary, this research findings refutes the fact that the implementation of sustainable procurement policy will result in the creation of additional costs in public universities in Ghana.

Shayoh *et al.* (2003) contended that, sustainable procurement practices in supply-based timber firms in rural areas obtain their products at affordable price. Similarly, the outcome of this research indicate that the implementation of sustainable procurement practices does not create additional costs to the purchaser. In contrast, (BBC, 2015) announced that the cost of construction projects is on a hike in the Middle-East due to unsustainable procurement practices, as uncontrolled fatalities and absence of incorporating sustainability issues in most purchasing decisions by both the private and public organisations (AMEInfor, 2014).

Lack of awareness of SPP issues by procurement entities in public universities in Ghana has also been affirmed as the main barrier in Malaysia as well (Islam et al., 2014). The lack of training has been found to be a challenge to the application of Sustainable Procurement in public procurement processes (Gelderman et al., 2006), especially in Ghana. Similarly**,** (Dolva, 2008) admitted that, there is a lack of knowledge about sustainability amongst suppliers and contractors in Norway.

Similar to this research findings, (Oruezabala & Rico, 2012) found that supplier expertise was poor in the implementation of aspects of sustainable procurement. Thus, if suppliers do not possess the requisite knowledge to provide information for a life cycle assessment (LCA) of a particular product (Tarantini, Loprieno, & Porta, 2011), a buyer will not be able to utilize this aspect of sustainable procurement.

To incorporate sustainable procurement, a company must have an objective from top management to improve their environmental and sustainability performance (Oruezabala and

Rico, 2012). However, Walker et al.'s (2009) recognizes that a lack of organisational commitment is an impediment to sustainable procurement, and this view has been acknowledged in public universities in Ghana, according to the research outcome.

If individuals consider compliance with environmental regulations as important, then these individuals will achieve greater success in instigating green practices (Sharma, 2000; Min & Galle, 2001). Thus, the findings of this research acknowledged that procurement staff may resist to the adaptation of sustainable practices unless they are made enforceable and punitive in public universities in Ghana.

According to (Preuss & Walker, 2011), sustainability factors may decrease the motivation of an individual to assume the task of introducing sustainable development practices thereby creating a barrier. They reiterated that, altering how procurement staff work can be fraught with a pervasiveness of inertia and risk aversion (Preuss and Walker, 2011). In earlier research, (Preuss, 2005) indicate that if performance measurement can focus mainly on savings and other economic aspects of an organisation, procurement managers will be less motivated to introduce or implement sustainable practices. In opposing this view, this research findings showed that individuals (procurement staff) need not be motivated to comply with sustainable procurement practices in public universities in Ghana.

Studies have shown that green suppliers are few, often serving several clients who have no alternative (Chen, Drezner, Ryan, & Simchi-Levi, 2000). As such, it takes longer to supply customer orders. In contrast, there are no delays in the delivery/completion of sustainable contracts, unless there is a policy initiative which permits preference for green inputs regardless of the delays involved, as affirmed by the findings of the research.

E-procurement policy and sustainable procurement policy are conflicting policy objectives. This can occur for instance where domestic or small suppliers do not have or cannot afford the technology to use e-procurement and as a result cannot reduce the amount of paper work used in invoicing as opposed to e-invoicing (Walker & Brammer, 2012). However, the findings opposed the view that the application of e-procurement may prevent small/domestic contractors from utilizing sustainable procurement regulation.

The hypotheses tested above in (Table 4.7o) and the related research findings above, indicate that whiles the respondents agree that five of the factors posed some bottlenecks, the other five factors did not show any challenges when implementing sustainable procurement policy in executing construction contracts in public universities in Ghana.

4.2.2.6 Objective 6:

To identify the potential benefits of the successful implementation of sustainable public procurement in works' contracts

Hypothesis (H_6): The hypothesis tested if respondents noticed some benefits resulting from the implementation of sustainable public procurement policy in executing works' contracts.

Multiple regression was carried out to ascertain whether respondents have had some benefits in implementing sustainable public procurement policy in executing their works' contracts. However, two variables were identified and used in this analysis:

(a) Dependent variable: Benefits obtained by respondents in the implementation of sustainable public procurement policy in works' contract, and

(b) Predictors/Independent variables (constant): Table 4.7q contains the independent variables indicating the potential benefits in implementing sustainable public procurement policy in public universities in Ghana.

Table 4.7p: Regression Statistics (Model Summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.999[a]	.998	.994	.31914

The result of the regression in Table 4.7p above indicate that the regression statistics explains 99.8% of the variance and the model is a significant predictor of the benefits accrued by respondents in the implementation of sustainable public procurement policy in works' contracts.

From Table 4.7p above, R^2 indicate .998 of the models explaining 99.8% of the variance is independent. In this study, 99.8% of the R square implies that the independent scores can explain 99.8% of the variation in the chance of admittance. This result clearly indicates the positive impact of the dependent variable on the independent variables/predictors. Again, the standard error of .319 represents standard error of the estimate of the regression equation and is a good measure of the accuracy of the regression line.

From Table 4.7q below, the regression sum of squares is 202.694 and the total sum of squares is 203.0, which means that the regression model explains about 202.694/203.0 (approximately 99.85%) of all the variability in the dataset. The residual sum of squares is about .306 which is

less than 1%, hence the smaller the error, the better the regression model explains the variation in the dataset. The total sum of squares which is the sum of both the regression and residual sum of squares is 203.0. However, Table 4.7q indicate sig. (p-value) of 0.00 which indicate that there is a significant relationship between the dependent variable and the independent variables. The cumulative independent variables significantly predicted the dependent variable, hence the F = 248.761, where p <0.005 level. Similarly, the independent variables predicted the dependent variable, with p-value of .00, which indicate that the dependent value can play a significant role in shaping the independent variables.

Table 4.7q: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	202.694	10	25.337	248.761	.000[b]
	Residual	.306	1	.102		
	Total	**203.000**	**11**			

Since the p-value is below 0.05, there is an indication of 95% confidence that the slope of the regression line is not zero and hence there is a significant linear relationship between the dependent and independent variables.

Table 4.7r: Potential benefits in implementing sustainable public procurement policy

Benefits in Implementation of SPP		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.486	1.177		-1.263	.296
	Creation of financial opportunity	1.201	.273	.187	4.403	.133
	Provision of employment and skill development	1.924	.388	.203	4.953	.016

Obligation of the contractor to corporate social responsibility, such as boycotting of child labour, poverty reduction, improvement in standard of living	1.139	.494	.173	2.291	.001
Protection and prevention of the environment	1.132	.494	.176	2.291	.001
Enhancement in economic performance and growth of the contractor business	1.076	.449	.163	2.396	.009
Provision of greater market shares	.833	.319	.139	2.611	.080
Improvement in the business goodwill of the contractor	1.063	.512	.143	2.073	.002
Recognition of contractor by the purchaser and other project stakeholders	.951	.295	.176	3.222	.000
Public entities which implement sustainability will be regarded as centre of excellence in public procurement	1.065	.515	.148	2.076	.003

Table 4.7r above displays the coefficients of regression of the independent variables against the dependent variable. However, after the dependent variable was regressed against the nine (9) independent variables, the output indicates that seven (7) independent variables tested positive with p -value < .05, whiles the other two (2) tested negative with p-value >.05.

Grandia & Meehan, 2017 suggest that modern public procurement practices may be conducted to achieve numerous public policy initiatives by government, such as achieving a lot of value and opportunity (Erridge, 2007). Thus, the findings of this section debunked the view of Erridge (2007), that sustainable procurement can create financial opportunity in public universities in Ghana.

According to (CIPS, 2014) report, sustainable procurement objective is to meet the varied requirements of all individuals in current and future societies, to promote private well-being and culture, social cohesion, developing local communities, and to create equal opportunities/employment and skills ((McCrudden, 2004; Bolton, 2008; United Nations, 2008; European Commission, 2010; UNEP, 2011; IISD, 2012) including social justice and equity (Brammer & Walker, 2011; Schwerin & Prier, 2013). However, the World Bank (2012), indicates that public procurement is connected with the three main pillars of effective governance: enhanced delivery of public service, value for money, and a supportive environment for private sector growth. These views have been acknowledged in the findings of this research that contractors of works' projects comply with their social corporate responsibility requirement and create employment and provide skills development for the communities where they operate and beyond.

Alrashed et al., (2014) asserts that, the Saudi Arabia's construction industry is booming due to the adherence of sustainable procurement issues in enhancing the rapid expansion of essential infrastructure in the country. Similar findings in this research is that, sustainable procurement practices enhance the economic performance and growth of the contractor's business operations.

According to Rao (2014), sustainability procurement practices is likely to generate values beyond use and not only for the buying organization, but also communicate the tangible advantages to society and economies that are usually referred to as sustainable purchasing practices. In a similar finding, Ohene-Addae (2012) admitted that sustainable goods and services can be procured at the most suitable price, quality, time, and location to meet the requirements of the purchaser. The research findings indicate that, as a result of sustainable procurement practices, the purchaser and other project stakeholders recognizes the contractor's project deliverables.

