

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF ARCHITECTURE AND PLANNING

DEPARTMENT OF BUILDING TECHNOLOGY

INVESTIGATION INTO PROCUREMENT RISK MANAGEMENT IN THE NIGERIA

OIL AND GAS INDUSTRY

BY
KNUST

OLUBODUN NIFE ELIJAH

A THESIS SUBMITTED TO THE DEPARTMENT OF BUILDING TECHNOLOGY,
KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE AWARD OF

MASTER OF SCIENCE

IN

PROCUREMENT MANAGEMENT

SEPTEMBER, 2014

DECLARATION

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

OLUBODUN NIFE ELIJAH (PG 9160713)

(Student name & I.D)

KNUST

Signature

Date

Certified by:

DR. GABRIEL NANI

(Supervisor)

Signature

Date

Certified by:

PROF. JOSHUA AYARKWA

(Head of Department)

Signature

Date



DEDICATION

This work is dedicated to Almighty God, Jehovah for his undeserved kindness, mercy, favour, guardian and protection upon me throughout my stay and study in Ghana.

KNUST



ACKNOWLEDGEMENT

I wish to express my heartfelt gratitude and acknowledgement once again to Jehovah for fortifying me with wisdom knowledge and understanding that aided me in the completion of this research work.

To my parents, Engineer Taye and Mrs Taye Olubodun and siblings, Bukky and Opejah for the supportive role they played in ensuring that I complete this programme, I also have to acknowledge my friend Anita for encouraging me all through, more so, further dedication goes to my close friends and colleagues James, Hudu and Francis for their supportive role and enhancing that my stay in Ghana was homely, home away from home.

Thanks and appreciation goes to my supervisor, Dr.Gabriel Nani, who heartfully took his time to offer his guidance, suggestions and encouragement which led to the success of this work, indeed I am sincerely grateful.

It is more so, a priviledge to meet with Professor Joshua Ayarkwa, Head of Department Building Technology, Dr. E. Adinyira and Dr.Theophilus Adjei-Kumi, I use this opportunity to say thank you all for your support and motivation.

Additionally, Thanks goes to all the lecturers who helped with their guidance and my entire course mates for always being there for me in times of need support and encouragement.

May God richly bless you all, words cant express my heartfelt gratitude to you all .

ABSTRACT

Risk management is probably the most difficult aspect of project management. This translates that, the use of risk management at the pre contract stage is essential to mitigate and control the risk barriers to the successful completion of a project. This study aimed to investigate the challenges associated with pre-contract procurement risk management and document measures adopted by the Nigeria National Petroleum Corporation (NNPC).

A descriptive research design involving administration of questionnaires was conducted with workers of NNPC in Nigeria. The study used a purposive sampling to select 70 workers within the various divisions. Data analysis involved descriptive and inferential statistics using SPSS software.

Findings showed that, the pre-contract procurement risk management adopted by NNPC are characterized by risk identification, brainstorming and meetings as well as involvement of NNPC's top managers' in the process. Findings showed challenges in the planning; understatement and overstatement of need, impractical timeframe and insufficient fund, sourcing; failure to identify potential sources, inadequate statement of requirement and some level of biased specifications, negotiation and evaluation; failure to follow effective evaluation procedures and offers failing to meet the needs. Findings suggested that analysing needs accurately, improving consultation with users, obtaining clear statement of work and definition of need, obtaining appropriate approvals before undertaking process, improved forecasting, planning and consultation with users, implement a control mechanism to review specification before release and using expression of interest or request for information to clarify requirements could be used to overcome the challenges associated with procurement risk management.

The study concludes that strengthening current pre-contract procurement risk management would further mitigate risk at NNPC and encourages future research to focus much on the subject within other public institutions in Nigeria.

KNUST



TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
TABLE OF CONTENTS	vii
LIST OF TABLES	xi
LIST OF FIGURES	xii
LIST OF ABBREVIATIONS	xiii
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background to the Study	1
1.2 Statement of the Problem	4
1.3 Research Questions	5
1.4 Aim and Objectives of the Study	5
1.5 Significance of the Study	6
1.6 Limitations to the Study	6
1.7 Delimitations of the Study.....	7
1.8 Outline of Methodology	7
1.9 Scope of the study	8
1.10 Organization of the Study	8
CHAPTER TWO	10
LITERATURE REVIEW	10
2.1 Introduction	10
2.2 Conceptual Definition of Procurement	10

2.3 Procurement Policies in Nigeria.....	13
2.4 Thrust of the Public Procurement Act 2007.....	18
2.4.1 Essential Goal of the Act.....	19
2.4.2 Scope of Application of the Act.....	19
2.4.3 Core Objectives of the Act.....	19
2.4.4 Approval Thresholds by the Act.....	20
2.5 The Procurement Cycle.....	22
2.5.1 Procurement Planning.....	23
2.5.2 Sourcing, Contracting and Contract Management.....	24
2.5.3 Evaluation of the Procurement Function and Auditing.....	25
2.6 The Nigerian Economy and the Oil and Gas Industry.....	25
2.7 The Concept of Risk.....	29
2.7.1 Tackling Uncertainty.....	32
2.7.2 Risk Assessment.....	33
2.7.3 Risk Management at the Pre Contract Stage.....	34
2.7.4 Risk Management Practice in the Oil and Gas Industry.....	37
2.8 Risk Management Process.....	41
2.8.1 Managing Procurement Risks at the Pre-contract Stage.....	44
CHAPTER THREE.....	47
RESEARCH METHODOLOGY.....	47
3.1 Introduction.....	47
3.2 Study Design and Methods.....	47
3.3 Study Population.....	47
3.4 Sampling Technique.....	48
3.5 Data Collection Instruments.....	49

3.5.1 Questionnaire	49
3.5.2 Questionnaire Administration	50
3.6 Data Analysis	51
3.7 Validity and Reliability of the study	51
3.8 Ethical Issues.....	51
3.9 Organizational Structure of NNPC	52
CHAPTER FOUR.....	53
RESULTS, DATA ANALYSIS AND DISCUSSION	53
4.1 Introduction	53
4.2 Background Information of Respondents	53
4.3 The pre contract Procurement Risk management Processes adopted by NNPC.....	55
4.4: Challenges associated with NNPC’s Procurement risk Management.....	58
4.4.1 Challenges at the Planning Stage	58
4.4.2 Challenges at the Sourcing Stage	60
4.4.3 Challenges at Evaluation and Negotiation	61
4.5: Measures to Address the Challenges of Procurement Risk Management.....	61
CHAPTER FIVE.....	65
SUMMARY, CONCLUSION AND RECOMMENDATIONS.....	65
5.1 Introduction	65
5.2 Summary of Key Findings	65
5.2.1 The Pre contract Procurement Risk management Processes Adopted by NNPC .65	
5.2.2 Challenges Associated with NNPC’s Procurement Risk Management	65
5.2.3 Measures to Address the Challenges of Procurement Risk Management.....	66
5.3 Recommendations	67
5.3.1 Strengthening Current Procurement Risk Management Process	67

5.3.2 Modernized and Technological Way of Managing Risk67

5.3.3 Expanding Timeframe and Source of Funding for Risk Management Activities.67

5.3.4 Implementing Proposed Measures to Challenges68

5.4 Conclusions to the Study.....68

5.5 Recommendation for Future Research.....69

APPENDIX..... 77

KNUST



LIST OF TABLES

Table 3.1: Distribution table of research population	48
Table 4.1: Background information of respondents	54
Table 4.2: Knowledge level of respondents on PPA	55
Table 4.3: Challenges at the Sourcing Stage	60
Table 4.4: Challenges at Evaluation and Negotiation.....	61
Table 4.5: Measures to Address challenges of Procurement Risk Management.....	62
Table 4.6: KMO and Bartlett's Test	63
Table 4.7: Rotated Component Matrix ^a	63
Table 4.8: Total Variance Explained	64



LIST OF FIGURES

Figure 2.1 Procurement Circle.....	23
Figure 4.1: Risk Management.....	56
Figure 4.2: Pre-contract Procurement Risk management Processes.....	58
Figure 4.3: Challenges at the Planning stage.....	59
Figure 3.1 Organizational Chart of NNPC	82



LIST OF ABBREVIATIONS

AENR	Agip Energy and Natural Resources
BMPIU	Budget Monitoring and Price Intelligence Unit
BBP	Bureau of Public Procurement
CPAR	Country Procurement Assessment Report
ECEG	European Commission Expert Group
GDP	Gross Domestic Product
JOA	Joint Operating Agreements
JV	Joint Ventures
MEND	Movement for the Emancipation of the Niger Delta
NDDC	Niger Delta Development Commission
NDVF	Niger Delta Vigilante Force
NNPC	Nigeria National Petroleum Corporation
ODA	Official Development Assistance
OPL	Oil Prospecting License
PPA	Public Procurement Authority
PPT	Petroleum Profit Tax
PRS	Public Procurement System
PSC	Production Sharing Contract
PTDI	Petroleum Trust Development Institution
PMI	Project Management Institute
RICS	Royal Institute of Chartered Surveyors
SC	Service Contracts
UNCITRAL	United Nations Commission on International Trade Law

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

In many developing countries, procurement has not been viewed as having a strategic impact in the management of public resources. It was largely treated as a process-oriented, “back-office” support function often implemented by non-professional staff of the buying agencies (Hunja, 2003, Balimwezo, 2009, Ariweriokuma, 2008). Consequently, little effort was expended to ensure that the policies and rules and the institutional framework governing the procurement system were maintained in a manner that ensured that public funds were used in the most efficient and economical way and that the system delivered the best value for money (Brammer and Walker, 2011, Edler and Georghiou, 2007). In the face of shrinking budgets and the need to fight corruption, governments are realizing that significant savings can be gained by a well-organized procurement system. Many developing countries have also realized that a well-organized procurement system contributes to good governance by increasing confidence that public funds are well spent. Many developing countries have therefore instituted reforms aimed at making the procurement system more transparent and efficient and increasing the accountability of public officials (Shaw, 2010).

In recent years, academics and practitioners have become increasingly interested in how organizations and their suppliers impact on the environment, society and the economy. Procurement has been identified as key to stimulate demand for innovation and innovative goods and services. It has also been included as a key instrument to support market initiatives (Csaba, 2006, Walker and Phillips, 2009). The strategic role of purchasing and supply as a lever for sustainable development is much more manifested

now than before. Contemporary commercial practices show that business organizations and business partners are focusing their procurement strategies on reducing the environmental ‘foot prints’ of their procurement and supply chain activities. The need to improve organizational efficiency, reduce waste, overcome supply chain risk, and achieve competitive position has made companies to start considering lots of issues from a competitive view point (Humphreys *et al.*, 2003, Handfield *et al.*, 2005).

Procurement is a process of identifying and obtaining goods and services. It includes sourcing, purchasing and covers all activities from identifying potential suppliers through to delivery from supplier to the users or beneficiary. It is favourable that the goods/services are appropriate and that they are procured at the best possible cost to meet the needs of the purchaser in terms of quality and quantity, time, and location (Mangan *et al.*, 2008, Bowersox *et al.*, 2002).

Procuring organizations and other supply chain partners are more seriously involved in designing and implementing sustainable procurement policies focusing on how social and economic issues and issues relating to other aspects of the sustainable development pillars (Society and Economy) can be integrated in the procurement process activities. There are a number of drivers for this increasing prominence of sustainability characterized by an increased understanding of the science relating to climate change, pressure from various stakeholders upon the organizations for the implications of their activities, and greater transparency concerning both environmental and the social actions of organization (Quesada *et al.*, 2010, Koh *et al.*, 2007).

ECEG (2010) who defined risk as the measureable uncertainty (likelihood) for something to happen that decreases the utility of the outcome of an activity or reduces the achievement of certain goals (of an organization, a project etc.). Accordingly, risk

management in the public sector entails “having in place a corporate and systematic process for evaluating and addressing the impact of risks in a cost effective way and having staff with the appropriate skills to identify and assess the potential for risks to arise” (National Audit Office, 2000). The usual risk-management tools in procurement like screening for abnormally low offers, screening suppliers through insurance schemes and different scoring rules (e.g. closest to the arithmetic average of all submitted offers) may outplay the most innovative offers (Cabral *et al.*, 2006, Johnston, 2004). Sound public procurement of innovation should therefore involve some kind of risk management, although it may not necessarily mean that a formal risk management structure is set up (Chapman and Ward, 2004).

Risk results “from the direct and indirect adverse consequences of outcomes and events that were not accounted for or that were ill prepared for, and concerns their effects on individuals, firms or society at large. It can result from many reasons both internally induced and occurring externally with their effects felt internally” (Kogan and Tapiero, 2007, Kouvelis *et al.*, 2006). Organizational risks are all those risks for the procurement to fail or under-deliver for reasons situated within the organization that procures. Indeed, there tend to be too many goals to follow in modern public procurement for the public administrators – cost savings, transparency, sectorial policies (e.g. environmental, energy, industrial etc.) – which often contradict each other (Cave and Frinking, 2007, Nyiri *et al.*, 2007). This may lead to misallocation of resources, where agency goals conflict with wider policy goals. This research therefore assesses procurement risk in the Nigerian oil and gas industries.

1.2 Statement of the Problem

Procurement function is vital to any organization and procurement strategies have become part of a business's success than ever before. Despite the importance of the procurement function, their process has been a subject of controversy in recent years. Most governments in Africa have instituted reforms in public procurement such countries include Zimbabwe, Uganda, Ghana and several others. The major goals of these reforms are to encourage competition, improve financial transparency, and ensure accountability in public institutions (Ariweriokuma, 2008).

Procurement reforms in Nigeria have to some extent brought modernity, transparency, competition, as well as fairness in the procurement process. Notwithstanding the improved administrative and structural systems put in place to enhance efficiency in public procurements, these reforms have not gone without blemish. Indeed, the implementation of procurement reforms in Nigeria has been fraught with cultural insensitivity, the disregard for countries' political, socio-economic, ethical, and environmental structures and systems (Ariweriokuma, 2008, Chapman and Ward, 2004). The result is the lack of interest and political will to confront the challenges of the reform leading to haphazard and lackluster approach towards its implementation. Procurement risk poses great risk to the oil and gas industry in Nigeria and therefore important greater care is given it to ensure transparency in the oil and gas industry.