Parker & Hartley (1997) and Grandia & Meehan (2017) shared similar view that, public buyers have the opportunity to utilize their procurement expertise to achieve a wider scope of public

policy initiative. Bolton (2008) also concludes that, sustainability is likely to build the image of procurement entities. Thus, the outcome of the research recognizes public universities who implement sustainable procurement initiatives as centre of excellence in public procurement due to the engagement of experts in their work.

Borland (2009), indicate that the procurement process looks beyond the traditional concepts of ensuring economic benefits, making decisions and plans to achieving value-added cost related to social benefits of the procurement but more importantly the environmental risks associated with the particular procurement activity. Borland (2009) view was re-echoed by Fitzgerald & Shepherd (2018), but the latter added that the practice of sustainable procurement is likely to create competitive advantage for businesses as society now moves towards embracing this principle. Similarly, Asare (2016) maintained that the concept of sustainable procurement could be implemented effectively to resuscitate the vulnerable, socially disadvantaged and marginalized in the society.

Furthermore, Agorku (2014) revealed that, contemporary business practices indicate that organizations are focusing more on procurement strategies that will minimize the environmental impacts of procurement and supply chain activities in their institutions. Doh (2014) reiterated the findings of Agorku (2014) and argued that public procurement practices should motivate improvement and dissemination of environmentally friendly goods and services. Agorku (2014) and Njeru (2015) concluded that, sustainable procurement comprises of the procedure for purchasing goods, services and works that takes into account the economic, social and environmental impacts encountered in the communities.

Both Kwadzo (2014) and Abunyewah et al. (2016) stressed that, sustainable procurement has social, economic and environmental ramifications through the entire supply chain process, but maintained that whatever the implications are, the processes should benefit businesses, government and society at large. The European Commission (2010) report and (DEFRA, 2006; Kalubanga, 2012; and Oruezabala & Rico, 2012) had similar findings on the benefits of practicing sustainable procurement on goods, services and construction projects, but argued that the process should be on a whole life basis by generating benefits not only to the organisation, but also to society and the economy, while minimizing damage to the environment.

Victor & John (2009) conclude that, some companies realized a long-time efficiency in energy usage, waste generation and water consumption and the use of recycled materials as a way of

reducing costs and environmental consequences. According to (Schwerin & Prier, 2013; Brammer & Walker, 2011), procurement is described as sustainable when it is in favour of the protection of the environment, and in support of economic development. Mangla, Kumar & Barua (2014) also asserts that, the green procurement is a useful measure in improving the ecological performance of the enterprise and reducing the environmental risks (Bolton, 2008), as has been affirmed by this research findings.

In the findings of (United Nations, 2008; European Commission, 2010; Berry, 2011), the practices of sustainable procurement is likely to bring about the advancement of small and medium-scaled businesses (Brammer & Walker, 2011; Walker & Brammer, 2012; Patil, 2017) and this may bring about enhanced growth and development to the business sector, a view strongly shared in the findings of this research.

The hypotheses tested above in Table 4.7r and the related research findings above, therefore, indicate that most of the respondents affirm that there are greater benefits associated with the implementation of sustainable public procurement policy in executing works' contracts in public universities in Ghana.

4.2.2.7 Objective 7:

To propose measures to address the challenges associated with the implementation of sustainable public procurement policy in works' contracts in public universities in Ghana

Hypothesis (H_7): The hypothesis tested if respondents could propose measures to address the challenges associated with the implementation of sustainable public procurement policy in works' contracts in public universities in Ghana.

Multiple regression was carried out to ascertain whether respondents could propose measures to address the challenges associated with the implementation of sustainable public procurement policy in works' contracts in public universities in Ghana.

Two variables were identified and utilized in this analysis:

(a) Dependent variable: proposed measures to address the challenges associated with the implementation of sustainable public procurement policy in works' contracts in public universities in Ghana, and

(b) Predictors/Independent variables (constant): Table 4.7u shows the independent variables used to address the challenges associated with implementation of sustainable public procurement in works' contracts in public universities Ghana.

Table 4.7s: Regression Statistics (Model Summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.995[a]	.991	.975	1.03300

The result of the regression in Table 4.7s above indicate that the regression statistics explains 99.1% of the variance and the model is a significant predictor of the measures proposed by respondents to address the challenges associated with the implementation of sustainable public procurement policy in works' contracts in public universities in Ghana.

From Table 4.7s above, R^2 indicate .991 of the models explaining 99.1% of the variance is independent. In this study, 99.1% of the R square implies that the independent scores can explain 99.1% of the variation in the chance of admittance. This result clearly indicates the positive impact of the dependent variable on the independent variables/predictors. Again, the standard error of 1.033 represents standard error of the estimate of the regression equation and is a good measure of the accuracy of the regression line.

From Table 4.7t below, the regression sum of squares is 441.345 and the total sum of squares is 462.917, which means that the regression model explains about 441.345/462.917 (approximately 99.33%) of all the variability in the dataset. The residual sum of squares is about 21.571 which is less than 1%, hence the smaller the error, the better the regression model explains the variation in the dataset. The total sum of squares which is the sum of both the regression and residual sum of squares is 462.917. However, Table 4.7t indicate sig. (p-value) of 0.016 which indicate that there is a significant relationship between the dependent variable and the independent variables. The cumulative independent variables significantly predicted the dependent variable, hence the F = 11.691, where p <0.005 level. Similarly, the independent variables predicted the dependent variable, with p-value of .016, which indicate that the dependent value can play a significant role in shaping the independent variables.

Table 4.7t: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	441.345	10	63.049	11.691	.016[b]
	Residual	21.571	1	5.393		
	Total	**462.917**	**11**			

Since the p-value is below 0.016, there is an indication of 95% confidence that the slope of the regression line is not zero and hence there is a significant linear relationship between the dependent and independent variables.

Table 4.7u: Measures to address the Challenges associated with the implementation of sustainable public procurement

Measures to Address Challenges		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.550	4.103		1.596	.186
	Presence and adherence of goal setting on SPP	.505	2.054	.038	.246	.016
	Strict adherence to compliance and enforcement of SPP existing rules, regulations and policy	5.163	1.565	.532	3.300	.030
	Commitment of top/ middle level management in SPP	4.473	.916	.465	4.884	.008
	Employees voluntary commitment towards SPP	2.735	.805	.282	3.398	.082

Presence of comprehensive procurement planning	3.412	1.126	.396	3.030	.039
Inclusion of SPP issues in standard tender document	.003	1.750	.000	.002	.009
Ensuring adherence to SPP issues by contractors	-3.837	1.565	-.399	-2.452	.017
Provision of adequate funding and motivation	-.114	3.699	-.013	-.031	.977
Adoption of benchmarking, performance measurement and reward systems	4.071	3.974	.309	1.024	.012
Consistence collaboration with contractors to achieve sustainability	3.000	2.322	.238	1.292	.010
Capacity building, education and training of stakeholders	1.214	3.565	.096	.341	.011
Pressure from external/interest groups (such as green promotion groups, civil society, media, NGOs etc)	1.029	1.290	.197	.797	.470
Encouraging fair competition	2.957	5.542	.327	.534	.008
Adoption and presentation of a reporting system on SPP	1.757	3.023	.181	.581	.006

Table 4.7u above displays the coefficients of regression of the independent variables against the dependent variable. However, after the dependent variable was regressed against the fourteen (14) independent variables, the output indicates that eleven (11) independent variables tested positive with p -value < .05, whiles the other three (3) tested negative with p-value >.05. Steiner (2015) identified that environmental and social sustainability problems have risen globally in recent years, resulting in pressure to alter the manner organizations conduct

themselves, especially in the supply chain. However, Carter & Jennings (2014) suggested that, organizations need to embrace socially and environmentally accountable procurement (SP) procedures that affect all elements of the supply chain, including providers, customers and employees, with the aim of reducing environmental and social impact by the activities of suppliers. Similar findings were made in this research to the extent that most of the respondents made a strong proposal in favour of the presence and adherence of goal setting on SPP; the strict adherence to compliance and enforcement of SPP existing rules, regulations and policy; ensuring adherence to SPP issues by contractors, as a measure to address the challenges associated with the implementation of SPP in public universities in Ghana. On the contrary, aspect of the findings of this research indicates that employee's voluntary commitment towards SPP may not be a panacea to address the challenges associated with the implementation of SPP in works' contracts in public universities in Ghana.

In furtherance to the findings of Steiner (2015), he noticed a rising costs on waste management, environmental degradation, public health issues, climate change, resource depletion and constant global poverty, and called upon the supply management profession to contribute towards a wider organizational objective of sustainable development by including social and environmental criteria within the procurement processes. Thus, a similar finding of the study was strongly in favour of the presence of a comprehensive procurement plan, the inclusion of SPP issues in standard tender documents, as well as the adoption of benchmarking, performance measurement and reward system for actors/players in public procurement as a measure to address the challenges in deploying SPP in public universities in Ghana.