Risk management is attempting to identify and then manage threats that can severely impact or bring down the organization. Generally, this involves reviewing operations of the organization, identifying potential threats to the organization and the likelihood of their occurrence, and then taking appropriate actions to address the most likely threats. Traditionally, risk management was thought of as mostly a matter of getting the right

insurance. Insurance coverage usually came in rather standard packages, so people tended to not take risk management seriously. However, this impression of risk management has changed dramatically. With the recent increase in rules and regulations, employee-related lawsuits and reliance on key resources, risk management is becoming a management practice that is every bit as important as financial or facilities management (McNamara, 2010).

1.3 Research Questions

These questions occupy the subject matter of this research:

1. What are the pre contract risk management processes adopted by (NNPC)?
2. What are the challenges with (NNPC's) risk management at the pre contract stage?
3. What are the risk management measures of the (NNPC)?

1.4 Aim and Objectives of the Study

The aim of this study is to investigate challenges associated with pre-contract procurement risk management adopted by Nigeria National Petroleum Corporation (NNPC).

1. To document the pre contract procurement risk management processes adopted by (NNPC)
2. To identify the challenges associated with (NNPC's) procurement risk management at the pre contract stage
3. To propose measures to address the challenges of procurement risk management

1.5 Significance of the Study

The research was aimed at studying procurement risk management in the Nigerian oil and gas industries. This research identified the key procurement processes and methods that will help public sector institutions obtain their material and service requirements and improve upon procurement performance.

This research will assist in developing theoretical framework to provide a reference source for academic purposes for students, lecturers and other researchers who may conduct future research into procurement and its performance.

More so, this research would also be useful to the case study institutions and other organizations that may need reference guide to help improve or streamline their procurement function. In addition, the internal and external customers of procurement will be familiar with the purchasing processes for effective collaboration in meeting material and service requirements of the institution. Lastly it will service as a guide for policy makers in any future decision and also contribute to the body of knowledge.

1.6 Limitations to the Study

During the research a lot of limitations were encountered in the collection of data. Firstly, a sizeable number of the respondents were reluctant and others refused to assist in the administration of the questionnaire since most of them claimed that the questions were too lengthy while others thought that through their responses they could be victimized. This in a way affected the responses of responses which in a way will have an impact on the reliability of information from respondents.

Financial constraint posed a lot of difficulty to the researcher in the entire course of the study. It was not easy for the researcher to raise funds to settle cost incurred in respects

of transportation, typesetting among others. Finally, time constraint also limited the scope and coverage of the study because it is the researcher's belief that a broader scope would have painted a better picture of the situation. In spite of all these challenges, the researcher made the necessary effort to make the study come into fruition.

1.7 Delimitations of the Study

The study was delimited to investigate procurement risk management at the pre contract stage of procurement of services in the Nigerian oil and gas industries because of availability and accessibility to information. It is hoped that this would ensure a detailed investigation, which would yield more valid and reliable results.

Also the study is delimited to core employees within the oil and gas industry especially The Nigerian National Petroleum Commission (NNPC) since the policies and styles adopted directly and indirectly affect staff and the organization. This will facilitate mobility to target population as well as to cut down cost comparatively. Other factors like time and convenience were also taken into consideration.

1.8 Outline of Methodology

The choice of research strategy depends on the purpose of the study, since that will guide the kind of information one is interested in finding. Based on the aim of the study, information was gathered from different sources.

The sources of the data and information included;

- Institutions and departments like Petroleum Trust Development Institution (PTDI) in Nigeria
- Textbooks, articles, conference proceedings and other journals that refers to procurement risk and vulnerabilities in the industry

- Mass media output such as newspapers and journals
- Internet sources etc.

Other activities that were performed during the period of the study are

- Consultation with identified stakeholders for their inputs and concerns
- Field and site visits to oil companies like shell and chevron to inquire about their procurement process
- Visits to oil and gas sectors like the Nigerian National Petroleum Commission (NNPC) to gather information on procurement in the oil and gas industry.

Information gotten from relevant literature in line with the set objectives was used to design the questionnaire used for the study. Results retrieved were therefore analysed using factor analysis and mean score ranking to determine factors which had more relevance and importance.

1.9 Scope of the study

This study will cover mainly the oil and gas industry players operating in Nigeria like Nigerian National Petroleum Commission (NNPC), Shell, ExxonMobil and Chevron. More so, the Nigerian National Petroleum Law and other statutory frameworks shall serve as the referential points to benchmark procurement operations in the oil and gas industry.

1.10 Organization of the Study

Chapter one provides an introductory overview of the full study comprising the statement of the problem, objectives of the study, research questions, and relevance of the study. Delimitation of the study, operational definition of terms and how the thesis was

organized are also captured in this chapter. Chapter two follows with a review of relevant literature on procurement and risk management and its impact on organizations.

Chapter three presents the methodology used for the study and gives a detailed overview of the population sampling technique, the research design, research instrument, the data collection procedures and data analysis procedures. It also provided analytical framework and the relevant variables that were included in the model to be used in the study.

Chapter four focuses on the characteristics of the respondents and the analysis of the data.

Chapter five summarizes, concludes and offer recommendations for the study.



CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter discusses procurement, its definition, procurement rules and procedure, importance of procurement, challenges and consequences of procurement especially at the pre-contract stage, Nigeria's Procurement system and risk management in the oil and gas industry. This chapter is targeted at unearthing all the variables in the subject to enable analysis and discussion of the situation in the Nigerian Oil and gas industry.

2.2 Conceptual Definition of Procurement

According to Ghana Integrity Initiative (2007), Public Procurement "is the acquisition of goods and services at the best possible total cost of ownership, in the right quantity and quality, at the right time, in the right place for the direct benefit or use of governments, corporations, or individuals, generally via a contract". Additionally, procurement involves purchase of goods, services and public works by public institutions and the government. The way procurement is carried out has both an important effect on the economy and a direct impact on the daily lives of people as it is a way in which public policies are implemented (Ghana Integrity Initiative, 2007).

On the other hand, Wickenberg (2004) defines public procurement as "a centrally negotiated legal process which is guided by political decisions and practically implemented by various local purchasers. It should be acknowledged that public procurement has both economic and social benefits, but the social benefits of public procurement are primarily seen as indirect positive effects from economic savings and environmental improvements. Procurement is a potential instrument of integrating socially and economically sustainable benefits to stimulate employment programmes".

According to Waara (2008) Public Procurement entails purchasing performed by any public authority within the classical sector or within the utilities sector. The public procurement rules applicable to purchasing entities more so, depends on whether the total purchase value is over or below certain so-called “threshold values”, which differ as regards goods, services and construction works. It was added that all procurements above the threshold values applies procurement directives and must be advertised in the Supplement to the Official Journal for public tenders. There are a number of different procurement procedures to choose from, depending on whether it is a purchase above or below the threshold values. Many minor purchases are subject to so-called “direct procurement”, which do not have to be publicly advertised. However, due to principles of market competition, direct procurement should not take place repeatedly, and purchases should not be divided into smaller units in order to avoid exceeding the threshold values (Project Management Institute, 2008).

Public procurement is the process by which organizations acquire goods and services using public funds. It includes planning, inviting offers, awarding contracts and managing contracts. For procurement to achieve its goals, it should follow these two principles: Professionalism and Value for Money (Economy).

- Professionalism is the discipline whereby educated, experienced and responsible procurement officers make informed decisions regarding purchase operations. The role of procurement professionals is critical to Nigeria’s economic development. It is in the recognition of this fact that the procurement Board’s object includes; “the professional development, promotion and support for individuals engaged in public procurement and ensure adherence by the trained persons to ethical standard”.

- Value for Money (Economy): this is to secure a judicious, economic and efficient use of state resources at a reasonable cost. Value for money is not about achieving the lowest initial price: it is defined as the optimum combination of whole life costs and quality.

International experience suggests the following four basic principles upon which procurement system is based (World Bank, 2000).

- Maximizing economy and efficiency.
- Promoting competition and encouraging maximum participation by suppliers and contractors for the supply of goods, construction or services to be procured.
- Fair and equitable treatment of all suppliers and contractors.
- Transparency in procedures and minimizing opportunities for corruption and collusive activities.

In dealing with procurement issues, the goal of regulators should be to ensure the best deal for citizens and to apply the tools necessary to allow the best decisions to be made. Inevitably, this means removing any bias that unfairly tilts a procurement decision. According to Public Procurement Authority (2007), Public Procurement has a direct impact on the following; the successful delivery of government projects and public services, sound public financial management by achieving value for money in government expenditure, reducing corruption, more competition, budgetary savings, reduce debt levels, and encouraging private sector. Social impacts of public procurement include enhanced respect for rule of law, improved social sector services, improved prospects of achieving other government objectives, increased access by local market to government contracts, and enhanced reputation for government institutions. It is obvious

from the above discussing that procurement has multi-dimensional importance which cuts across all spheres of lives. Governments of developing countries must ensure that they implement procurement laws fully and remove all bottlenecks so as to achieve this importance as stated by PPA (PPA, 2007).

Empirical studies about government procurement auctions show the importance of the competitive environment to achieve savings in government procurement, investigates the competitive effect in the Japanese Official Development Assistance (ODA) projects. Iimi (2007), reported that, winning bid decreases as the number of bidders increase. However, increasing participation of local firms in auctions increases the strengthens of tendering competition. This in turn brings about an adequately efficient level of auctions. Tas *et al.* (2008) analyzes 130,094 government procurement auctions for the years 2004 to 2006 in Turkey and discovered that the number of tenderers positively and negatively affects the price of procurement. This however signifies that competition on a grand scale improves the efficiency of government procurement auctions in Turkey. As a result, theoretical and empirical studies reveal that a competitive environment is necessary and imperative to achieve lower procurement prices in government procurement auctions.

2.3 Procurement Policies in Nigeria

Since independence of Nigeria in 1960, the country has been experiencing a high degree of mismanagement of resources particularly in the area of public procurement.. Government funds are not judiciously used hence cannot be accounted for; contracts are manipulated and awarded without competition. The regulatory bodies that were set up to ensure compliance with laid down rules and regulations on procurement and award of contracts in the public sector appeared ineffective, procurement risk management especially at the pre-contract stage was taken for granted. This has resulted in a high level

of corruption and enormous wastage of public funds and resources, lack of transparency, accountability, fairness and openness. The situation made foreign and even local investors to lose confidence in the Nigerian economy. It must be noted that the prevailing high level of corruption was closely linked with the public sector procurement systems corruption and bad governance. More so, considering that about ten percent of the gross domestic product (GDP) must pass through the procurement systems, It then became imperative that the public procurement systems in Nigeria must be reformed to achieve economic growth and developmental strides in this new millennium.

It was in the light of the above that President Olusegun Obasanjo on assumption of office, in 1999, sought for and obtained the World Bank assistance to undertake a study of the existing procurement and financial systems in Nigeria. The outcome was the proposal submitted by the World Bank to Mr President in 1999 that was tagged the “Country Procurement Assessment Report” (CPAR) which indicated the need for reform of the procurement law based on the United Nations Commission on International Trade Law (UNCITRAL) which has proven effective in a number of countries in the developed world, even in Lithuania, Estonia and Tanzania. The findings of the Study (CPAR), which covered institutional as well as organizational structures relating to the existing procurement regime, are (World Bank, 1999):

- Proliferation and ineffectiveness of Tender Boards.
- Lack of professionalism in the execution of the procurement functions.
- Weaknesses in bank financed projects
- Excessive deposit for opening of letters of credit.
- Lack of communication strategy.
- Weaknesses in the export, import and tariff procedures.

- Lack of streamlined quality control practices.
- Lack of knowledge in electronic procurement in the public sector.

It is on the background above that the Obasanjo's administration reformed the public procurement system in Nigeria. He introduced new procurement system called "Due Process" Policy in 2001, that is transparent, efficient, and effective and which delivers value for money in public finance budgeting and expenditure. This reform constitutes a major landmark in the contemporary Nigeria, which is a deliberate departure from the previous administrations in the country.

The "Due Process Policy" was introduced into the nation's procurement system via Treasury Circular by the Federal Ministry of Finance No, TRY/F15775 of 27th June, 2001 Federal Republic of Nigeria, (2002). It was passed into an Act under the President Umaru Musa Yar'Adua administration which is now called "Public Procurement Act" 2007. It is this Parliamentary Act that puts Nigeria in the league of countries with legislation on how public funds would be expended or disbursed. Prior to 2007, Nigeria was among the few African countries without legislation on Public Procurement.

The Public Procurement Act highlights the guidelines for the award of contracts and services, but a lot of questions, misconceptions, doubts, criticisms and cynicism have been trailing its implementation. Arising from this, it has become increasingly difficult for the policy to secure maximum affection from the Nigerian populace since its introduction in 2001. All nations all over the world are always besets with various political and socio-economic problems at one time or the other. Constant efforts are often being made by the various governments to find solutions to such problems. This is usually through administrative reforms, whereby a policy option is made to halt a named political, educational or socio-economical problem. The Due Process Policy is a package

of policy measures, and like any other policy, it has set goals which it aimed at achieving. The institution of the reform measures presupposes the existence of some administrative deficiencies. The rectification of the flaws in the administrative machinery depends on the satisfactory implementation of the reform goals.

It becomes apt at this juncture to discuss the rationale for the introduction of the Due Process Policy in the public procurement in Nigeria. That is, what are the major differences or defects of the previous procurement system that the Due Process Policy is addressing? According to the highlights of the Budget Monitoring and Price Intelligence Unit (BMPIU) which is the Office in charge of the Due Process, though now changed to the Bureau of Public Procurement (BPP). According to the BMPIU Manual, (2005), some of the defects are:

1. Lack of competition and transparency in project procurement leading to high cost of project.
2. Budget proposal submitted by the MDAs not being related to justifiable needs.
3. Improper project packaging and definition, compounding ineffectiveness.
4. Projects not prioritized, recorded and synchronized among the MDAs such that many Ministries, Departments and Agencies (MDAs) are pursuing the same or similar need simultaneously with resultant lack of economy efficiency and effectiveness while creating overlapping and waste.
5. Preference for new projects thereby encouraging regular midstream abandonment of projects in progress and this also fuels the cultural disdain for maintenance, rehabilitation and refurbishment of existing facilities and infrastructure.

The goal of the BMPIU is to ensure full compliance with the laid down guidelines and procedures for the procurement of capital and minor capital projects as well as associated goods and services with the following objectives (Aduba, 2004):

1. To determine whether or not Due Process has been observed in the procurement of services and contracts throughout the initiation and execution of such projects.
2. To introduce more probity, accountability and transparency into the procurement process.
3. To establish and update pricing standards and benchmarks for all supplies to the government.
4. To monitor the implementation of projects during execution with a view to providing information on performance, output, compliance with specification and targets in the area of cost, quality and time.

Having highlighted some of the defects of the previous procurement system in Nigeria and the objectives of the Due Process Policy, it then becomes imperative here to define the Due Process and Public Procurement as cardinal concepts of this paper. Due Process Policy is the mechanism for ensuring strict compliance with openness, competition, cost accuracy, rules and procedures that guide contract award by the government. Due Process Policy is an agenda to ensure and sustain an open, transparent and competitive Federal Procurement System. It is integrity-driven, uphold spending within Budget. It also ensures speedy implementation of projects in order to achieve value-for-money outcomes without sacrificing, quality and standards in the delivery of public goods or services. The policy is aimed at enforcing compliance with established guidelines in budgeting, procurement and expenditure by all Federal spending entities. It is not only based on open and competitive process but that contract costs are authentic, reasonable and comparative

to national, regional or international costs. The ultimate goal is that all spending by Government should be appropriately geared to the realization of set priorities and targets that were generated from medium range strategic plans at the most cost effective and cost efficient basis (BMPIU Manual, 2005).

Arising from these various submissions by scholars in respect of the concept, it could be said that Due Process is all about transparency and accountability. In Due Process, funds are not to be recklessly used and applied based on the laid down rules. Accountability and Due Process are major features of good democratic governance. When we talk of good governance, the two concepts are in-built, crucial or major elements.

Ezekwesili (2004) pointed out that the vision and mission of the Due Process is make to make sure that public assets and funds are judiciously managed to minimise the impact of corruption, and on the other hand improve system planning and project preparation and work towards achieving accuracy of costing, cost-benefit analysis and prioritization in deciding the spending mode and plan for any given financial year. It is additionally to bring about improved fiscal management through more effective expenditure management, institutions, processes and control mechanisms. besides optimal resource allocation are decisions to achieve clearly articulated public policy objectives through enhanced identification of the costs and benefits of alternative expenditure decisions.

2.4 Thrust of the Public Procurement Act 2007

In its determined effort to harness, maximize and utilize the resources of the country for the improvement of life of its citizens, the Federal Government of Nigeria instituted a robust Public Procurement System (PRS) for the execution of all government projects, works and services.

2.4.1 Essential Goal of the Act

The primary goal of the public procurement Act 2007 is the “Establishment of National Council on Public Procurement and the Bureau of Public Procurement as the regulatory authorities responsible for the monitoring and oversight of public procurement, harmonizing the existing government policies and practices by the regulation, setting standards and developing the legal framework and professional capacity for public procurement in Nigeria, and for other related matters”.

2.4.2 Scope of Application of the Act

The Federal Government of Nigeria and all Procurement Entities:

1. States that all Entities outside the foregoing which derive at least 35% of funds appropriated or proposed to be appropriated for any type of procurement described in this Act from the Federation Share of consolidated Revenue Fund.
2. Shall not apply to procurement of Special Goods, Works and Services involving national defence, or national security unless President’s express approval has been first sought and obtained.

2.4.3 Core Objectives of the Act

Regulatory functions to achieve the following four (4) core objectives are:

1. Economy and Efficiency.
2. Competition providing level playing ground for all strata of bidders.
3. Value for money.
4. Transparency.

2.4.4 Approval Thresholds by the Act

The BPP reviews and certifies the Federal Government contracts according to established and approved thresholds. By now, there are three (3) approval thresholds for the approval and award of Federal Government Contracts in the public sector. The approval of contracts in Nigeria has been categorized into the following:

1. Contracts below N1 million.
2. Contracts above N1 million.
3. Contracts of N50 million and above.

Upon conclusion of the contract procedures, the Ministerial Tenders Board shall then forward their conclusions and all relevant supporting documentation to BPP for Due Process compliance Review and Certification. It is only after the Due Process Certificate is issued out the BPP that the contract be forwarded to the Federal Executive Council for final approval to award contract.

Specifically, the Due Process Policy covers two (2) major types of tenders. They are:

a) Open tendering:

This type of tenders deal with contracts, purchases and services above N10 million which must be advertised in at least two (2) national dailies and or Government Gazette, and on the Notice Boards of the procuring institution. The essence is for pre-qualification purpose to provide bidders equal opportunity and access to information. This type of tendering is also known as competitive tenders. This was a measure put in place as it were to reduce or mitigate risk in public procurement.

b) Selective tendering:

In this type of tenders, at least three (3) reputable contractors in specific areas of specialization are selected and invited to bid. This type of bids, are not open because of the technical nature of the job. However, for efficient and effective procurement system, the following criteria are critical for consideration in the award of contracts, works and services in the Due Process (Ezekwesili, 2002):

Priority: Is the project of priority to Government especially in the sector for example, Agriculture, Solid Minerals, Sport, having a better chance/speed of completion and readiness than the other projects displaced? Can the solid or economic value be immediately felt?

Benefits: What are the benefits of the projects? Can these be quantified? Will the benefits derivable directly enhance the standard of living of the people?

Technical: Was any feasibility study undertaken for the project? There must be confirmation that the design meets with legal safeguards obligations such as provision for compensation for displaced persons, that the engineering plans had been completed and subjected to independent review, that a procurement plan had been prepared

Contracting: There must be evidence that due process had been strictly adhered to in the selection of proposed contractors, such as open tendering, that arrangements are in place for technically competent, independent monitoring and supervision of contractors

Costing: Evidence that the project had been adequately cost with anticipated price fluctuations already in built. This is to avoid the potential variation on contracts. Evidence that prices quoted are in accordance with prevailing price index and that projects were not unnecessarily loaded to ensure a bloated cost.

Project management: Confirmation that a project cash flow forecast consistent with the procurement plan had been prepared and independently verified by a consultant, that the implementing Agency has the procurement and financial management capacity to manage the project funds.

Payment: Where large assets are to be acquired, confirmation that there will be a physical verification by relevant authority has been made or conducted must be produced before such assets are paid for and that small assets will be subject to random verification. There must be confirmation that the implementing Agency has submitted required reports and audits on previous or on-going Capital Projects, which a revised procurement plan would be presented each time a payment request is presented for a signed contract.

2.5 The Procurement Cycle

The procurement cycle is said to be a road map of the activities within the procurement function. It sets up key activities required at every stage of the procurement circle and at the same time providing a standard for monitoring and evaluating of the process by procurement monitors and evaluators. The procurement cycle model emphasizes activities occurring within the entire supply chain and not just procurement as shown in Figure below. Procurement activities encompass the following: Planning, sourcing, contracting, contract management and evaluation. The procurement circle can then be classed into three namely, pre-contract, contract and post-contract. For the sake of this study procurement risk management will be narrowed down to the pre-contract stage.

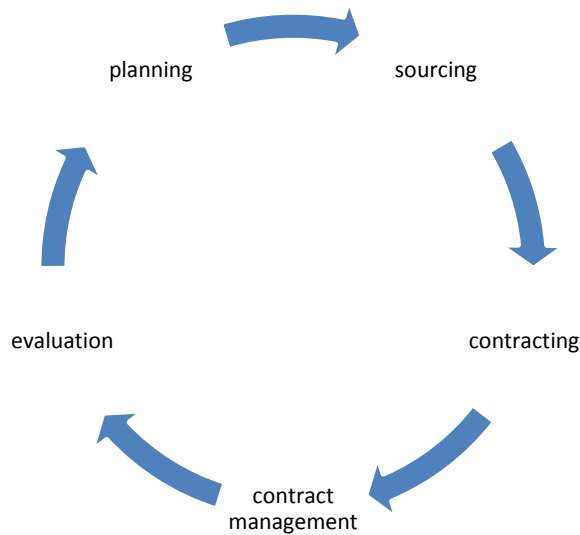


Figure 2.1 Procurement Circle

(Source: Republic of Ghana Public Procurement Act, Act 663).

2.5.1 Procurement Planning

The procurement plan specifies the details of the entire process of procurement, as well as steps required. The procurement plan should however encompass the following, which will then be reflected in the request for tender and in the contract itself.

- Goals and objectives of the procurement
- Potential service providers
- Contract duration
- Procurement approach
- Payment approach
- Scope of services required
- Contract monitoring and evaluation
- Tender format
- Tender evaluation
- Procurement schedule
- Cost estimate.

Procurement plan is used to provide information about the purchase of goods and services, how vendors will be chosen, what kind(s) of contract(s) will be used, how vendors will be managed, and who will be involved at each stage of the process. This document should be approved by appropriate individuals before the actual procurement process begins. It is imperative to point out the fact that the procurement entities need to plan their procurement activities for the coming year from the preceding year, review and attain approvals from entity tender committees and update quarterly (Public Procurement Board, 2007). This is affected at the planning stage within the procurement cycle.

2.5.2 Sourcing, Contracting and Contract Management

The sourcing stage of the procurement cycle follows from the chosen method of procurement. Activities within this stage incorporates pre-qualification of potential suppliers, preparation and issuing of bid documents, requests for quotations or requests for proposals; then responses shall be evaluated and the selection of the successful tenderer not ignoring the fact that negotiations may be required at this stage. Next that follows in this sequence is a contract where a formal contract document is prepared using the agreed terms and conditions which is then signed by parties to the contract. Easier requirements may employ the use a purchase order or where framework contracts exist, contracting may encompass a call-off order under the existing contract.

Whilst the contract has been awarded it ought to be managed to see that there are no bridges to the agreed and signed legal contract by parties to the contract. Contract management therefore include expediting delivery; establishing letters of credit; making arrangements for receipt and installation of goods; verifying documentation and making payments. Additionally contracts for Works might require technical supervision by an engineer while consultancy contracts for services usually require direct participation of

the buyer or client organization as is in the situation with training, technical advice or feasibility viability appraisals.

2.5.3 Evaluation of the Procurement Function and Auditing

It is imperative for procurement professionals to evaluate the process of procurement to ensure that the process of procurement meets with the objectives of the act which is efficiency and effectiveness. There is therefore the need to identify weaknesses and challenges of the process to effect corrective measures; this could include a formal procurement audit. A formal procurement audit is carried out to assure that objectives are being achieved; it therefore highlights deficiencies; ensures compliance with the Public Procurement Act; ensures if the regulations are being followed to and helps in the discovery of irregularities, fraud, and corruption. A formal audit additionally helps in performance monitoring, improvement as well as in the enforcement of the rules and regulations and subsequent prosecution of those who are found deserving of blame for non-compliance with the Act.

In the light of the above discussed the types of audits that can be undertaken are: compliance with policies and procedures; value for money; fraud/irregularities which may include forensic auditing and performance monitoring. Audits can be carried out pre-contract, post-contract or on a continuous basis (Aduba, 2004).

2.6 The Nigerian Economy and the Oil and Gas Industry

The Nigerian oil and gas sector plays a very dominant role in the nation's economy; this is evident as over 90 per cent of the Nigeria's foreign exchange earnings are derived from the sale of crude oil. Nigeria is known to be Africa's most populous, resource rich country with a population of over 170 million. It encompasses over 250 ethnic groups and patterned in the past by consistent political instability, bad governance, corruption,

inadequate infrastructure and macro-economic mismanagement (Atakpu, 2007, O'Neill, 2007). Study reveals that Nigeria has about 36 billion barrels of crude oil reserve and 19.2 billion cubic metres of natural gas. It is estimated that the Nigeria has realized about 600 billion US dollars since 1956 - when it first discovered oil in commercial quantity in Oloibiri, now known as Bayelsa state- from oil and gas (Atakpu, 2007). apart from crude oil and natural gas, Nigeria further has some gold, tin, talc, gemstones, kaolin, bitumen, iron ore and barites that can be harnessed to earn foreign exchange for the country; although oil and gas remains the country's main source of foreign exchange earnings and revenue base (Adebola *et al.*, 2006).