Son et al. (2011) indicate that, in Saudi Arabia the eco-efficiency and eco-effectiveness in the procurement practices are not being incorporated by the public and private organisations in their efforts to move towards sustainable procurement. However, only the effective implementation of sustainable procurement practices (Son et al. 2011) and lean construction concepts can address these challenges (Al-Otaibi et al., 2013). Specifically, the findings of the research strongly support the adherence of SPP issues by (works) contractors as a remedy to the challenges in the implementation of SPP in public universities of Ghana.

Brammer & Walker (2011) noted that, in spite of the significant variation in the extent of public policy outcomes and the nature of the practice across regions, there is a critical resistance by public sector organisations to pay more for SPP products. However, they highlight the need for appropriate policy and regulations to promote SPP. In a similar comparative study, Keulemans

and Van de Walle (2017) present EU citizens' preference for multi-criteria selection that addresses SPP to mere cost-effectiveness and domestic favouritism in public procurement decisions. To address this challenge, the findings of this research support the strict adherence to compliance and enforcement of SPP existing rules, regulations and policy and the commitment of top/middle level management to embrace the concept of SPP in its entirety in executing works' contracts in public universities in Ghana. In contrast, the findings of this study disagree that the provision of adequate funding and motivation for public entities, such as public universities in Ghana, is not a remedy for resistance to pay more for SPP products.

In line with Sweeney's (2007) study, that "All firms agreed strongly that the interest and involvement of top management is crucial to the successful implementation of CSR," the findings of this research shared the view that the commitment of top/middle level management to SPP issues is a major remedy to addressing the challenges relating to the implementation of SPP in works' contracts in public universities in Ghana. Similar to Sweeney's (2007) findings, (Trevino et al., 2000; Joyner et al., 2002; Hammer, 2004) indicate that, management is required to nurture core values such as sustainable procurement and integrate these into the culture of the organisation. However, Egri and Herman (2000) found out earlier that leadership styles and the personal values that leaders' have, such as an openness to change, can have a positive influence on a company's environmental strategy.

Gelderman et al. (2006) opined that, in order to increase compliance with public procurement directives, educating and training purchasers will be of significant assistance. Further training is therefore a pre-requisite to overcome these challenges (Bowen et al., 2001; Walker & Phillips, 2006). However, as the role of sustainable procurement increases in importance, especially from a political perspective, training has been recommended to help procurers implement SP (Helm et al., 2005; DEFRA, 2006). In addition, a consistent comprehensive education and training programmes should be developed for small/domestic prospective private businesses by PPA in sustainable procurement to make them very competitive in the public procurement market. In support to the above research outcomes, the findings of this research strongly endorse capacity building, education and training of all stakeholders and consistent collaboration by purchasers with contractors to achieve sustainability in construction contracts in public universities in Ghana.

The findings of the research indicate that pressure from external/interest groups such as green promotion groups, civil society, media, NGOs, and other related movements cannot compel public entities, such as public universities in Ghana, to embrace SPP as a means to addressing the implementation challenge.

Encouraging fair competition and adopting and presentation of a reporting system on SPP by public entities was acknowledged in the findings of this research to have contributed to addressing the challenges associated with the implementation of SPP in public universities in Ghana.

Finally, the hypotheses tested in Table 4.7u and the related research findings above, indicate that most of the respondents made frantic efforts to propose measures aimed at addressing the challenges associated with the implementation of sustainable public procurement policy in construction contracts in public universities in Ghana.

4.3 Results obtained from Personal Interviews

Personal interview was conducted using semi-structured questions. The rationale behind conducting the interviews was to seek for additional views and opinions that was hitherto not captured in the questionnaire.

4.3.1 Analysis of Semi-Structured Questions

In all, there were twelve (12) semi-structured questions focused specifically on the key areas of implementing sustainable public procurement policy in construction contracts in public universities in Ghana. The areas covered in the interview include the expectations, successes, challenges and possible remedies to the challenges associated with the execution of sustainable procurement practices.

According to Narkhede (2018), descriptive statistics involves summarizing and organizing data so they can easily be interpreted. It seeks to describe the data in a sample. As a result of that the mean was used as a measure of central tendency of the entire dataset.

Furthermore, standard deviation was used as a measure of spread or dispersion of the total dataset. Narkhede (2018) indicate that, a low standard deviation shows that the data points tend to be close to the mean of the data set, while a high standard deviation indicates that the data points are spread out over a wider range of values.

However, when the tail on the left-hand side of the standard curve is longer than on the right-hand side, it is called negative skewness. This means that the mean is less than the mode. However, when the tail on the right-hand side of the standard curve is longer than on the left-hand side, it is described as positively skewed. This means the mean is greater than the mode of the data under review (Narkhede, 2018). Thus, a negative value means the data distribution is

negatively skewed, whiles a positive value means the data distribution is positively skewed. A zero value means no skewness at all.

Nine (9) respondents including the directors of procurement, finance, works and physical development directorates with known and varied relevant professional expertise were interviewed from the three (3) public universities in Ghana with the same set of twelve (12) questions. Table 4.7v represent their views and opinions gathered and processed for analysis.

Table 4.7v: Views and opinion of respondents on key SPP issues

Key SPP Factors	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Existence of sustainable procurement policy	9	1.00	3.00	2.1111	.60093	.018	.717
Education and Training in project sustainability issues	9	1.00	3.00	2.1111	.92796	-.263	.717
Inclusion of sustainability issues in procurement planning	9	1.00	1.00	1.0000	.00000	.	.
Inclusion of sustainability issues in tender document	9	1.00	1.00	1.0000	.00000	.	.
Inspection of sustainability requirements(document) during tender opening	9	1.00	4.00	2.0000	1.50000	.857	.717

Mandatory sustainability requirements during evaluation of works tender	9	1.00	1.00	1.0000	.00000	.	.
Inclusion of sustainability issues in construction contract agreement and awards	9	1.00	1.00	1.0000	.00000	.	.
Compliance of sustainability issues by contractors when submitting tenders	9	1.00	1.00	1.0000	.00000	.	.
Responsibility for ensuring compliance of sustainable procurement issues in your institution	9	1.00	1.00	1.0000	.00000	.	.
Relevant regulatory authority responsible for conducting sustainability inspection in your institution	9	1.00	2.00	1.1111	.33333	3.000	.717
Punishment for breach of sustainability issues by works' contractors in your institution	9	1.00	3.00	2.1111	1.05409	-.271	.717

Existence of regulatory body to supervise the construction industry	9	1.00	1.00	1.0000	.00000	.	.
Valid N (leastwise)	9						

4.3.1.1 Existence of sustainable procurement policy

A critical examination of Table 4.7v above indicates that, the mean score of the dataset is 2.111, standard deviation of 0.600 and a skewness of 0.018. According to Narkhede (2018), a low standard deviation indicates that the data points tend to be close to the mean of the dataset, of which it has a low standard deviation of 0.600. However, the skewness of the dataset is positive because it scored 0.018. This outcome affirms the existence of sustainable public procurement policy on all manner of procurement contracts required in Section 2 of the Public Procurement (Amendment) Act 2016, Act 914, including construction contracts in public universities in Ghana.

Thus, the inclusion of sustainable procurement practices in the project life cycle by procurement practitioners when executing works' contracts, has been necessitated by its existence, as shown by the overall research outcome displayed in Table 4.7i and the related research findings above.

4.3.1.2 Education and Training in project sustainability issues

Again, Table 4.7v above depicts a mean score of 2.111, standard deviation of 0.600 and a skewness of 0.018. Narkhede (2018) concludes that, a low standard deviation indicates that the data points tend to be close to the mean of the dataset, of which it has a low standard deviation of 0.927. The skewness of the dataset showed a score of -0.2, which is negative. Thus, regardless of the existence and inclusion of sustainability issues in the public procurement processes, most of the respondents have no knowledge in project sustainability application since they had little or no training in this subject area, except two of the respondents from the Works and Physical Development Directorate who indicated their consent in obtaining such training and education.

As indicated in Table 4.7v above, since most of the respondents had little or no training in sustainability issues in construction projects, **(**Bowen et al., 2001; Helm et al., 2005; DEFRA, 2006; Gelderman et al., 2006; Walker & Phillips, 2006;) asserts that, in order to increase

compliance with public procurement directives, capacity building, education and training of all stakeholders including actors/players will be of significant importance. Thus, the researcher suggests that, a consistent comprehensive education and training programmes should be developed for small/domestic prospective private businesses by PPA in sustainable procurement to make them very competitive in the public procurement market. The overall results of this section of the research indicates that both data collection instruments provided similar results pertaining to capacity building, education and training in sustainability issues in public procurement of construction projects in public universities in Ghana.