Truly, for many years now, oil has become the main stay of the Nigerian economy as the earnings from crude oil are used for infrastructure developments as well as on improving the socio-economic well-being of Nigerians (Agusto, 2002). The Nigerian government earns its income from crude oil through the sale of crude, gas; Petroleum Profit Tax (PPT), royalties and rent (from the industry operators). In the Nigerian oil and gas industry activities are classified into the Upstream and Downstream sectors. There are Three major business arrangements operated in the Nigerian oil and gas industry, vis-à-vis: Joint Ventures (JV) i.e. Joint Operating Agreements (JOA) between the Federal government and multinational operators such as Shell, Agip, Chevron and Elf; Production Sharing Contract (PSC) which involves arrangements between the government and operators, where NNPC acts as a concessionaire, usually in the deep offshore operations where the operator funds exploration, development and production activities and revenues are shared between both parties; and Service Contract (SC) i.e. where Oil Prospecting License (OPL) title is held by the NNPC while the operator designated as the service contractor provides all the funds required for exploration and production works. In the event of a commercial find, the contractor recoups its cost in line with the procedures

stipulated in the contract. The difference with the PSC is that while the SC covers only one OPL, the PSC may span more than two or more OPLs at a time. Also, the SC covers a fixed period of five years and should the effort result in no commercial discovery, the contract automatically terminates. Only Agip Energy and Natural Resources (AENR) operate SC (Agusto, 2002). In addition, Ariweriokuma (2008) broadly divided the sector into two, vis-à-vis the upstream and downstream oil and gas activities where the Upstream oil and gas activities involve operations in the areas of Exploration and Production (E & P) of oil and services that lead to these E & P activities derived from drilling the initial appraisal wells, through seismic data processing, to drilling of wells and extraction of crude oil, condensates, natural gas or associated gas from the well (Nwosu *et al.*, 2006). . the three functional areas within the downstream sector include - refining, distribution and marketing of petroleum products (Frynas, 2000). The downstream sector is of strategic importance to the nation, as petroleum products constitute a key source of energy used for various purposes (Obasi, 2003). moreover, despite being a main oil producing country for decades, and accruing huge revenues from oil and gas, it is disheartening to find out that Nigeria is ranked as one of the poorest countries in the world (Alix Partners, 2014). Additionally, the lack of equitable distribution of the oil wealth and environmental degradation resulting from exploration activities have been indicated as a major factor aggravating actions from environmental rights groups, inter-ethnic conflicts, and civil disturbances from ethnic militias such as the Movement for the Emancipation of the Niger Delta (MEND) and Niger Delta Vigilante Force (NDVF) (NDDC Report). Warner (2007) noted that like the Nigeria case, there are a number of oil rich countries where their governments have failed to translate their oil wealth into economic sustainability and higher standards of living; stressing that literature abounds on the issue of ‘resource curse’ and ‘Dutch disease.’ In literature, there are also

some theories and propositions used in explaining the causal linkage between natural resources and civil conflicts such: ‘grievance’ theory (Gavin and Hausmann, 1998); ‘weak states’ theory (Fearon and Laitin, 2003, Mahdavy, 1970); ‘separatist incentive’ hypothesis (Ross, 2004, Collier and Hoeffler, 2004, Le Billon, 2001); and ‘looting’ hypothesis (Le Billon, 2001). Besides oil wealth failures, there also existed the problem of capital flight from the county by way of monies used in servicing the industry and the reason for this was attributed to the issue of low local content in the OGI. There was however an imperative need to deregulate and liberalise the downstream sector to endeavour indigenous entrepreneurs with experience in the oil and gas sector fill the void that was evident (Okolo, 2006). As a result of this, in the early 2000s, the government introduced the local content policy to curtail the menace.

Delivering local benefits in the communities where extractives industries operate is no longer a choice. It is a commercial necessity and one that is increasingly mandated by law. In the new competitive landscape of waning supply and increasing demand for energy and mineral resources, Companies in the extractive industries face rising expectations to do more than simply mitigate negative impacts, serve as sources of tax/royalty revenue, and act as good neighbours.

Today, business success depends upon the ability of companies to develop local talent, build a competitive local suppliers base, and deliver lasting socio-economic benefits to the areas where they operate. The growing number of reported cases of project interruptions due to non-technical risks-including stakeholder presumes, Socio-economic conditions and national policies is a testament to this, (Hackenbruch and Pluess, 2011). Analysis by Environmental Resource Management of delays associated with a sample of 190 of the world’s largest oil and gas product (as ranked by Goldman Sachs) found that 73 percent of project delays were due to “above-ground” or non-technical risk, including

stakeholders resistance, compared to 21 percent due to technical risk especially during the pre-contract stage (Tordo, 2011).

Some companies have responded to non-technical risks through isolated investments in community development. Increasingly, however, companies are finding that they can drive more sustainable and commercial value with integrated investment approaches to community engagement by leveraging company resources (from assets to corporate level), third-party expertise, and civil society and multi-lateral partnerships and proactively developing local capabilities with strategic planning. While others who spend a lot during the pre-contract stage through complex procedures and costs with procurement prequalification requirements find it difficult giving back to the community or society. To ensure proper local content and better operations all risk associated with pre-contracts should be checked.

2.7 The Concept of Risk

All projects are exposed to a myriad of risks but as a fundamental part of project management, risk management enhances the delivery of projects within predefined cost, time and quality. According to (Bannerman, 2008), when implemented in line with good practice principles and organizational commitments, risk management also provides desirable benefits for project stakeholders. In today's dynamic and complex business environment more complex industrial projects like oil and gas projects which are valuable assets, require further refinements to assess risks and prioritise protective measures for these critical pieces of economic infrastructure and national pride. The focus of this paper was on Nigeria, a leading African nation and its oil and gas industry.

According to the World Bank (2012), Nigeria has an estimated population of 158 million and it is located in the sub-Saharan region of Africa. The country exercises considerable

socioeconomic and political influence in the West African sub region and the entire African continent. Nigeria is the largest exporter of oil in the African continent and sixth largest in the world (World Bank, 2012). Although oil and gas activities can be considered as the main stay of the Nigerian economy, the general dismal performance of most oil and gas projects recorded by Merrow (2012) can still be associated with most operations within the Nigerian oil and gas industry. As a result, the main areas addressed in this paper were the major risk and risk management practice concerns affecting Nigeria's oil and gas industry.

Over the years, the concept of risk has been a highly contentious subject. According to Baloi and Price (2003), the concept of risk can vary according to the perception, standpoint, attitudes, occupation and experiences of an individual. For instance, Project Managers, Engineers and consultants may view risk from a technological standpoint whilst health, safety and environmental professionals may view risk from the safety and environmental standpoint. Therefore, Loosemore (2010) concluded that risk can be generally classified as an abstract concept whose measurement is very complicated since it usually takes on various physical, monetary, cultural or social dimensions. Lee *et al.* (2013), reported that some earlier definitions of risk termed it as the potential for unwanted or negative consequences of an event or activity, thereby giving it just a negative construal. For instance, Williams (1995) and Mullins *et al.* (1999) considered risk to be an exposure or a probability of the occurrence of a loss. All these definitions portrayed risk as any adverse factor that can control the success of any situation where it is present. By putting these definitions in context, risk can be assumed to denote a negative attitude towards the environment under consideration. This may also imply that risk can be related to a lack of predictability about a structure, its outcomes or consequences of occurrence during a situation.

On the other hand, more contemporary definitions and standards include the possibility of upside risk or opportunities (i.e. uncertainties that could have favourable effects on accomplishing desired objectives). Jaafari (2001), defined risk as exposure to loss/gain, or the probability of the occurrence of loss/gain multiplied by its respective magnitude. The Project Management Institute (2008) defined risk as an uncertain event or condition whose occurrence may have either positive or negative effects on project's objectives. When contextualized, these definitions suggest that the term risk can have a two twofold meaning which may be construed to be either negative or positive. But despite the perception of risks as either positive or negative events by these writers, it is pertinent to note that they are all in agreement on the uncertain nature of the occurrences of these events. While most definitions consider risk in terms of the negative and positive wordings, Olsson (2007), proposed to separate the contradictory meanings of risk. This separation allows both threats and opportunities to be incorporated while considering the positive and negative meaning of the term risk. Irrespective of this suggested incorporation, Olsson (2007) added that as both positive and negative events in the definition of risk occur in circumstances of uncertainty. Hence, risks or opportunities should be merely considered as uncertainties until they are contextualized.

Regardless of opinions concerning a precise concept for risk and opportunity in relation to uncertainty, this research is in agreement with Hillson (2003) on the fact that any concept that encompasses both uncertain opportunities and threats within a particular definition of risk is a clear statement of intent that recognizes the importance risk and the abilities of these related terms to influence events and objectives. What then becomes crucial should be a constant recognition of the existence of risks and its associated concepts and the development of strategies aimed at managing the concepts irrespective of the context they occur.

2.7.1 Tackling Uncertainty

Maria and Sandrine (2010) stated in their work that risks affecting organizations could have consequences in terms of societal, environmental, technological, safety and security outcomes; commercial, financial and economic results, as well as social, cultural and political reputation impacts. ISO 31000:2009 will aid organizations of all types and sizes to manage risk effectively.

ISO 31000 provides principles, a framework and a process for managing any form of risk in a transparent, systematic and credible manner within any scope or context. It recommends that organizations develop, implement and continuously improve a risk management framework as an integral component of their management system. Kevin W. Knight AM1), Chair of the ISO working group that developed the standard explains, “ISO 31000 is a practical document that seeks to assist organizations in developing their own approach to the management of risk. But this is not a standard that organizations can seek certification to. By implementing ISO 31000, organizations can compare their risk management practices with an internationally recognized benchmark, providing sound principles for effective management.” ISO Guide 73:2009, Risk management vocabulary, complements ISO 31000 by providing a collection of terms and definitions relating to the management of risk. ISO 31000 is designed to help organizations:

- Increase the likelihood of achieving objectives
- Encourage proactive management
- Be aware of the need to identify and treat risk throughout the organization
- Improve the identification of opportunities and threats
- Comply with relevant legal and regulatory requirements and international norms
- Improve financial reporting

- Improve governance
- Improve stakeholder confidence and trust
- Establish a reliable basis for decision making and planning
- Improve controls
- Effectively allocate and use resources for risk treatment
- Improve operational effectiveness and efficiency
- Enhance health and safety performance, as well as environmental protection
- Improve loss prevention and incident management
- Minimize losses
- Improve organizational learning
- Improve organizational resilience.

“Risk is inherent in all activities. And it can be argued that the global financial crisis resulted from the failure of boards and executive management to effectively manage risk. ISO 31000 is expected to help industry and commerce, public and private, to confidently emerge from the crisis,” (Maria and Sandrine, 2010).

2.7.2 Risk Assessment

According to Maria and Sandrine (2010) revealed that when risks occur, organizations always have to ask the question: “Is the level of risk tolerable or acceptable, and does it require further treatment?”

Risk assessment is an integral part of risk management which provides a structured process for organizations to identify how objectives may be affected. It is used to analyse risk in terms of consequences and their probabilities, before the organization decides on further treatment, if required.

Risk assessment provides decision-makers and responsible parties with an improved understanding of risks that could affect achievement of objectives, as well as of the adequacy and effectiveness of controls already in place. The standard provides a basis for decision about the most appropriate approach to treat particular risks and select between options. ISO/IEC 31010 will assist organizations in implementing the risk management principles and guidelines provided in ISO 31000. ISO/IEC 31010 reflects current good practice and answers the following questions:

- What can happen and why?
- What are the consequences?
- What is the probability of their future occurrence?
- Are there any factors that mitigate the consequences of the risk or that reduce the probability of the risk?

The application of a range of techniques is introduced, with specific references to other relevant International Standards. Risk assessment is not a stand-alone activity and should be fully integrated into the other components in the risk management process.

Eric Mahy, Project leader of the standard comments, “ISO/IEC 31010 has been developed for application by both the risk management novice and the seasoned risk professional. It forms part of an integrated risk management structure of standards, developed with a view to providing a ‘best practice’ approach”

2.7.3 Risk Management at the Pre Contract Stage

Obviously study shows that Procurement of Construction and other projects have a variety of risks, contractors have to cope with this risks while its owners pay for them.

Traditionally:

- The project manager/ consultants is/are responsible for the identification, analysis, and co-ordination of a risk management strategy and to see to it that the project risks are reduced and treated.
- The investor/client/owner is held responsible for investment/finance risk
- The design team is responsible for the designs of the risk
- Governmental parastatals and agencies are as well held responsible making sure that their codes and regulations set the minimum acceptable standards.

Anywhere risk is inherent there is the urge to completely deal with it. In the construction and other industry, risk management has been recognized as a very important process geared towards achieving a projects objective in terms of time, quality, safety and environment sustainability (Zou *et al.*, 2007). Miller and Lessard (2000) stated that; “Experience has shown that Risk Management must be of critical concern to project managers, as unmanaged or unmitigated risks are one of the primary causes of project failure”.

Simply put managing risks entails predicting the unpredictable. It is imperative to adopt management tool to help control construction project risks (Mills, 2001). The Association for Project Management (2000) defines risk management as the process which allows the analysis and assessment of project risks. It further adds that risk management is the process created to eradicate or reduce and control the risks which are the hindrances to the successful completion of any project.

Tang *et al* (2007) additionally said that risk management is an important element of the decision making process in construction projects. It is the step at which the project team meticulously addresses the risks and vulnerabilities and systematically evaluates and analyses the risks based on the best information at their disposal. This will therefore go a

long way in increase the possibility of beneficial project performance in terms of budget, schedule and quality.

Managing risks is likely the most difficult aspect of managing projects (RICS, 2003). The project manager/consultants must be able to recognize and identify the root causes of risks associated with a project at the pre contract stage. The use of risk management at the pre contract stage of a project, where major decisions such as choice of alignment and selection of construction methods among other things can be influences, is essential.

Risk management is an iterative process consisting of steps that, when undertaken at the early stages of a construction project enables continuous improvement in decision-making and facilitates continuous improvement in performance (PMI, 2004).

“The problem is that more things might happen in the future than will happen” (Plato, as cited in WSDOT, 2010). With an effective risk management system as an integral part of project management, one cannot only predict possible future outcomes, but one can also take actions to shift the odds in order to achieve project success (WSDOT, 2010).

It is a process which provides the assertion of achieving a project’s objectives, limiting the likely occurrence of damaging effects and also provides the positivity of things likely to be achieved. It is not a process for averting risks neither is it a tool to eliminate those risks.

Rather it is a tool that aids in managing the potential risks that a likely to be faced or encountered as far as construction project is concerned thus, maximizing opportunities and minimizing adverse effects. Pre contract risk management when taken into consideration offers the following:

- Contributes to project success;
- Recognizes uncertainty and provides forecasts of possible outcomes;
- Produces better business outcomes through more informed decision making;
- Limits professional indemnity claims;
- Eliminates unsatisfactory projects and enhances profit margins;
- Offers better control – less overhead and less time wasted, greater focus on benefits;
- Provides a procedure which can reduce possible and sudden surprises during the Project Life Cycle; and
- Enables an organization to ascertain and assess projects viability (Smith et al, 2006; Australian/New Zealand Standard, 2004).

2.7.4 Risk Management Practice in the Oil and Gas Industry

Risk management can be described as the process of conducting risk management planning, identification, analysis, responses, and monitoring and control on projects (Project Management Institute, 2008). From this definition, risk management during oil and gas construction projects can be defined as a systematic means of identifying, analysing and controlling risks associated with the activities of an oil and gas construction project for the sole aim of achieving the objectives of the project. Therefore it needs to be recognized as a necessity for project delivery and as an integral component of the project management mechanism during the life cycle of such capital projects. Several studies have suggested differing sequences for the risk management process but Zayed *et al.* (2008) concluded that risk management based on consensus in most literature is established on a three-fold process comprising of: risk identification, risk assessment and risk mitigation. Regardless of the views on what constitutes the risk management process,

Raz and Michael (2001) concede that a commonality among most risk management processes is the presence of systematic and unsystematic procedures aimed at identifying and mitigating inherent project risks.

There is ample evidence to show that several studies have extensively examined various aspects of risk management in the oil and gas industry. For instance, Mojtahedi *et al.* (2010) applied the fuzzy multi-attribute group decision making to develop a methodology for identifying and analysing risks in oil and gas industry projects. (Tavakkoli-Moghaddam *et al.*, 2009) identified important risks in Iranian onshore gas refinery plants and introduced a fuzzy multi-criteria decision-making model for industry applications. Mousavi *et al.* (2011), proposed the leave-one-out-cross validation resampling approach as an effective framework for assessing climate change risk data obtained from experts' judgments during construction projects in Iran. Iranmanesh *et al.* (2007), proposed a new structure called the risk breakdown matrix to measure risks in engineering procurement and construction projects. Baker *et al.* (1999), examined the choice and use of successful risk response techniques within the oil and gas industry and compared them with techniques chosen by the construction industry. These studies compliment others (Van Thuyet *et al.*, 2007, Mousavi *et al.*, 2011, Ebrahimnejad *et al.*, 2010, Skogdalen and Vinnem, 2012) such that they comprehensively examined various aspects of risk management in oil and gas industry globally.

Risk management during oil and gas construction projects can be defined as a systematic means of identifying, analyzing and controlling risks associated with the activities of an oil and gas construction project for the sole aim of achieving the objectives of the project. It has been realized that the pre-contract stage in the oil and gas industry in Nigeria is faced with lots of risks. The pre-contract stage includes submission of tenders, opening of tenders, evaluation of tenders, and submission of evaluation of report plus approval. Risk

is inherent in all these procedures or processes and they all go a long way to impact on the oil and gas industry. Other ways to handle risk include;

Visibility: Right Information at the Right Time

A plenty of oil and gas companies agrees to the fact that the most significant challenges for their enterprise is the management of information. Oil and gas industries work tirelessly to be able to generate intelligence from a surplus of technical and business data, that they have retrieved both structured and unstructured. The main aim in collecting all this information is to as fast as possible reduce risks and meet compliance requirements with information life-cycle management.

Prevention of Non-Compliance

As regulating pressure increases, the oil and gas companies cannot afford the risk of being non-compliant. In addition, important requirements for speedy reporting on operations and accidents could be needed, including risk mitigation plans for critical operations like drilling. Oil and gas industries should make sure that important documents, including approvals to drill, build, and maintain oil wells are made available all through the enterprise as well as across enterprise boundaries to drastically reduce risk and ensure regulatory compliance. During the pre-contract stage compliance need to be done especially in the documentation process in order to manage risk. In Nigeria this include documents in

- Corporate affairs certificate
- Certificate of incorporation
- Federal Inland Revenue service certificate memorandum of understanding
- Registration of special control unit against money laundering and so forth.

Holistic Approach to Operational and Enterprise Risks

Operational risks are important aspects of enterprise risk management, more so, as stated earlier information is key in minimizing them. Oil and gas, which are capital intensive like many other businesses, need to take a very strategic, operational and tactical decisions regarding their assets, which could include resources, oil reserves, oil wells, plants, or facilities.

On a frequent basis, there exists a disconnection between tactical and strategic levels. These strategies do not have visibility into costs and efficiencies across the portfolio of assets

It should also be noted that Technology can help minimise the disconnection by way of analytics and governance, risk, and compliance (GRC) applications that automate and document processes regarding the definition, assessment, and verification of business controls and operational risk at the corporate level. Enterprise GRC software incorporates financial compliance management, audit management, corporate policy and procedure management, risk management, and continuous enterprise controls monitoring.

Enterprise governance, risk, and compliance:

eGRC is said to be an umbrella term which describes how an organization defines the objectives, policies, and procedures by risks are managed; it pursues opportunities as well as avoiding or managing negative events; and therefore demonstrates adherence to laws, regulations, policies, contractual obligations and industry standards. Oil and gas industries have been practicing eGRC for decades, but only in recent history have they approached eGRC as a holistic strategy for managing risk and compliance across functional domains and the lines of business. In the current atmosphere of global economic stress, regulation and increasingly complex risks, an eGRC strategy supported

by the right technology platform is more important than ever before. The oil and gas industry, especially the upstream segment, has historically struggled to overcome "silos" of segregated data and applications that are not integrated and therefore fail to achieve integrity and do not maximize business value.

The above demonstrates that scholarly activities on risk management appears well appreciated and should be widely adopted during oil and gas industry projects in Nigeria or other regions. Nonetheless, Robinson *et al.* (2006) still recorded that the overall performance of most oil and gas projects has been dismal in recent times. Therefore in anticipation of the enactment of the Nigerian Petroleum Industry Bill and with Nigeria's current drive towards revamping its oil and gas industry operations, it is anticipated that the findings from the paper will further contribute to the knowledge which relates to the application of risk management in oil and gas construction projects and facilitate greater awareness amongst industry practitioners and researchers in Nigeria's oil and gas industry.

2.8 Risk Management Process

Procurement is between the buyer and one or more suppliers; there is therefore the need to do some identification and assessment of risk of risk to minimize or reduce their occurrence. This has become more critical as procurement is about spending of large funds (Chapman and Ward, 2004).

The procurement unit for every company should have good skills, understanding in market dynamics, economy, prices etc. more specifically, to develop a category expertise similar to design engineers in order to better mitigate risk.

However, to manage risk successfully companies all round have adopted the below risk management process.

- Proactive risk management is critical in ensuring that a capital project is executed as per schedule, budget and required quality
- Identifying risk ownership upfront helps in ensuring that all possible risks are effectively taken care of with the right focus
- Brainstorming and meetings
- Risk management process need to involve top management of a company early on to ensure that all required support is available for managing risks.
- All identified risks in the risk register should be used as an input across pre-tender, award execution and operations phase of a project. For example, risks are used as inputs to the following:
 - Feasibility analysis of a project
 - Budgeting of the project
 - Supplier selection
 - Supplier negotiation (risk register used as a checklist)
 - Contract formulation
 - Contract management (during execution)
 - Project planning and monitoring
 - Operations readiness planning
 - Ensuring uninterrupted operations

All these should be done in the categorization stated as follows especially at the pre contract stage.

- Planning
- Sourcing
- Evaluation, approval and negotiation

Planning lays out the details of the procurement process, and the steps that will be required. Procurement plan is used to provide information about the purchase of goods and services, how vendors will be chosen, what kind(s) of contract(s) will be used, how vendors will be managed, and who will be involved at each stage of the process. This stage is characterized with lots of risks these include understatement of the need. An understatement of the need could lead to waste of money and purchase of unsuitable products or services (Chapman and Ward, 2004).

Overstatement of the need and misinterpretation of user needs is another risk faced in the planning stage. This normally leads to poor competition, totally unacceptable purchase or not most suitable product or service, time lost greater expense, time lost and possible downtime.

Regarding sourcing, activities in this phase involves pre-qualification of potential suppliers, preparation and issue of tender documents, requests for quotations or requests for proposals; evaluating responses and selecting successful tenderers not ignoring the fact that negotiations could be needed at this stage after which a contract follows where a formal contract document is agreed using agreed terms and conditions and signed by parties to the contract. This stage also experiences enormous risks, this includes narrow definition or commercial specification (an example is the use of brand names), biased specifications, inadequate statement of requirements, failure to identify potential sources and many more (Hillson, 2003).

The likely consequences include most suitable product or service may not be obtained, inadequate responses from tenderers, claims of unfair dealings, Variety of offers, insufficient responses, and products offered not meeting needs and lack of offers from suitable tenderers among others.

It is imperative for procurement practitioners to evaluate the procurement process to ensure that an efficient and effective the procurement processes have been complied with. There is the need to identify weaknesses and problems for corrective measures and evaluation may include a formal procurement audit as mentioned earlier; it further highlights deficiencies and ensures compliance. Risks are also identified at this stage and may include failure to follow effective evaluation procedures, decision made on subjective grounds, breach of security and so forth. Consequences of such risk may include inconsistent evaluations, possible complaints from tenderers, subjective not objective evaluation of offers, complaints from tenderers and claims of unethical or unfair practices (Bannerman, 2008a, Bannerman, 2008b).

2.8.1 Managing Procurement Risks at the Pre-contract Stage

It is critical for all parties involved in procurement projects to learn how to identify this risks, take the necessary steps to minimize and manage them from the inception of a project to its finish. However, it is noted that poor management of risk can lead to large economic losses or costly and lengthy litigation. This aspect of the discussion will give practical examples for managing and overcoming risks that arise at the pre-contract stage of a project. Procurement risk management efforts are primarily focused on identifying and documenting procurement risks (Chapman and Ward, 2004). The following steps should be followed to mitigate risk associated with procurement in the pre contract stage.

Identifying and monitoring all types of risks (funding, overstatement and understatement of needs, unanticipated price volatility from raw material or currency exchange rates) is very important and the following must be considered seriously.

At the Planning Stage

- Analyse need accurately
- Improve consultation with users
- Obtain clear statement of work and definition of need
- Obtain appropriate approvals before undertaking process
- Improve forecasting, planning and consultation with users
- Implement best practice policies, guidelines and practices
- Define the specification in terms of required outputs

Sourcing Stage

- Define the specification in terms of required outputs
- Use functional and performance specifications
- Implement a control mechanism to review specification before release
- Use an Expression of Interest or Request for Information to clarify requirements
- Improve market knowledge
- Seek industry participation
- Improve implementation of procurement policies, guidelines and practices
- Improve tender documentation and clearly identify the evaluation criteria in Request for Tenders
- Provide staff with appropriate training and experience

Evaluation Stage

- Improve tender assessment and evaluation processes
- Maintain, audit and review evaluation procedures
- Ensure that Evaluation Committee members declare any conflicts of interest
- Maintain, audit and review security procedures

- Ensure that Evaluation Committee members understand and sign Confidentiality Agreements
- Ensure evaluation criteria are appropriate and measurable
- Ensure that Evaluation Committee members sign Declaration of Conflict and Confidentiality Agreements
- Ensure evaluation criteria contain the critical factors on which the assessment of tenders will be based and that they are clearly identifiable to tenderers in tender documents. (*Department of Public Works and Service, 2006*).

KNUST



CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methods that were employed in the study. It focused on the study methods and design, sampling techniques, data gathering techniques and data analysis. These tools were employed to produce research findings that are relevant and verifiable evidence to warrant valid conclusion.

3.2 Study Design and Methods

Research strategy can be taken to mean the way in which the research objectives are questioned (Bouma *et al.*, 1995). According to Bouma *et al.* (1995) there are two types of research strategies, namely, 'quantitative research' and 'qualitative research'. Deciding on which type of research to follow, depends on the purpose of the study and the type and availability of the information which is required. This research employed a descriptive study design with quantitative data collection techniques and analysis.

3.3 Study Population

A research population can be defined as the totality of a well-defined collection of individuals or objects that have a common, binding characteristics or traits (Polit and Beck, 2010, Polit and Beck, 2013). Burns *et al.*, 1993 added that a population is defined as all elements (individuals, objects and events) that meet the sample criteria for inclusion in a study. The Nigerian National Petroleum Commission (NNPC) has a qualified and experience working staff of about nine thousand five hundred staff nationwide employees who are playing various roles to enhance the success of the organization. (Commerce, 2014)

The population of the study will include all staff of the Nigerian National Petroleum Corporation (NNPC). The study population was divided into ten (10) clusters based on the ten (10) oil producing states in Nigeria. The main reason for using this category of people is that their activities directly or indirectly have a bearing on risk assessment at the design phase of projects. The research population is depicted in table 3.1

Table 3.1: Distribution table of research population

<i>Respondents</i>	<i>Population</i>
Director of Exploration and production	14
Director of Commerce and investment	13
Director of Finance and account	11
Director of Corporate service	18
Director of Business development	12
Total	70

Source: Field survey, 2014

3.4 Sampling Technique

According to Denscombe (2008) the case study approach calls for the researcher to make choices from among several numbers of possible events, people and organizations. He further maintained that, the researcher may have to pick one or just a few examples from the group of things that are being studied. Moreover, he indicates that whatever the case and the subject matter, the case study normally depends on a deliberate and explicit choice about which case to select from among the numerous possibilities. Saunders *et al.* (2011), stated that sampling saves time and data collection is more manageable. Huberman and Miles (2002), expressed that a researcher is at liberty to choose to

conduct research on a single case or to conduct multiple case studies. The purposive sampling random techniques were used in selecting respondents for the study.

The study employed a purposive sampling technique to select senior staff of the commission because the researcher wanted to find their views in relation to the study. The study issued a total of seventy (70) questionnaires to the following departments; exploration and production, commerce and investment, finance and account, corporate service and Business development. However, only Ten (10) workers from each departments responded making a total sample of fifty (50).

3.5 Data Collection Instruments

This study used questionnaires as the main instruments to collect information from workers of NNPC. The questionnaires were structured base on the objective of the study. Particularly, the questionnaires were administered to workers within departments who work closely with procurement related issues..

3.5.1 Questionnaire

The questionnaires were developed because of the following: they offered possibility of anonymity because subjects' names were not required on the completed questionnaires. There was less opportunity for bias as they were presented in a consistent manner. Most of the items in the questionnaires were closed, which made it easier to compare the responses to each item. They required less time and energy to administer.