4.3.1.3 Inclusion of sustainability issues in procurement planning

Furthermore, Table 4.7v above shows a mean score of 1.00, no standard deviation and skewness. This outcome clearly indicate that all the nine respondents affirm that Works and Physical Development Directorate provides the Procurement Directorate with sustainability issues pertaining to works' contracts for inclusion in the procurement planning/budgeting. However, the outcome of Table 4.7v above, in respect of the inclusion of sustainability issues in the planning/budgeting of construction projects in public universities, was affirmed by full acclamation of all the respondents and this is similar to the results in Table 4.7u above. Thus, Uttam et al. (2014) asserts that GPP (also known as sustainable procurement) can be infused into the technical specifications, which forms part of the procurement planning/budgeting process, in all procurement activities, including construction contracts.

4.3.1.4 Inclusion of sustainability issues in tender document

In addition, Table 4.7v above shows a mean score of 1.00, no standard deviation and skewness. Clearly, this outcome shows that all the nine respondents affirm that the Procurement Directorate include sustainability issues pertaining to works' contracts in tender documents prior to the invitation for tenders. The results in Table 4.7v above emphasizes on the outcome in Table 4.7u above, to the extent that all the nine respondents admitted that there is an inclusion of sustainability issues in tender document prior to the invitation for tenders. However, the findings of Walker and Hampson (2003) indicate the various stages of project procurement in construction works to include design development, tender, contract award and construction delivery which forms part of the procurement planning/budgeting process. Again, this confirms the outcomes of both statistical instruments used in collating data for the research.

4.3.1.5 Inspection of sustainability requirements during tender opening

Table 4.7v above shows a mean value of 2.0, standard deviation of 1.5 and a skewness of 0.859. However, the skewness of the dataset registered positive because the score is 0.859. The results in Table 4.7v above affirms that all the nine respondents confirmed the inclusion of relevant

sustainability documents (certification) for inspection from the appropriate regulatory body; such as Ghana Standards Authority (GSA), Ministry of Works and Housing (MOWH), Building and Roads Research Institute (BRRI) of the Centre for Scientific and Research Institute (CSRI), and other related institutions, during tender opening. Similarly, the variables in Table 4.7u above indicate that most of the respondents affirmed the inclusion of sustainability certification in the tender submission, as required Walker and Hampson (2003). By comparing the outcomes obtained from the two data collection instruments, it is clear to conclude that sustainability certification is required for inspection during the tender opening session for construction contracts in public universities in Ghana.

4.3.1.6 Mandatory sustainability requirements during evaluation of works tenders

In addition, Table 4.7v above shows a mean score of 1.00, no standard deviation and skewness. This result shows that all the nine respondents affirm that it is mandatory for works' contractors to provide sustainability requirements during the assessment and recommendation for approval stage of the construction contract. However, the findings of (Palmujoki et al., 2010; Uttam et al., 2014; Gelderman, Semeijn, & Bouma, 2015; Testa et al., 2016; Fuentes-Bargues et al. 2017; Keulemans & Van de Walle, 2017) acknowledged the evaluation of tenders to move beyond price and other commercial criteria, but maintained that social and environmental considerations should control the production and consumption behaviours of suppliers and (contractors). The outcome of the two data collection instruments also registered similar findings.

4.3.1.7 Inclusion of sustainability issues in construction contract agreement and awards

Furthermore, Table 4.7v above shows a mean score of 1.00, no standard deviation and skewness. Clearly, this outcome shows that all the nine respondents affirm that signing of contract agreement and contract awards should bear sustainable procurement considerations. Thus, in Table 4.7u above, most of the respondents affirmed to the inclusion of sustainable procurement considerations in construction contract agreements and awards, as in (Palmujoki et al., 2010; Uttam et al., 2014; Testa et al., 2016; Fuentes-Bargues et al. 2017). However, the outcome of the two data collection instruments also registered similar findings.

4.3.1.8 Compliance of sustainability issues by contractors when submitting tenders

Furthermore, Table 4.7v above shows a mean score of 1.00, no standard deviation and skewness. This outcome shows that all the nine respondents affirm that most construction contractors comply with sustainability requirements when submitting their tender documents, otherwise they stand a chance of being disqualified from the contract proceedings. However, in line with the findings of Walker and Hampson (2003), the various stages of project

procurement in construction works should include sustainable procurement requirements, which should be met by competing contractors when submitting their tenders. Again, this confirms the outcomes of both statistical instruments used in collating data for the research.

4.3.1.9 Responsibility for ensuring compliance of sustainable procurement issues in your institution

Table 4.7v above shows a mean score of 1.00, no standard deviation and skewness. This outcome shows that all the nine respondents affirm that a team, made up of consultants and internal staff - Directors of Procurement, Finance, Internal Audit, Estate Department, led by the Director of Works and Physical Development, are responsible for ensuring compliance of procurement issues at various stages of executing works' contracts by construction project contractors in public universities in Ghana.

4.3.1.10 Relevant regulatory authority responsible for conducting sustainability inspection in your institution

Table 4.7v above shows a mean value of 1.11, standard deviation of 0.33 and a skewness of 3.0. However, the skewness of the dataset registered positive because the score is 3.0. This outcome affirms that almost all the respondents showed their awareness of the engagement of relevant regulatory authority responsible for conducting sustainability inspection on construction projects in public universities in Ghana. Thus, respondents indicated that appropriate regulatory bodies such as Ghana Standards Authority (GSA), Ministry of Works and Housing (MOWH), Building and Roads Research Institute (BRRI) of the Centre for Scientific and Research Institute (CSRI), Environmental Protection Agency (EPA), Ministry of Employment and Labour Relations (MELR) and other related institutions does follow-ups on construction project sites to ensure the desired standard of work is adhered to, especially issues on sustainability. In actual fact, and in most cases, the project consultant or the project team is required to arrange in advance to extend official invitation to the respective regulatory body to conduct a comprehensive inspection/audit on the project deliverables before approval is granted for payment and occupancy.

4.3.1.11 Punishment/Sanctions for breach of sustainability issues by works' contractors in your institution

Table 4.7v above shows a mean value of 2.11, standard deviation of 1.054 and a skewness of -0.271. However, the skewness of the dataset registered negative because the score is -0.271. This outcome indicates that most of the respondents were not aware that there exists particular punishment or sanctions for breach or contravention of sustainability issues by contractors of works' projects in public universities in Ghana. Whilst a few respondents thought of retaining

part of the contract sum as a form of reparation until rectification of such defect caused by the omission or commission of sustainable factors in the contract, the other few respondents suggested termination of contract as a panacea for non-adherence to sustainability considerations in the construction contract in public universities in Ghana.

4.3.1.12 Existence of regulatory body to supervise the construction industry

Finally, Table 4.7v above shows a mean score of 1.00, no standard deviation and skewness. This outcome shows that all the nine respondents affirm that the existence of a single regulatory body to oversee the construction industry in Ghana will ensure timely, quality, value for money and above all, accountable for all construction projects in Ghana, particularly in public universities in Ghana. On the contrary, several statutory regulatory authorities, including Ghana Standards Authority (GSA), Ministry of Works and Housing (MOWH), Building and Roads Research Institute (BRRI) of the Centre for Scientific and Research Institute (CSRI), Environmental Protection Agency (EPA), Ministry of Employment and Labour Relations (MELR) and others have been mandated by law to indepependently supervise and advise government on issues pertaining to construction projects within the scope of their mandate. However, the findings of this research totally agree with Ofori-Kuragu et. al (2016), who indicate that the Hong Kong Construction Industry Council (HKCIC) was established by the government of Hong Kong to serves as a resource centre for sharing knowledge and experience among stakeholders. It advises the Government on strategic matters, major policies and legislative proposals that may affect the construction industry (HKCIC, 2012). Similar to the Hong-Kong construction industry situation, it is advocated that the government considers the establishment of a Construction Industry Council or Authority, made up of major professional expertise and stakeholders in the Ghanaian construction industry, to provide specific regulatory and advocacy support to the industry, making sustainability issues in procurement a priority.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The aim of the study is to evaluate the practices of sustainable public procurement on works' contracts with particular focus on public universities in Ghana. In view of this, questionnaires were administered to twelve (12) respondents who are competent, qualified and experienced with the workings of the law governing the procurement of construction contracts as well as its related sustainability issues. In addition, personal interviews were conducted for nine (9) of the respondents whose work directly contribute to the decision-making process in the engagement of procurement of construction contracts on behalf of their entities. The respondents were a combination of civil engineers, quantity surveyors, architects on one side and finance, audit and procurement professionals. The latest SPSS v.0.0.1406 of 2022 and Microsoft excel 2021 for windows were used in processing data obtained from self-administered questionnaire and personal interview. Multiple regression analysis and Analysis of Variance was also used to determine the relationships between the dataset.