The questionnaires were designed based on a 5-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (5) where respondents were asked to identify their level of agreement to the questions asked. The questions were divided into sections that covered the research objectives and research questions. The sections included personal

data which is Section A, Section B covered Level of knowledge of the Public Procurement Act (2007), Section C covered Risk Management, Section D the Pre Contract Procurement Risk Management Processes Adopted by NNPC and Section E covers challenges to procurement risk management in the Nigerian oil and gas industry

3.5.2 Questionnaire Administration

The research questions were developed by the researcher and were reviewed by some experts in academia and in the oil and gas industry. Subsequently, a pilot test of the questionnaire and interview was conducted in order to identify and eliminate potential ambiguity in the questionnaire. Few questions were reviewed as a result of non-response from the respondents of the pilot study. This was done to improve the reliability and validity of the questionnaire. The questionnaires were self-administered on one-to-one basis and also through the internet to the respondents willing to fill or provide answers to the questionnaire. To improve the response rate, a number of follow-up procedures and strategies were considered, such as sending reminder surveys or notices to non-respondents. However, this was not considered to be viable, as Schneider (1985; cited in Dunn and Huss, 2004) observed that increasing the response rate may negatively affect the reliability of the information obtained. That study further states that increased pressure by a researcher on subjects to respond will result in more uninformed responses.

To overcome that, a range of measures to improve the response rate based on established principles of reciprocity, social proof, and legitimacy and authority as recommended by Bednar *et al.*, (2006) were incorporated within the survey. These included measures such as having a shorter questionnaire. The primary data collected was reviewed by the researcher to ensure maximum accuracy, legibility, completeness, consistency and to reduce ambiguity.

3.6 Data Analysis

The data obtained from respondents were coded, entered and analyzed using SPSS version 20. Descriptive statistics such as frequencies, percentages, mean and standard deviations were used to present results in tables and figures format. Some inferential statistics like factor analysis were performed on measures that could be used to overcome the challenges associated with procurement risk management at the pre-contract stage.

3.7 Validity and Reliability of the study

Reliability is defined as the degree to which a comparable approach to the research would produce similar results (Leedy and Ormrod, 2005). Fagerlin *et al.* (2007), described reliability as the degree to which the measures are free from error and therefore yield consistent results. To ensure consistency the respondents were given the survey form to complete and send directly to the researcher but not their supervisors for confidentiality purposes.

Leedy and Ormrod (2005), describe internal validity as the degree to which the researcher is able to draw “accurate conclusions” from the information obtained from the respondents. Validity is the ability of a measure to measure what is supposed to measure. Respondents were requested to complete the questionnaire and forward the completed questionnaire to the researcher, this helped to limit the influence of supervisor’s distribution. The questions were not personalized as a result, respondents were not rating themselves but how they perceive the current practices in the organization.

3.8 Ethical Issues

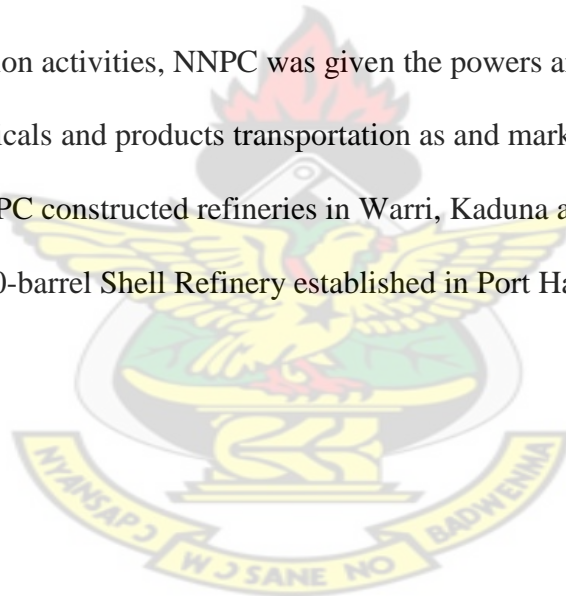
Permission was sought from the management of Nigerian National Petroleum Commission (NNPC) to undertake the research. The respondents were informed of the purpose of the research and their consent was sought so that they can participate in the

research process. The respondents were assured that the use of the responses were purely for academic purposes only.

3.9 Organizational Structure of NNPC

The Nigerian National Petroleum Corporation, NNPC, was established on April 1, 1977, this was under the statutory instrument-Decree No.33 in the April 1997 by a merger of Nigerian National Oil Corporation, NNOC. This decree enhanced the establishment of NNPC, the function of this corporation was to act on behalf of Government to adequately manage all government interests in the Nigerian Oil and gas industry (Reference for Business, 2014, Commerce, 2014).

Besides its exploration activities, NNPC was given the powers and operational interests in refining, petrochemicals and products transportation as and marketing as well between 1978 and 1989, NNPC constructed refineries in Warri, Kaduna and Port Harcourt and took over the 35,000-barrel Shell Refinery established in Port Harcourt in 1965 (Commerce, 2014).



CHAPTER FOUR

RESULTS, DATA ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter presents the results of the study from the questionnaires issued out to workers of Nigeria National Petroleum Corporation (NNPC). The results presented are in descriptive and some inferential statistics. The chapter is structured per the objective of the study.

4.2 Background Information of Respondents

This section presents the background information of respondents enrolled in the study. As shown in Table 4.1, majority (62%) of respondents had Bachelor degree and 22% disclosed having Masters level education with PhD being the least cited. A proportionately 10% of respondents who are split equally among all departments were selected to participate in the study. Most respondents (46%) enrolled in the study had worked within the organization for more than 10 years whiles 28% reported having 6 – 10 years' experience. However, 26% indicated reported working less than 5 years within the organization.

Table 4.1: Background information of respondents

<i>Variables</i>	<i>Frequency</i>	<i>Percentage</i>
Level of education		
– Bachelor degree	31	62
– Masters	11	22
– PhD	8	16
Position (Department worked within organization)	10	20
– Business Development	10	20
– Procurement officer/unit	10	20
– Corporate service	10	20
– Finance and accounts	10	20
– Exploration and production		
Years of service within the organization		
– ≤ 5 years	13	26
– 6 – 10 years	14	28
– > 10 years	23	46

Source: Field survey, 2014

Table 4.2 presents respondents view on their knowledge level on the Public Procurement Act. Their views were elicited on five point Likert Scale from strongly disagree (1) to strongly agree (5). Results indicate that most respondents were in favour that the PPA is applicable in all Government institutions, all contracts are awarded by the tender committee, procurement process is supervised by the tender committee, all tenders are checked by a tender evaluation committee, NNPC is autonomous in Procurement Process, and all contracts must pass through the procurement process. These findings has the implication that workers of NNPC had overall good knowledge about the PPA.

Table 4.2: Knowledge level of respondents on PPA

<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>Standard Deviation</i> <i>n</i>
– The PPA is applicable in all Government institutions	50	3.66	1.36
– All contracts are awarded by the tender committee	50	4.16	0.86
– Procurement process is supervised by the tender committee	50	4.44	0.50
– All tenders are checked by a tender evaluation committee	50	4.62	0.49
– NNPC is autonomous in Procurement Process	50	4.00	0.88
– All contracts must pass through the Procurement Process	50	4.12	0.84

Source: Field survey, 2014

4.3 The pre contract Procurement Risk management Processes adopted by NNPC

This section of the study presents results of respondents view on the pre-contract procurement risk management processes adopted by NNPC. As shown in Figure 4.1, all responses indicate that, risk management is necessary in the oil and gas industry in Nigeria. The study further asked respondents to elaborate on their reasons admitting the necessity of risk management. The reasons mentioned was that, risk management could mitigate the rate of risk occurring in the organization while others believe it would avoid the risk of financial crises coming out of such risks. This observation confirms what other researchers have established about the importance of risk management (Power, 2008, Stevenson and Hojati, 2007, Shen, 1997). Researchers have established that risk

management are very important process geared towards achieving a projects objective in terms of time, quality, safety and environment sustainability (Zou *et al.*, 2007, Shen, 1997).

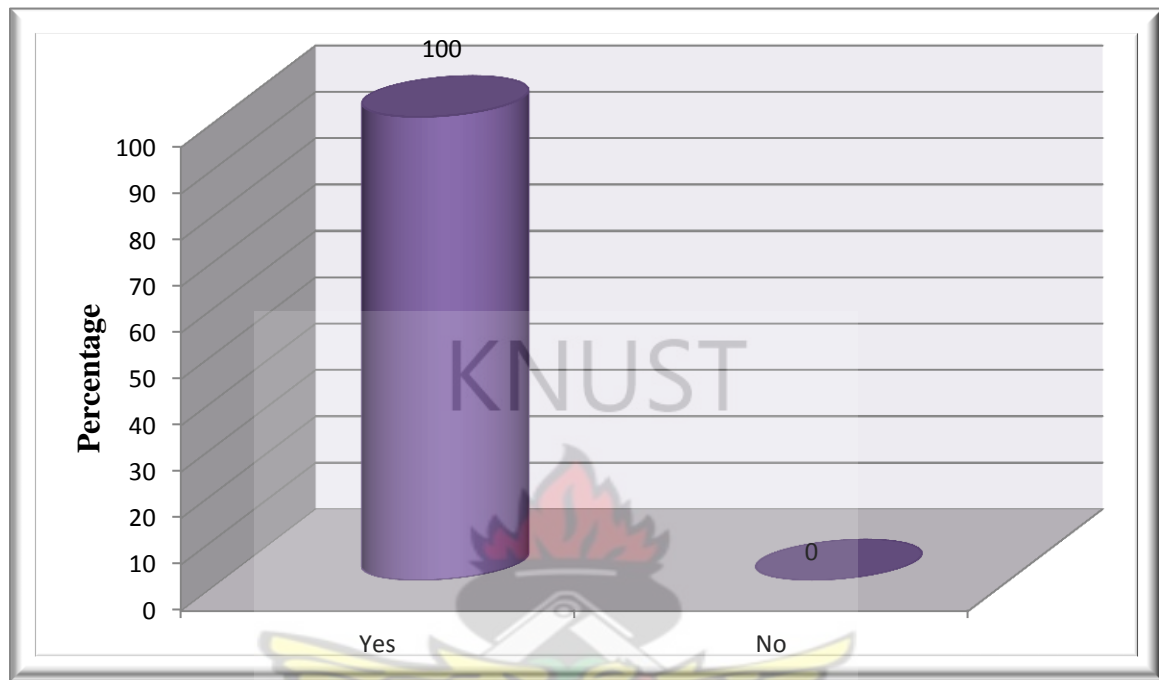


Figure 4.1: Risk Management

Source: Field survey, 2014

As Figure 4.2 demonstrates, respondents were asked to rate their level of agreement on a five point Likert Scale. Majority, 64% disclosed they strongly agree their organization adopt risk identification strategy while 28% agreed. Only 8% however reported they were not sure of such processes. Strategy adopted by the organization concur with other studies such that the project manager/consultants must be able to recognize and identify the root causes of risks associated with a project at the pre contract stage (Zou *et al.*, 2008, Rahemtulla, 1989, Zou *et al.*, 2007). The use of risk management at the pre contract stage of a project where major decisions such as choice of alignment and selection of construction methods is very essential (Uher and Toakley, 1999, Ward and Chapman, 2008). Similarly, it correspond to the findings by Raz and Michael (2001) who conceded

that a commonality among most risk management processes is the presence of systematic and unsystematic procedures aimed at identifying and mitigating inherent project risks. Also, the study asked respondents if brainstorming and meetings were part of the risk management process at the pre-contract phase. Majority, 62% strongly agreed, it is indeed adopted while 32% cited agreed. However, 6% of respondents were not sure if such process is being used at the pre-contract stage. This finding has the implication that the organization meet to discuss the probably procurement risk that could occur so that an appropriate measures are proposed. The results reinforce previous findings that suggest the use of brainstorming as strategy for procurement risk management at the pre-contract phase (Elkington and Smallman, 2002, Smith *et al.*, 2013, Chapman, 2001).

The study further elicited information on whether NNPC's top managers involvement in the process were used as measures to ensure procurement risk management processes at the pre-contract stage. Responses indicate that, most respondents (54%) strongly agreed, 38% agreed with only 8% reporting they were not sure of such processes. It is a significant step which could ensure effective procurement risk management when top managers are concern and involve in the process at the pre-contract stage. Findings also confirm what other researchers have proposed that it is essential for top level managers to support risk management process in an organization.