5.2 Summary of Findings and Conclusion

Based on the objectives of the study, the following findings and conclusions were drawn;

Objective 1: To give account of the procurement reforms that gave rise to the enactment of the maiden public procurement Act.

1. The study found that most of the respondents were aware of the introduction of international procurement practices such as e-procurement, framework contracting and especially sustainable procurement as some of the key procurement interventions that gave rise to the promulgation of the maiden public procurement Act and its subsequent amendments. Thus, the findings of the study acknowledged sections 2 and 34A (1) (d) of the Public Procurement (Amendment) Act 2016, Act 914 as a remarkable procurement reform that improved procurement practices in Ghana.
2. Majority of the respondents were also conversant with the contribution of the MTF framework that sought to promote SPP in procurement practices in Ghana.
3. Furthermore, the findings of the Institute for Sustainable Development (IISD) contributed immensely to the reformation of public procurement process in Ghana.

Objective 2: To assess the entire project life cycle for works' contracts in public universities in Ghana.

1. Most of the respondents indicated that the processes leading to the entire project life cycle for works' contracts have been followed to the letter, except the process of sourcing which was dissented by one respondent as being less important factor and so should not be considered in the project life cycle for works' contracts so far as sustainability issues are concerned.
2. The findings of the study affirm that the various stages of project procurement in construction works should include design development, tender, contract award and construction delivery.
3. Again, the 10-stage model on the general procurement process shown by UNDP which commence from the procurement planning phase to contract management phase and constitute the procurement lifecycle for construction contracts was adhered to by most of the respondents in the research findings.
4. The findings of this study affirm that majority of the respondents acknowledged the important role procurement plays throughout the lifecycle of a construction project and serves to drive many sustainability outcomes.
5. The overall result affirmed to a large extent, that respondents acknowledged that all the stages/phases involved in the project life cycle by procurement practitioners were followed when executing works' contracts in public universities in Ghana.

Objective 3: To ascertain the implementation of sustainable public procurement policy by players/actors in procurement entities.

1. Majority of the respondents indicated that sustainability issues have been included in all the stages/phases of the project life cycle for construction contracts, except sourcing and contract review and award which was dissented by one respondent each as being less important in associating sustainability issues with it so far as the project life cycle for works' contracts is concerned.
2. Most of the respondents affirm that, it is important to encourage (or include) the requirements of environmentally sound goods and services into the procurement processes in order to promote sustainable construction.
3. In addition, the findings of the research indicate that most of the respondents identified the evaluation of tenders to move beyond price and other commercial criteria but to include social and environmental considerations that control the production and consumption behaviours of suppliers and (contractors).

4. Majority of the respondents also acknowledged the significance of organisations' to be committed (as this requires environmental legislation) in inculcating and maintaining environmental requirements in their procurement activities, including building works, to obtain value for money.
5. The overall result affirmed, to a large extent, that respondents acknowledged the inclusion of sustainable procurement practices in the project life cycle by procurement practitioners when executing works' contracts in public universities in Ghana.

Objective 4: To ascertain compliance of the implementation of sustainable public procurement policy by contract administrators.

1. Majority of the respondents were in favour of the importance of encouraging and including the requirements of environmentally sound goods and services into the procurement processes in order to promote recycling.
2. The findings of this study revealed that value for money can be achieved if organisations are committed to inculcating and maintaining environmental requirements in their procurement activities, including building works.
3. Most of the respondents also agreed that organisations require environmental commitments in their procurement activities and they should be accountable to a government regulatory agency, such as the Building and Roads Research Institute (BRRI) of Council for Scientific and Research Institute, Environmental Protection Agency, Ghana Standards Authority and other related statutory bodies in Ghana, through relevant environmental legislation.
4. The findings of the study revealed that numerous public policy initiatives can be achieved by government through modern public procurement practices (such as sustainable procurement) and that the public can achieve a lot of value and opportunity from it.
5. Majority of the respondents confirmed some of the criteria for ascertaining sustainability in procurement to include promotion of private well-being, conserving the environment, promotion of culture, building the image of the procurement entity, social cohesion and the creation of equal opportunities such as creation of job opportunities, including meeting other corporate social responsibility for the indigenes of the community where the construction project resides.
6. Most of the respondents declined the view that public organisations (such as public universities) can achieve a wider scope of public policy initiative, such as sustainable procurement, when they utilize procurement expertise in executing their work.
7. The findings of this study acknowledged that some of the pre-requisites of sustainable

procurement is for enhanced delivery of public service, create competitive advantage for businesses, value for money, and a supportive environment for private sector participation and growth.

8. Also, the findings of this study affirmed that, procuring goods and services at the most suitable price, quality, time, and location to meet the requirements of the purchaser or consumer is considered as one of the requirements for achieving sustainability in procurement.
9. Furthermore, most of the respondents endorsed that, the procurement process could pose some environmental risks where pollution and improper waste disposal of construction inputs could have devastating effect on the environment. Thus, the findings of this study supported proper waste disposal of construction outputs as a pre-requisite for determining sustainability in procurement of works contracts.
10. The findings of this study indicate that some organisations realized the pre-requisite for meeting sustainability in procurement to include long-time efficiency in energy usage, waste generation, water consumption and recycling materials, which resulted in cost reduction. Thus, the respondents acknowledged that relatively cheaper cost is achieved when procuring goods and services that meets sustainability requirement, contrary to the contention that sustainable products and services tend to be more expensive as it attracts additional administrative cost to the purchaser.
11. Majority of the respondents of this study also affirm that sustainable procurement integrates requirements, specifications and criteria that are compatible and in favour of the protection of the environment, and in support of economic development, while also accounting for other societal considerations, such as social justice and equity.
12. In general, majority of the respondents affirm that contract administrators in public universities comply with the criteria used to ascertain sustainable public procurement policy when executing the works' contract.

Objective 5: To identify the challenges in the implementation of sustainable public procurement policy in works' contracts.

1. Sustainable policy framework should be systematic and target all environmental issues including social and economic factors. The lack of sustainable procurement policies and strategies are found as top ranked barriers in the United Nations. Contrary to this view, the findings of this research shows that the absence of sustainable procurement policy and strategy has not necessarily been a challenge in the implementation of sustainability issues

in public procurement.

2. It must be noted that environmental consideration cannot be acceptable without regard to cost. Thus, financial incentive could be the main reason for implementing a green supply chain in organisations. In contrast, sustainable procurement is often viewed as opposing the main goal of procurement which is to reduce costs and attempts to implement sustainable procurement can falter as a result of the cost, or perceived cost, implications. Accordingly, these costs are often a significant obstacle when trying to integrate environmental practices into standard supply practices. As a result of that, it might raise cost of production making an organization's products uncompetitive. On the contrary, this research findings refutes the fact that the implementation of sustainable procurement policy will result in the creation of additional costs to public universities in Ghana. Thus, it has been announced that the cost of construction projects is on a hike in the Middle-East due to unsustainable procurement practices, as uncontrolled fatalities and absence of incorporating sustainability issues in most purchasing decisions by both the private and public organisations.

3. Majority of the respondents indicate a lack of awareness of SPP issues in executing construction contracts. In particular, lack of training has been found to be a challenge to the application of SP in public procurement processes, especially in Ghana. In addition, the study revealed that, there is a lack of knowledge about sustainable procurement amongst suppliers and contractors and that has led to the poor implementation of aspects of sustainable procurement. The implication is that, if suppliers do not possess the requisite knowledge to provide information for a life cycle assessment (LCA) of a particular product, a buyer will not be able to utilize this aspect of sustainable procurement.
4. To incorporate sustainable procurement, a company must have an objective from top management to improve their environmental and sustainability performance. However, most of the respondents in this study recognizes that a lack of organisational commitment is an impediment to sustainable procurement.
5. The findings of this research acknowledged that procurement staff may resist the adaptation of sustainable practices provided that they are made enforceable and punitive in public universities in Ghana.
6. Sustainability factors may decrease the motivation of an individual to assume the task of introducing sustainable development practices thereby creating a barrier in altering how procurement staff work can be fraught with a pervasiveness of inertia and risk aversion. It was also noticed that if performance measurement can focus mainly on savings and other economic aspects of an organisation, procurement managers will be less motivated to

introduce or implement sustainable practices. In opposing this view, this research findings showed that individuals (procurement staff) need not be motivated to comply with sustainable procurement practices in public universities in Ghana.

7. Studies have shown that green suppliers are few, often serving several clients who have no alternative. As such, it takes longer to supply customer orders. In contrast, the findings of this research indicates that, there are no delays in the delivery/completion of sustainable contracts, unless there is a policy initiative which permits preference for green inputs regardless of the delays involved.

8. E-procurement policy and sustainable procurement policy are conflicting policy objectives. This can occur for instance where domestic or small suppliers do not have or cannot afford the technology to use e-procurement and as a result cannot reduce the amount of paper work used in invoicing as opposed to e-invoicing. However, the findings of this study opposed the view that the application of e-procurement may prevent small/domestic contractors from utilizing sustainable procurement regulation.
9. The general outcome of this study clearly indicates that respondents' views and opinions was divided equally between the factors that militate against the implementation of sustainable public procurement policy in executing works' contracts in public universities in Ghana.

Objective 6: To identify the potential benefits of the successful implementation of sustainable public procurement in works' contracts.

1. The execution of modern public procurement practices may achieve numerous public policy initiatives by government, such as achieving a lot of value and opportunity. In contrast, the findings of this study opposed the view that sustainable procurement can create financial opportunity in public universities in Ghana.
2. Sustainable procurement is aimed at meeting the varied requirements of all individuals in current and future societies, to promote private well-being and culture, social cohesion, developing local communities, and to create equal opportunities/employment and skills. However, it has been indicated that public procurement is connected with the three main pillars of effective governance: enhanced delivery of public service, value for money, and a supportive environment for private sector growth. Majority of the respondents acknowledged these views in the findings of this research that contractors of works' projects comply with social responsibility requirement and create employment and provide skills development for the communities where they operate and beyond.

3. The findings of this research indicate that, sustainable procurement practices enhance the economic performance and growth of the contractor's business operations.
4. Sustainable procurement practices is likely to generate values beyond use and not only for the buying organization, but also communicate the tangible advantages to society and economies that are usually referred to as sustainable purchasing practices. Thus, sustainable goods and services can be procured at the most suitable price, quality, time, and location to meet the requirements of the purchaser. The research findings indicate that, as a result of sustainable procurement practices, the purchaser and other project stakeholders recognizes the contractor's project deliverables.
5. Public buyers have the opportunity to utilize their procurement expertise to achieve a wider scope of public policy initiative. Also, sustainability is likely to build the image of procurement entities. The findings of this study indicate that majority of respondents recognizes public universities who implement sustainable procurement initiatives to be considered as centres of excellence in public procurement due to the engagement of expertise in their work.
6. The procurement process looks beyond the traditional concepts of ensuring economic benefits, making decisions and plans to achieving value-added cost related to social benefits of the procurement but more importantly the environmental risks associated with the particular procurement activity. The practice of sustainable procurement is likely to create competitive advantage for businesses as society now moves towards embracing this principle. Similarly, the concept of sustainable procurement could be utilized effectively to resuscitate the vulnerable, socially disadvantaged and marginalized in the society. All these findings were affirmed by most of the respondents in this study.
7. Contemporary business practices indicate that organizations are focusing more on procurement strategies that will minimize the environmental impacts of procurement and supply chain activities in their institutions. Thus, public procurement practices should motivate improvement and dissemination of environmentally friendly goods and services. Sustainable procurement comprises of the procedure for purchasing goods, services and works that takes into account the economic, social and environmental impacts through the entire supply chain process and the processes should benefit businesses, government and society at large. The findings of this study indicate that majority of the respondents acknowledged the views expressed by the above research outcomes.
8. Some companies realized a long-time efficiency in energy usage, waste generation and water consumption and the use of recycled materials as a way of reducing costs and

environmental consequences. Procurement is described as sustainable when it is in favour of the protection of the environment, and in support of economic development. Also, green procurement is a useful measure in improving the ecological performance of the enterprise and reducing the environmental risks, as has been affirmed by majority of respondents of this research.

9. The practices of sustainable procurement is likely to bring about the advancement of small and medium-scaled businesses and this may bring about enhanced growth and development to the business sector, a view strongly acknowledged by most of the respondents in the findings of this research.

10. Most of the respondents affirm that there are greater benefits associated with the implementation of sustainable public procurement policy in executing works' contracts in public universities in Ghana.

Objective 7: To propose measures to address the challenges associated with the implementation of sustainable public procurement policy in works' contracts in public universities in Ghana.

1. Organizations are required to embrace socially and environmentally accountable procurement (SP) procedures that affect all elements of the supply chain, including providers, customers and employees, with the aim of reducing environmental and social impact by the activities of suppliers. The findings of this study indicate that most of the respondents made a strong proposal in favour of the presence and adherence of goal setting on SPP; the strict adherence to compliance and enforcement of SPP existing rules, regulations and policy; ensuring adherence to SPP issues by contractors, as a measure to address the challenges associated with the implementation of SPP in public universities in Ghana. On the contrary, aspect of the findings of this research indicates that employee's voluntary commitment towards SPP may not necessarily be a panacea to address the challenges associated with the implementation of SPP in works' contracts in public universities in Ghana.
2. Rising costs on waste management, environmental degradation, public health issues, climate change, resource depletion and constant global poverty was noticed, and as a result of that the supply management profession has been called upon to contribute towards a wider organizational objective of sustainable development by including social and environmental criteria within the procurement processes. Thus, the findings of this study indicate that most of the respondents were in favour of the presence of a comprehensive

procurement plan, the inclusion of SPP issues in standard tender documents, as well as the adoption of benchmarking, performance measurement and reward system for actors/players in public procurement as a measure to address the challenges in deploying SPP in public universities in Ghana.

3. The inclusion of eco-efficiency and eco-effectiveness in the procurement practices are not being observed by some public and private organisations in their efforts to move towards sustainable procurement. However, only the effective implementation of sustainable procurement practices and lean construction concepts can address these challenges. Specifically, the findings of this research strongly support the adherence of SPP issues by (works) contractors as a remedy to the challenges in the implementation of SPP in public universities in Ghana.
4. In spite of the significant variation in the extent of public policy outcomes and the nature of the practice across regions, there is a critical resistance by the public sector organisations to pay more for SPP products. However, there should be the need for appropriate policy and regulations to promote SPP. A preference for multi-criteria approach that addresses SPP to mere cost-effectiveness and domestic favouritism in public procurement decisions should be encouraged. To address this challenge, the findings of this research indicate strong support for the strict adherence to compliance and enforcement of SPP existing rules, regulations and policy and the commitment of middle and top-level management to embrace the concept of SPP in its entirety in executing works' contracts in public universities in Ghana. In contrast, the findings of this study disagree with the provision of adequate funding and motivation for public entities, such as public universities in Ghana, to be a remedy for resistance to pay more for SPP products.
5. In order to increase compliance with public procurement directives, educating and training purchasers will be of significant assistance. Further training is therefore a pre-requisite to overcome these challenges. However, as the role of sustainable procurement increases in importance, especially from a political perspective, training has been recommended to help procurers implement SP. In addition, a consistent comprehensive education and training programmes should be developed for small- and medium-sized domestic existing and prospective private businesses by PPA in sustainable procurement to make them very competitive in the public procurement market. The findings of this research strongly endorse capacity building, education and training of all stakeholders and consistent collaboration by purchasers with contractors to achieve sustainability in construction contracts in public universities in Ghana.

6. The findings of this research indicate that most of the respondents acknowledged pressure from external interest groups such as green promotion groups, civil society, media, NGOs, and other related movements to compel public entities, such as public universities in Ghana, to embrace SPP as a means to addressing the compliance and implementation challenge.
7. Encouraging fair competition, adopting and presentation of a reporting system on SPP by public entities was strongly acknowledged in the findings of this research to have contributed to addressing the challenges associated with the implementation of SPP in public universities in Ghana.
8. Finally, most of the respondents made frantic efforts to select measures aimed at addressing the challenges associated with the implementation of sustainable public procurement policy in construction contracts in public universities in Ghana.

5.3 Recommendations

Based on the findings and conclusions drawn from this study, the following recommendations are put forward to help promote Sustainable Procurement in construction contracts in public universities in Ghana.

1. Some of the respondents hinted that there is no known policy document on sustainable procurement in their institution. A few of the respondents agreed that by virtue of their professional expertise and the nature of their work, sustainability issues have been part of performing the assigned tasks, especially when it comes to the execution of construction contracts. It is recommended that the provision of a comprehensive policy document on sustainable procurement by the Public Procurement Authority to all public entities including public universities will be highly commended.
2. Education and Training of Stakeholders. The problem of lack of understanding of sustainable procurement issues, coupled with poor training and accountability are significant barriers to building capacity. Since actors/players in public procurement at public universities have little or no knowledge of the benefits of sustainable procurement, regular seminars and workshops should be organized by Public Procurement Authority to improve the knowledge base and build the capacity of concerned staff in order to make the desired procurement decisions relating to social, economic and environmental issues.
3. Currently, there are several government regulatory bodies that are mandated by law to independently monitor and supervise the construction industry within the scope of their work in Ghana. Notable amongst them are Ghana Standards Authority (GSA), Ministry of Works and Housing (MOWH), Building and Roads Research Institute (BRRI) of the Centre

for Scientific and Research Institute (CSRI), Environmental Protection Agency (EPA), Ministry of Employment and Labour Relations (MELR). By their mode of assessment of construction contracts, delays and unattended supervision by anyone of these regulatory bodies is likely to affect the social, economic and environmental aspect of the projects. It is proposed that a single regulatory body, such as the Hong Kong Construction Industry Council (HKCIC), to oversee the construction industry in Ghana will ensure timely, quality, value for money and above all, accountable for all construction projects in Ghana, particularly in public universities in Ghana.