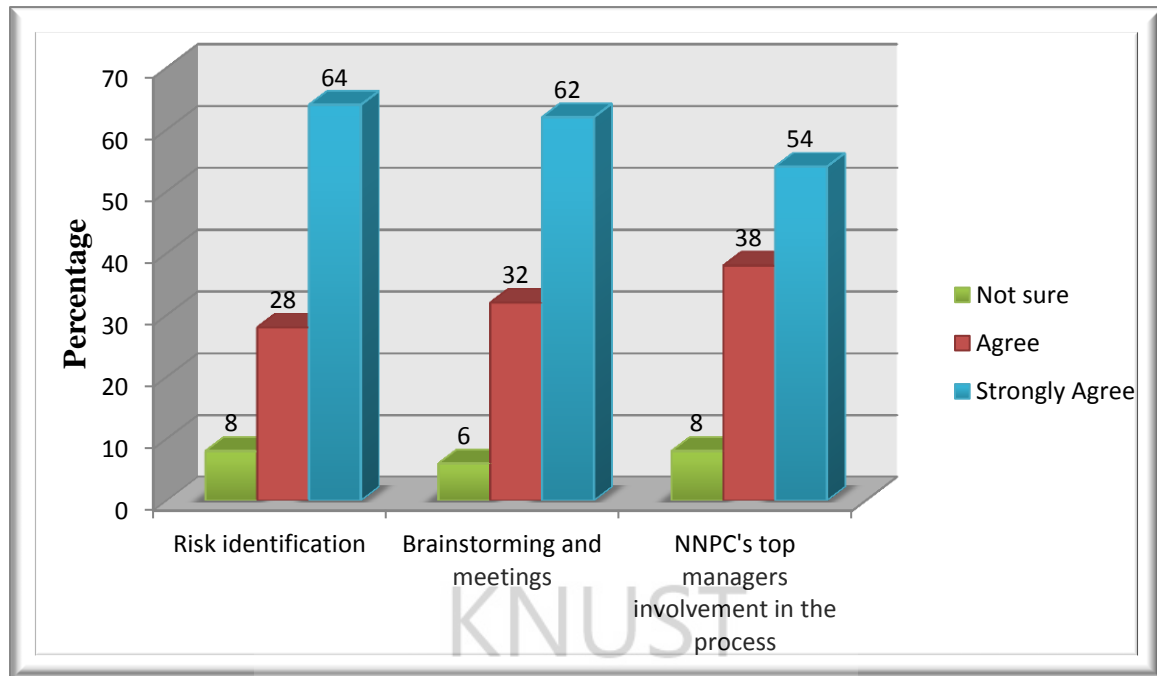


Figure 4.2: Pre-contract Procurement Risk management Processes

Source: Field survey, 2014

4.4: Challenges associated with NNPC's Procurement risk Management

As part of the objective of the study, the researcher sought to identify the challenges associated with NNPC's procurement risk management at the pre contract stage. In view of this, some questions were asked from staff of NNPC to obtain information on the challenges they encounter at this stage. The responses are categorized and characterized as Planning, Sourcing and Evaluation and Negotiation phase and discussed below;

4.4.1 Challenges at the Planning Stage

The study elicited views of respondents with a Likert –scale of five responses ranging from strongly disagree (1) to strongly agree (5). As shown in Table Figure 4.3, majority of respondents agreed that there is understatement of need (mean=3.94) and overstatement of need (mean=3.82) at the planning stage which becomes a challenge to procurement risk management in the Nigeria oil and gas industry. This findings is in

agreement with the observation by Chapman and Ward (2004) who suggested that the planning stage is characterized with lots of risks including understatement of the need. An understatement of the need could lead to waste of money and purchase of unsuitable products or services. The challenge arising out of overstatement of need could leads to poor competition, totally unacceptable purchase, and time lost. Respondents further agreed that there is imperial timeframe (mean=3.82) which becomes a challenge. Majority were strongly in favour that there is insufficient fund (mean=4.5) in procurement risk management. Consistent with other studies, funding usually becomes a challenge when organizations plan to manage procurement risk particularly at the planning stage (Nagali et al., 2008, Ellram et al., 2004, Lewis and Roehrich, 2009). Despite these findings, the mean responses indicate that respondents were not sure there is misinterpretation of user needs as a challenge to the procurement risk management.

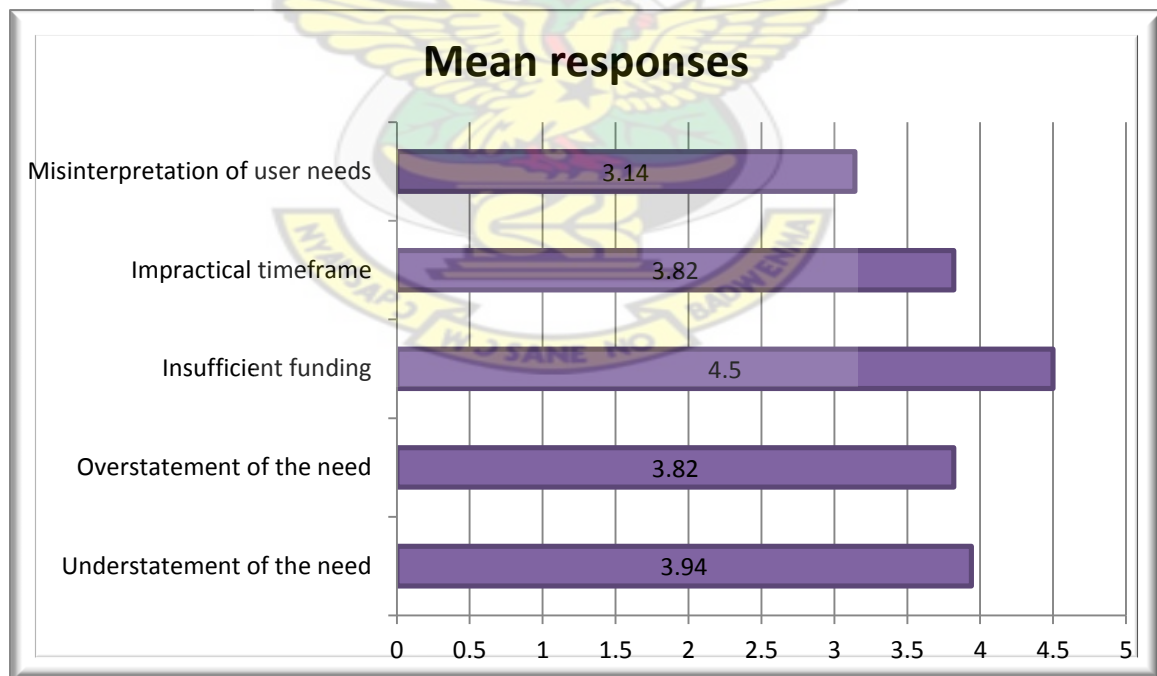


Figure 4.3: Challenges at the Planning stage

Source: Estimation from Field survey, 2014

4.4.2 Challenges at the Sourcing Stage

As shown in Table 4.3, majority of respondents were in favour that the terms and conditions were unacceptable to tenderers (mean=4.38) which was a challenge to the procurement risk management. Majority again strongly agreed that there was failure to identify potential sources which a challenge to procurement risk management. Respondents also agreed there was inadequate statement of requirements (mean=3.76) and biased specifications (mean=3.76). This finding is consistent with previous studies. For instance, Hillson (2003) suggested that, the sourcing stage is faced with some risks which are characterized by narrow definition or commercial specification, biased specifications, inadequate statement of requirements and failure to identify potential sources.

Table 4.3: Challenges at the Sourcing Stage

Variables	N	Mean	Rank	Standard Deviation
– Biased specifications	50	3.76	4th	1.08
– Inadequate statement of requirements	50	3.84	3rd	0.71
– Failure to identify potential sources	50	4.18	2nd	0.62
– Terms and conditions unacceptable to tenderers	50	4.38	1st	0.46
– Lack of offers from suitable tenderers	50	3.64	5th	0.82

Source: Field survey, 2014

4.4.3 Challenges at Evaluation and Negotiation

Table 4.4 presents the challenges to procurement risk management at the evaluation and negotiation stage. Majority of the respondents were in favour of the fact that there is failure to follow effective evaluation procedures (mean=4.32) such that offers fail to meet the needs (mean=4.52). Respondents however disagreed that there is subjective decision by Procurement officers (mean=1.92) as a challenge to procurement risk management.

Table 4.4: Challenges at Evaluation and Negotiation

<i>Variables</i>	<i>N</i>	<i>Mean</i>	<i>Rank</i>	<i>Standard Deviation</i>
– Failure to follow effective evaluation procedures	50	4.32	2nd	1.13
– Subjective decision by Procurement officers	50	1.92	4th	0.63
– Breaches of security	50	3.38	3rd	1.10
– Offers failing to meet needs	50	4.52	1st	5.77

Source: Field survey, 2014

4.5: Measures to Address the Challenges of Procurement Risk Management

This section of the study presents measures that could be employed to address the challenges of procurement risk management. Respondents views were elicited on a Likert – scale of five responses ranging from strongly disagree (1) to strongly agree (5). As shown in Table 4.5, majority of respondents were in favour that all the constructs asked could be used as a measure to address the procurement risk challenges at the pre-contract stage (mean>4).

Table 4.5: Measures to Address challenges of Procurement Risk Management

<i>Variables</i>	<i>Mean</i>	<i>Rank</i>	<i>Std. Dev.</i>	<i>N</i>
– Analysing needs accurately	4.58	1st	.577	48
– Improving consultation with users	4.29	6th	.582	48
– Obtaining clear statement of work and definition of need	4.56	2nd	.501	48
– Obtaining appropriate approvals before undertaking process	4.46	3rd	.504	48
– Improved forecasting, planning and consultation with users	4.42	5th	.498	48
– Implement a control mechanism to review specification before release	4.44	4th	.649	48
– Using expression of interest or request for information to clarify requirements	4.15	7th	.505	48

Source: Field survey, 2014

The study performed factor analysis to identify underlying variables, or factors, that explain the pattern of correlations within a set of observed variables. Factor analysis is usually used to reduce data such that one could identify a small number of factors that explain most of the variance that is observed in a much larger number of noticeable variables (SPSS 17.0 Help).

To perform this analysis, the researcher first sought to perform validity test to examine whether the instrument is measuring what it is intended to measure. As shown in Table 4.6, the KMO (Kaiser-Meyer-Olkin) is 0.501 which indicates that the factor analysis is good since it is exactly the minimum requirement of 0.50 for overall Measure of Sampling Adequacy (MSA) (Child, 2006, Kline, 2014, Kim and Mueller, 1978). KMO Measure informs the researcher that the correlation matrix is appropriate for factor analysis (Dziuban and Shirkey, 1974, Kline, 2014). The results found the Bartlett's test of

Sphericity value of observed significance level at 0.000, which is an indication that it is small enough to further with factor analysis for this data set.

Table 4.6: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.501
	Approx. Chi-Square	53.793
Bartlett's Test of Sphericity	df	21
	Sig.	.000

As shown in Table 4.7, the first component is marked by high loadings on item 2, 3 and 4 with the second component is marked by high loadings on item 5. The third component is finally marked on high loading on item 6 and 7.

Table 4.7: Rotated Component Matrix ^a

	Component		
	1	2	3
1. Analysing needs accurately	.205	-.719	-.379
2. Improving consultation with users	.547	-.226	-.103
3. Obtaining clear statement of work and definition of need	.775	.368	.042
4. Obtaining appropriate approvals before undertaking process	.819	-.073	.275
5. Improved forecasting, planning and consultation with users	.094	.853	-.153
6. Implement a control mechanism to review specification before release	.342	-.303	.683
7. Using expression of interest or request for information to clarify requirements	-.053	.231	.812

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

As shown in Table 4.8, the three factors explain 67.2% of the total variances in the variables which were included in the components. The three factors had an Eigen value of more than one after the extraction which accounts for a different percentage of variance to the rotation sum of square loadings. The components explain 24.8 per cent, 22.61per cent and 19.73 per cent of the variance respectively.

Table 4.8: Total Variance Explained

<i>Component</i>	<i>Initial Eigenvalues</i>			<i>Rotation Sums of Squared Loadings</i>		
	Total	%	of Cumulative	Total	%	of Cumulative
		Variance	%		Variance	%
1	1.911	27.300	27.300	1.741	24.874	24.874
2	1.644	23.492	50.792	1.583	22.611	47.485
3	1.150	16.424	67.216	1.381	19.731	67.216
4	.906	12.949	80.165			
5	.599	8.556	88.721			
6	.475	6.782	95.503			
7	.315	4.497	100.000			

(Extraction Method: Principal Component Analysis).

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter presents the summary of findings, conclusions and makes recommendations for NNPC and all other stakeholders. The conclusions are made from the findings and discussion from the previous chapter. The conclusion is however presented per the objective of the study.

5.2 Summary of Key Findings

The summary is presented under the sub-headings below;

5.2.1 The Pre contract Procurement Risk management Processes Adopted by NNPC

The study revealed that risk management is necessary in the Oil and Gas industry like the NNPC such that it could mitigate the rate of risk occurring in the organization and also avoid the risk of financial crises coming out of such risks. Results indicate that the pre-contract procurement risk management adopted by NNPC included risk identification, brainstorming and meetings and finally involvement of top managers of NNPC. These findings were suggested by most workers of NNPC who were enrolled in the study.

5.2.2 Challenges Associated with NNPC's Procurement Risk Management

The overall, findings of the study in relations to challenges associated with procurement risk management at pre-contract stage is categorized into the planning, sourcing and evaluation and negotiation stages. Findings revealed that the planning phase is confronted with challenges characterized as understatement and overstatement of need as significant number of the study strongly agreed. Results further found challenges such as impractical timeframe and insufficient fund associated with the procurement risk management at the

pre-contract stage. Further, respondents were not sure there was misinterpretation of user needs to manifest as a challenge at the pre-contract stage.

At the sourcing stage, the study concludes there are challenges such that most respondents strongly agreed that the terms and conditions were unacceptable to tenderers which could be a challenge at the pre-contract stage. The findings further conclude on challenges characterized by failure to identify potential sources, inadequate statement of requirement and some level of biased specifications. The challenges at the evaluation and negotiation stage were characterized by failure to follow effective evaluation procedures and offers failing to meet the needs. Finding finally concludes that, most respondents were not in favour that there is subjective decision by procurement officers to emerge as a challenge to procurement risk management at the pre-contract stage.

5.2.3 Measures to Address the Challenges of Procurement Risk Management

The study results revealed that most respondents were in favour on measures to overcome challenges to procurement risk management from the mean responses. The measures agreed by most respondents include; analysing needs accurately, improving consultation with users, obtaining clear statement of work and definition of need, obtaining appropriate approvals before undertaking process, improved forecasting, planning and consultation with users, implement a control mechanism to review specification before release and using expression of interest or request for information to clarify requirements. The study further performed factor analysis to identify underlying variables that explain the pattern of correlations within a set of observed variables. Three factors were identified which explain 67.2% of the total variances in the variables which were included in the components. These are analysing needs accurately, improving consultation with users and obtaining clear statement of work and definition of need

5.3 Recommendations

It has generally been revealed that Risk management forms an integral part of every organization of which the oil and gas industry is no exception. Therefore, it is imperative to ensure that risks are properly managed to achieve growth of the oil and gas industry. This section of the study makes recommendation to NNPC and other major stake holders based on the results and conclusions made from the previous section. The recommendations are presented below;

5.3.1 Strengthening Current Procurement Risk Management Process

The study result demonstrated that the pre-contract procurement risk management process adopted by NNPC were risk identification, brainstorming and meetings and NNPC top managers' involvement in the process. The study therefore recommends that efforts be made to strengthen the current processes to further ensure more effective procurement risk management.

5.3.2 Modernized and Technological Way of Managing Risk

The study further recommends measures to institute programmes that would ensure more technological and modernized ways of procurement risk management at the pre-contract stage should be a priority of the NNPC like softwares that tracking commodity indices on a frequent basis, tag risky suppliers and segments in there procurement systems, include a risk factor in their supply or price forecast.