4. Sustainability issues in construction projects has been taken for granted by some project contractors in executing their works in public universities. Perhaps, this is due to the absence of enforcing the law by the contracting authority associated with committing or breaching a particular sustainable condition. Construction project contractors should be educated and sensitized on the importance of and consequences of non-adherence to social, economic and environmental issues incidental to the execution of work on project sites. Similar to the sensitization of project contractors on sustainability issues, strict sanctions should be imposed on any professional expert whose responsibility involves ensuring that construction contracts are well executed, considering the social, economic and environmental ramifications associated with the project.
5. The regulation governing sustainable public procurement in Ghana has not been officially unveiled. Few professional construction engineers and procurement experts have been exposed to sustainable procurement regulation through the various academic and professional courses they pursued during their educational career. These professional construction engineers and procurement experts could utilize their expertise to train and retrain other internal members who play a meaningful role in public procurement in the areas of sustainable procurement pertaining to construction contracts in public universities in Ghana. The involvement of professionals who have expert knowledge in sustainable issues in, especially the procurement of works' contracts, to offer training opportunities to staff and stakeholders who lack such knowledge will be highly commendable. The engagement of these professionals to impart their expert knowledge in sustainable procurement will serve as a complementary role to a similar mandated role expected from the Public Procurement Authority.
6. The engagement in procurement through electronic means should be considered in its entirety by public entities, such as public universities in Ghana. The application of e-procurement in the tendering process for construction contracts should be extended to the

utilization of appropriate contemporary technology in the construction sector in Ghana. The introduction of state-of-the-art and cutting-edge technology will enhance sustainability in procurement and minimize the rate of environmental abuse in the construction sector, not to mention the execution of works' contracts in public universities in Ghana.

5.4 Suggestions for Further Research

The research objectives of this study have been achieved using primary data obtained from the field survey and secondary data obtained from third-party sources. This study could not address certain areas because they were beyond its scope. Thus, a further investigation on compliance of sustainability issues by works' contractors in public universities in Ghana is required. Also, a comprehensive review of the relationship between environmental sustainability and economic development in Ghana should be considered in future research. Besides, it is suggested that a similar study should be conducted in other public universities in Ghana to either confirm or refute these findings. It is anticipated that environmental bias may influence the outcome of this finding.

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APPENDIX A

QUESTIONNAIRE

SELINUS UNIVERSITY OF SCIENCE AND LITERATURE, BOLOGNA, ITALY

FACULTY OF BUSINESS AND MEDIA

DOCTOR OF PHILOSOPHY (PHD) IN SUPPLY CHAIN MANAGEMENT

THESIS TOPIC: EVALUATING THE PRACTICES OF SUSTAINABLE PUBLIC PROCUREMENT ON WORKS CONTRACTS IN PUBLIC UNIVERSITIES IN GHANA

INTRODUCTION: The Questionnaire is intended to collect data to help the researcher examine the practices of Sustainable Procurement (SP) on works contracts in public universities in Ghana. The exercise is mainly for academic purpose. Any information provided will be treated with the required strictness and confidentiality. No part of the information and data provided will be divulged to any third-party. Also, the identity and office of the respondents will be treated with the deserved anonymity.

Name of Research Candidate/Student: Umar Faharouk Ibn Is-haq

Faculty Supervisor: Professor Salvatore Fava (PhD)

Please, you may forward your queries to the following contact(s):

Email address: *faharouk@yahoo.com;* ***Cell Ph:*** *+233 (0) 244691585;* ***WhatsApp:*** *+233 (0)264691586*

Please read through the following questions and answer them accordingly:

SECTION A: BIO-DATA OF RESPONDENT

1. Age of respondent.

   20 – 30 years [ ] 31 – 40 years [ ] 41 – 50 years [ ] 51 – 60 years [ ]

2. What is your highest academic level of education?

   HND [ ] BA/BSC [ ] MBA/MSC/MPHIL [ ] PhD [ ]

   Others (specify)……..

3. List all the professional qualification (s) related to your work.

……

……

……

……

4. What professional body (ies) do you belong to?

……

……

5. How long have you been working within your professional career?

Less than 5 years [ ] 5-10years [ ] 11-16years [ ] 17-22years [ ]

More than 22 years [ ]

6. Have you had any form of training in public procurement before?

Yes [ ] No [ ]

If yes, please indicate the areas of public procurement you are trained in.

……

……

……

PREMABLE: ***Sustainable Procurement*** *is "a process whereby organisations meet their needs for goods, services, works, and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organisation, but also to society and the economy, while minimizing damage to the environment"* [Sustainable Procurement Task Force (DEFRA, 2006)].

SECTION B: PUBLIC PROCUREMENT REFORMS IN GHANA

The following questions constitute issues on ***public procurement reforms*** prior to the enactment of the maiden Act (663) and subsequently Act (914), as amended, that have been identified after review of available literature.

Using the scale from 1 to 5, indicate the extent of your agreement by ***ticking*** the appropriate alternative that best describes your opinion.

1 = strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree

S/N	ISSUES ON PUBLIC PROCUREMENT REFORMS	1	2	3	4	5
7	Disharmony in public procurement processes and procedures could affect the attainment of value for money					
8	Weaknesses and inefficiencies in the procurement system may necessitate collusive practices by prospective suppliers and contractors					
9	Passage of maiden Act (663) promoted competition, efficiency, transparency and accountability in public buying					
10	Enactment of maiden Act (663) promoted fair, equal and equitable treatment of suppliers and contractors					
11	Improvement in attainment of value for money as a result of amended Act 914					
12	Act 914 has minimized the bottlenecks and inefficiencies associated with the maiden Act 663					
13	Introduction of international procurement practices such as e-procurement, framework contracting and sustainable procurement has improved public procurement practice					

SECTION C: PROJECT LIFE CYCLE FOR WORKS' CONTRACTS IN PUBLIC UNIVERSITIES IN GHANA

The following questions involves a ***10-stage standard procurement process model*** which starts from the procurement planning phase and ends at the contract management phase of a typical construction contract. This model has been adopted in the study after a critical review of available literature.

Indicate in the column provided, by ticking ***Yes*** or ***No***, whether or not your institution/organisation goes through the following ***procurement process*** during the procurement of construction projects.

S/N	PROJECT LIFE CYCLE FOR WORKS' CONTRACTS	YES	NO
14	Procurement planning/budgeting		
15	Requirement definition (Technical specifications-Bills of Materials/Bills of Quantities)		
16	Sourcing		
17	Selection of procurement strategy/method		
18	Preparation of solicitation/tender documents		
19	Receipt and opening of offers/tenders		
20	Tender evaluation		
21	Contract review (by appropriate approval authority) and award (approval)		
22	Contract finalization (signing of agreement and provision of relevant documentation, example; performance security, etc)		
23	Contract management (post-contract performance/supervision)		

SECTION D: IMPLEMENTATION OF SUSTAINABLE PUBLIC PROCUREMENT POLICY BY PLAYERS/ACTORS IN PROCUREMENT ENTITIES

The following questions involve a ***10-stage standard procurement process model*** of a typical construction contract. This model has been adopted in the study after a critical review of available literature.

Indicate in the column provided, by ticking ***Yes*** or ***No***, whether or not your institution/organisation includes ***sustainable procurement issues*** in each of the following procurement processes during the procurement of construction projects.

S/N	IMPLEMENTATION OF SUSTAINABLE PUBLIC PROCUREMENT REGULATIONS BY PLAYERS/ACTORS	YES	NO
24	Procurement planning/budgeting		
25	Requirement definition (Technical specifications-Bills of Materials/Bills of Quantities)		
26	Sourcing		
27	Selection of procurement strategy/method		

28	Preparation of solicitation/tender documents		
29	Receipt and opening of offers/tenders		
30	Tender evaluation		
31	Contract review (by appropriate approval authority) and award (approval)		
32	Contract finalization (signing of agreement and provision of relevant documentation, example; performance security, etc)		
33	Contract management (post-contract performance/supervision)		

SECTION E: FACTORS USED TO ENSURE ADHERENCE/COMPLIANCE OF IMPLEMENTATION OF SUSTAINABLE PUBLIC PROCUREMENT POLICY BY CONTRACT ADMINISTRATORS

The following questions involve the ***factors used in ensuring compliance of sustainable public procurement regulation*** by contract administrators that have been identified after review of available literature.

Using the scale from 1 to 5, indicate the extent of your agreement by ***ticking*** the appropriate alternative that best describes your opinion.

1 = strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree

S/N	CRITERIA USED FOR COMPLINACE OF SUSTAINABLE PUBLIC PROCUREMENT REGULATIONS BY CONTRACT ADMINISTRATORS	1	2	3	4	5
34	Obtained training in project sustainability issues					
35	Employment of the services of sustainability expertise					
36	Adherence to sustainable contract terms and conditions					
37	Meeting consumer/customer needs - quality, safety and security, timely completion, etc)					
38	Creation of pollution - air, water, noise, vibration, etc					
39	Creation of jobs/employment within the project sites					

40	Existing market for procurement of sustainable project materials, equipment and machinery					
41	Relatively cheaper sustainable project materials, equipment and machinery					
42	Proper waste disposal of construction materials, equipment and machinery					
43	Re-cycling of waste construction materials and equipment					
44	Evidence of adherence to sustainable issues on previous execution of similar construction contracts					
45	Engagement in corporate social responsibility					
46	Application of sustainable procurement regulation minimizes overall project costs					
47	Accountable to a government regulatory body, such as the Environmental Protection Agency, SNNIT, on sustainability issues					
48	Delivering long-term value for money					

SECTION F: CHALLENGES IN THE IMPLEMENTATION OF SUSTAINABLE PUBLIC PROCUREMENT POLICY IN WORKS CONTRACTS

The following questions constitute ***challenges associated with the implementation of sustainable public procurement policy*** in works contract in public universities in Ghana that have been identified after review of available literature.

Using the scale from 1 to 5, indicate the extent of your agreement by ***ticking*** the appropriate alternative that best describes your opinion.

1 = strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree

S/N	CHALLENGES IN IMPLEMENTATION OF SUSTAINABLE PUBLIC PROCUREMENT POLICY	1	2	3	4	5
49	Implementation of sustainability creates additional costs					
50	Lack of awareness of SPP issues by procurement entities					
51	Absence of sustainable procurement policy and strategy					
52	Delays in the delivery or completion of sustainable contracts					
53	Competition amongst contractors may retard compliance to sustainability issues					
54	Lack of management commitment to sustainable procurement issues					
55	Application of e-procurement may prevent small/domestic contractors from utilizing sustainable procurement regulation					
56	Individual employees are not motivated in complying with sustainable practices					
57	Procurement staff may resist to the adaptation of sustainable practices					
58	Poor /Limited supplier knowledge in the application of sustainable regulation					

SECTION G: POTENTIAL BENEFITS OF THE IMPLEMENTATION OF SUSTAINABLE PUBLIC PROCUREMENT IN WORKS CONTRACTS

The following questions constitute potential ***benefits associated with the implementation of sustainable public procurement*** in works contracts in public universities in Ghana that have been identified after review of available literature.

Using the scale from 1 to 5, indicate the extent of your agreement by ***ticking*** the appropriate alternative that best describes your opinion.

1 = strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree

S/N	POTENTIAL BENEFITS OF SUSTAINABLE PUBLIC PROCUREMENT	1	2	3	4	5
59	Creation of financial opportunity					
60	Provision of employment and skill development					
61	Obligation of the contractor to corporate social responsibility, such as boycotting of child labour, poverty reduction, improvement in standard of living, etc					
62	Protection and preservation of the environment					
63	Enhancement in economic performance and growth of the contractors business					
64	Provision of greater market share					
65	Improvement in the business goodwill of the contractor					
66	Recognition of contractor by the purchaser and other project stakeholders					
67	Public entities which implement sustainability will be regarded as centre of excellence in public procurement					

SECTION H: PROPOSED MEASURES AIMED AT ADDRESSING THE CHALLENGES IN IMPLEMENTING SUSTAINABLE PUBLIC PROCUREMENT POLICY IN WORKS CONTRACTS

The following questions constitute ***proposed measures aimed at addressing the challenges in implementing sustainable public procurement policy*** in works contracts in public universities in Ghana that have been identified after review of available literature.

Using the scale from 1 to 5, indicate the extent of your agreement by ***ticking*** the appropriate alternative that best describes your opinion.

1 = strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree

S/N	PROPOSED MEASURES TO ADDRESS IMPLEMENTATION CHALLENGES OF SUSTAINABLE PUBLIC PROCUREMENT	1	2	3	4	5
68	Presence and adherence of goal setting on SPP					
69	Strict adherence to compliance and enforcement of SPP existing rules, regulations and policy					
70	Commitment of top/middle level management in SPP					
71	Employees voluntary commitment towards SPP					
72	Presence of comprehensive procurement planning					
73	Inclusion of SPP issues in standard tender documents					
74	Ensuring adherence to SPP issues by contractors					
75	Provision of adequate funding and motivation					
76	Adoption of benchmarking, performance measurement and reward systems					
77	Consistent collaboration with contractors to achieve sustainability					
78	Capacity building, education and training of stakeholders					
79	Pressure from external/interest groups (such as; green promotion groups, civil society, media, NGOs, e.t.c)					

80	Encouraging fair competition					
81	Adoption and presentation of a reporting system on SPP					

APPENDIX B (I)

SEMI-STRUCTURED INTERVIEW QUESTIONS

SELINUS UNIVERSITY OF SCIENCE AND LITERATURE, BOLOGNA, ITALY

FACULTY OF BUSINESS AND MEDIA

DOCTOR OF PHILOSOPHY (PHD) IN SUPPLYCHAIN MANAGEMENT

THESIS TOPIC: EVALUATING THE PRACTICES OF SUSTAINABLE PUBLIC PROCUREMENT ON WORKS CONTRACTS IN PUBLIC UNIVERSITIES IN GHANA

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Name of Research Candidate/Student: Umar Faharouk Ibn Is-haq

Faculty Supervisor: Professor Salvatore Fava (PhD)

PREMABLE: ***Sustainable Procurement*** *is "a process whereby organisations meet their needs for goods, services, works, and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organisation, but also to society and the economy, while minimizing damage to the environment"* [Sustainable Procurement Task Force (DEFRA, 2006)].

IMPLEMENTATION OF SUSTAINABLE PUBLIC PROCUREMENT POLICY BY ACTORS/PLAYERS - EXPECTATIONS, SUCCESSES, CHALLENGES AND POSSIBLE SOLUTIONS

1. Is there a policy in place to ensure implementation of sustainable procurement practice in your institution?

……

……

2. Have you obtained any form of education and training in project sustainability issues before?

……

3. Is sustainability issues included in your procurement planning?

……

4. Does your institution include sustainability issues in the preparation of tender documents?

……

5. Does your institution inspect sustainability requirements (documents) during tender opening session?

……

6. Is sustainability issues a mandatory requirement during evaluation of tenders?

……

7. Does signing of construction contract agreement and awards include sustainability issues?

……

8. Does contractors comply with sustainability issues in their contract offers or tender submissions?

……

9. Who is/are responsible for ensuring that sustainable procurement issues are complied with in your organisation?

……

10. Which relevant regulatory authority is responsible for conducting sustainability inspection on works contracts?

……

11. Do you impose punishment/sanctions for non-adherence to sustainability issues by works' contractors in your organisation?

……

12. Do you advocate for a single regulatory body to oversee or have overall responsibility for the construction industry in Ghana?

APPENDIX B (II)

DAILY INTERPRETATIVE ANALYSIS FORM

SEMI-STRUCTURED INTERVIEW RECORDS

Interview ID Number: …….

Date: ……..

Mode:……

Status of Interviewee: …….. **Start Time:** ……..

Duration: …….

THESIS TOPIC: IMPLEMENTATION OF SUSTAINABLE PUBLIC PROCUREMENT ON WORKS CONTRACTS IN PUBLIC UNIVERSITIES IN GHANA – EXPECTATIONS, SUCCESSES, CHALLENGES AND POSSIBLE SOLUTIONS

Code Number	Themes	Transcription - Analysis of Audio Record	Name and Definition of Patterns
1	Existence of sustainable procurement policy?		1. Existent 2. Non-existent 3. Not aware 4. Other
2	Education and training in project sustainability issues?		1. Yes 2. Little 3. No
3	Inclusion of sustainability issues in procurement planning?		1. Included 2. Not included 3. Not aware
4	Inclusion of sustainability issues in tender documents?		1. Included 2. Not included 3. Not aware
5	Inspection of sustainability requirements (documents) during tender opening?		1. Yes 2. No 3. Sometimes 4. Not aware

6	Mandatory sustainability requirements during evaluation of works tenders?		1. Yes 2. No 3. Sometimes 4. Not aware
7	Inclusion of sustainability issues in construction contract agreement and awards?		1. Yes 2. No 3. Not aware
8	Compliance of sustainability issues by contractors when submitting tenders?		1. Yes 2. No 3. Sometimes
9	Responsibility for ensuring compliance of sustainable procurement issues in your institution?		1. List of person (s) responsible
10	Relevant regulatory authority responsible for conducting sustainability inspection in your institution?		1. List of relevant regulatory authority (ies) required
11	Punishment/Sanctions for breach of sustainability issues by works' contractors in your institution?		1. Yes 2. No 3. Not aware
12	Existence of regulatory body to supervise the construction industry		1. Yes 2. No 3. Not aware