5.3.3 Expanding Timeframe and Source of Funding for Risk Management Activities

The study reveals some challenges are at the planning stage such that there is impractical timeframe and insufficient fund. The time to implement the risk management process becomes limited such that the process may not be properly implemented within the

timeframe. It is therefore recommended based on this empirical evidence that, efforts be made to ensure much more time which would practically sound to achieve the procurement risk management target of the NNPC. Also, previous studies from the literature reviewed that the lost that could occur to an organization due to risk could lead to a possible shut down of such establishment. In relation to the challenge of funding to support risk management activities, it is recommended that efforts be made to generate funds from all possible sources to support such activities since the risk could cost the organization more than gains. Government and all other stakeholders who work closely with the organization could help in this regards. Similarly, the organization could make it a priority to create internally generated fund which could be directed solely to the activities of the procurement risk management.

The study again found challenges at the sourcing stage which are characterized by failure to identify potential sources, inadequate statement of requirement and some level of biased specifications. It is therefore recommended that the NNPC should institute measures to improve the statement of requirement and also target issues of bias specification within the procurement risk management at the pre-contract stage.

5.3.4 Implementing Proposed Measures to Challenges

The study results identified measures that could be implemented to overcome challenges associated with the managing procurement risk. It is therefore recommended that efforts be made to implement such measures to mitigate the probability of procurement risk.

5.4 Conclusions to the Study

The findings from the study established that although the procurement risk management at the pre-contract stage were characterized by risk identification, brainstorming and meetings as well as involvement of top managers of NNPC, it was faced with challenges.

Thus, in spite of efforts being made to mitigate procurement risk, the challenges were evidence at the planning, sourcing as well as evaluation and negotiation stages. The findings are similar to findings from other studies on procurement risk management.

5.5 Recommendation for Future Research

Research of procurement risk management still has inadequate information especially at the pre-contract stage. The study therefore encourages future research to focus much on the subject within other public institutions in Nigeria.



REFERENCES

- Adebola, D. F., Okoro, J., & Nwasike, O. (2006). *Building local capability: a case study of Agbami project*. Paper presented at the A paper presented at the 30th SPE Annual International Conference and Exhibition (NAICE 2006), Abuja, Nigeria 31st July–2nd August.
- Agusto, O. (2002). Industry Report-Oil and Gas (Upstream) conducted by Agusto & Co. Limited, April.
- Alix Partners. (2014). Corruption Risk in the Oil and Gas Industry Identifying—and Avoiding—the Potential Pitfalls. Retrieved September 30,, 2014
- Ariweriokuma, S. (2008). *The political economy of oil and gas in Africa: the case of Nigeria*: Routledge.
- Atakpu, L. (2007). *Resource-based conflicts: challenges of oil extraction in Nigeria*. Paper presented at the European Conference hosted by the German EU Council Presidency (March 29 and 30), Berlin, Germany.
- Baker, S., Ponniah, D., & Smith, S. (1999). Risk response techniques employed currently for major projects. *Construction Management & Economics*, 17(2), 205-213.
- Balimwezo, R. (2009). *A comparative study of local and foreign construction firms' participation in donor funded road construction projects. a case study of Uganda*. Makerere University.
- Baloi, D., & Price, A. D. (2003). Modelling global risk factors affecting construction cost performance. *International Journal of Project Management*, 21(4), 261-269.
- Bannerman, P. L. (2008a). *Defining project success: a multilevel framework*. Paper presented at the Project Management Institute Research Conference 2008, Proceedings.
- Bannerman, P. L. (2008b). Risk and risk management in software projects: A reassessment. *Journal of Systems and Software*, 81(12), 2118-2133.
- Bowersox, D. J., Closs, D. J., & Cooper, M. B. (2002). *Supply chain logistics management* (Vol. 2): McGraw-Hill New York.
- Brammer, S., & Walker, H. (2011). Sustainable procurement in the public sector: an international comparative study. *International Journal of Operations & Production Management*, 31(4), 452-476.
- Cabral, L., Cozzi, G., Denicolo, V., Spagnolo, G., & Zanza, M. (2006). Procuring innovation.
- Cave, J., & Frinking, E. (2007). Public procurement for R&D. *University of Warwick*, 24.
- Chapman, C., & Ward, S. (2004). Why risk efficiency is a key aspect of best practice projects. *International Journal of Project Management*, 22(8), 619-632.

- Chapman, R. J. (2001). The controlling influences on effective risk identification and assessment for construction design management. *International Journal of Project Management*, 19(3), 147-160.
- Child, D. (2006). *The essentials of factor analysis*: Bloomsbury Publishing.
- Collier, P., & Hoeffler, A. (2004). Greed and grievance in civil war. *Oxford economic papers*, 56(4), 563-595.
- Commerce. (2014). Nigerian National Petroleum Corporation(NNPC); Company Description Retrieved September 30,, 2014, from http://www.commerce.com.tw/modules.php?modules=company&action=company_inside&ID=E0219654#inquirynow
- Csaba, C. (2006). *Investigating the decision making practice of public procurement procedures*. Paper presented at the second International Public Procurement Conference Proceedings.
- Denscombe, M. (2008). Communities of practice a research paradigm for the mixed methods approach. *Journal of mixed methods research*, 2(3), 270-283.
- Dziuban, C. D., & Shirkey, E. C. (1974). When is a correlation matrix appropriate for factor analysis? Some decision rules. *Psychological Bulletin*, 81(6), 358.
- Ebrahimnejad, S., Mousavi, S. M., & Seyrafiانpour, H. (2010). Risk identification and assessment for build–operate–transfer projects: A fuzzy multi attribute decision making model. *Expert Systems With Applications*, 37(1), 575-586.
- Edler, J., & Georghiou, L. (2007). Public procurement and innovation—Resurrecting the demand side. *Research policy*, 36(7), 949-963.
- Elkington, P., & Smallman, C. (2002). Managing project risks: a case study from the utilities sector. *International Journal of Project Management*, 20(1), 49-57.
- Ellram, L. M., Tate, W. L., & Billington, C. (2004). Understanding and managing the services supply chain. *Journal of Supply Chain Management*, 40(3), 17-32.
- Fagerlin, A., Ubel, P. A., Smith, D. M., & Zikmund-Fisher, B. J. (2007). Making numbers matter: Present and future research in risk communication. *American Journal of Health Behavior*, 31(Supplement 1), S47-S56.
- Fearon, J. D., & Laitin, D. D. (2003). Ethnicity, insurgency, and civil war. *American political science review*, 97(01), 75-90.
- Frynas, J. G. (2000). *Oil in Nigeria: Conflict and litigation between oil companies and village communities* (Vol. 1): LIT Verlag Münster.
- Gavin, M., & Hausmann, R. (1998). Nature, Development, and Distribution in Latin America. Evidence on the Role of Geography, Climate, and Natural Resources: Working Paper, Inter-American Development Bank, Office of the Chief Economist.

- Hackenbruch, M., & Pluess, J. (2011). Commercial value from sustainable local benefits in the extractive industries: Local content. *BSR Briefing Note. Business for Social Responsibility*.
- Handfield, R., Sroufe, R., & Walton, S. (2005). Integrating environmental management and supply chain strategies. *Business Strategy and the Environment*, 14(1), 1-19.
- Hillson, D. (2003). Using a risk breakdown structure in project management. *Journal of Facilities Management*, 2(1), 85-97.
- Huberman, M., & Miles, M. B. (2002). *The qualitative researcher's companion*: Sage.
- Humphreys, P., Wong, Y., & Chan, F. (2003). Integrating environmental criteria into the supplier selection process. *Journal of Materials Processing Technology*, 138(1), 349-356.
- Hunja, R. R. (2003). Obstacles to public procurement reform in developing countries. *Public Procurement: The Continuing Revolution, Kluwer Law International*.
- Imi, A. (2007). Aid and competition in procurement auctions: a case of highway projects. *Journal of International Development*, 19(7), 997-1015.
- Iranmanesh, H., Jalili, M., & Pirmoradi, Z. (2007). *Developing a new structure for determining time risk priority using risk breakdown matrix in EPC projects*. Paper presented at the Industrial Engineering and Engineering Management, 2007 IEEE International Conference on.
- Jaafari, A. (2001). Management of risks, uncertainties and opportunities on projects: time for a fundamental shift. *International Journal of Project Management*, 19(2), 89-101.
- Johnston, F. (2004). Innovations in procuring highways management and maintenance. *Proceedings: Safer highways, proven and innovation technologies, June, 12*.
- Kim, J.-O., & Mueller, C. W. (1978). *Factor analysis: Statistical methods and practical issues* (Vol. 14): Sage.
- Kline, P. (2014). *An easy guide to factor analysis*: Routledge.
- Kogan, K., & Tapiero, C. S. (2007). *Supply Chain Games: Operations Management and Risk Valuation: Operations Management and Risk Evaluation* (Vol. 113): Springer.
- Koh, S. L., Demirbag, M., Bayraktar, E., Tatoglu, E., & Zaim, S. (2007). The impact of supply chain management practices on performance of SMEs. *Industrial Management & Data Systems*, 107(1), 103-124.
- Kouvelis, P., Chambers, C., & Wang, H. (2006). Supply chain management research and production and operations management: review, trends, and opportunities. *Production and Operations Management*, 15(3), 449-469.

- Le Billon, P. (2001). The political ecology of war: natural resources and armed conflicts. *Political geography*, 20(5), 561-584.
- Lee, J., Lee, Y., & Kim, J. (2013). Assessing the Risks of Asian Development Projects: A Theoretical Framework and Empirical Findings. *Journal of Asian Architecture and Building Engineering*, 12(1), 25-32.
- Leedy, P. D., & Ormrod, J. E. (2005). Practical research. *Planning and design*, 8.
- Lewis, M. A., & Roehrich, J. K. (2009). Contracts, relationships and integration: towards a model of the procurement of complex performance. *International Journal of Procurement Management*, 2(2), 125-142.
- Loosemore, M. (2010). Using multimedia to effectively engage stakeholders in risk management. *International Journal of Managing Projects in Business*, 3(2), 307-327.
- Mahdavy, H. (1970). The patterns and problems of economic development in rentier states: The case of Iran. *life*, 1000, 1.
- Mangan, J., Lalwani, C., & Butcher, T. (2008). *Global logistics and supply chain management*: John Wiley & Sons.
- Maria, L., & Sandrine, T. (2010). The Risk Management Toolbox. Retrieved November, 2, 2014, from http://www.iso.org/iso/home/news_index/news_archive/news.htm?Refid=Ref1586
- Morrow, E. W. (2012). Oil and Gas Industry Megaprojects: Our Recent Track Record. *Oil and Gas Facilities*, 1(02), 38-42.
- Miller, R., & Lessard, D. R. (2000). *The strategic management of large engineering projects: Shaping institutions, risks, and governance*: MIT press.
- Mills, A. (2001). A systematic approach to risk management for construction. *Structural survey*, 19(5), 245-252.
- Mojtahedi, S. M. H., Mousavi, S. M., & Makui, A. (2010). Project risk identification and assessment simultaneously using multi-attribute group decision making technique. *Safety science*, 48(4), 499-507.
- Mousavi, S. M., Tavakkoli-Moghaddam, R., Azaron, A., Mojtahedi, S., & Hashemi, H. (2011). Risk assessment for highway projects using jackknife technique. *Expert Systems With Applications*, 38(5), 5514-5524.
- Mullins, J. W., Forlani, D., & Walker, O. C. (1999). Effects of organizational and decision-maker factors on new product risk taking. *Journal of Product Innovation Management*, 16(3), 282-294.
- Nagali, V., Hwang, J., Sanghera, D., Gaskins, M., Pridgen, M., Thurston, T., Shoemaker, G. (2008). Procurement risk management (PRM) at Hewlett-Packard company. *Interfaces*, 38(1), 51-60.

- Nwosu, H., Nwachukwu, I., Ogaji, S., & Probert, S. (2006). Local involvement in harnessing crude oil and natural gas in Nigeria. *Applied Energy*, 83(11), 1274-1287.
- Nyiri, L., Osimo, D., Özcivelek, R., Centeno, C., & Cabrera, M. (2007). Public Procurement for the Promotion of R&D and Innovation in ICT. *Institute for Prospective Technological Studies. Luxembourg: Office for Official Publications of the European Communities.*
- O'Neill, T. (2007). Curse of the black gold. *National Geographic*, 2, 2007.
- Okolo, C. (2006). *Nigerian content—expanding horizons*. Paper presented at the A paper presented at the Nigerian Oil and Gas Conference, Lagos Nigeria. Nigerian Content website documents: <http://www.nigcontent.com/index.php>.
- Polit, D. F., & Beck, C. T. (2010). Generalization in quantitative and qualitative research: Myths and strategies. *International journal of nursing studies*, 47(11), 1451-1458.
- Polit, D. F., & Beck, C. T. (2013). *Essentials of nursing research*: Lippincott Williams & Wilkins.
- Power, M. (2008). Organized uncertainty: Designing a world of risk management. *OUP Catalogue*.
- Quesada, G., González, M. E., Mueller, J., & Mueller, R. (2010). Impact of e-procurement on procurement practices and performance. *Benchmarking: An International Journal*, 17(4), 516-538.
- Rahemtulla, A. R. (1989). Pre-contract procedures and design management of fast track projects.
- Raz, T., & Michael, E. (2001). Use and benefits of tools for project risk management. *International Journal of Project Management*, 19(1), 9-17.
- Reference for Business. (2014). Nigerian National Petroleum Corporation - Company Profile, Information, Business Description, History, Background Information on Nigerian National Petroleum Corporation. Retrieved September 30, 2014, from <http://www.referenceforbusiness.com/history2/49/Nigerian-National-Petroleum-Corporation.html>
- Robinson, F., Aminah, Revay, S. O., Rowan, D., & Mousseau, D. (2006). Assessing performance trends on industrial construction mega projects. *Cost engineering*, 48(10), 16-21.
- Ross, M. L. (2004). What do we know about natural resources and civil war? *Journal of peace research*, 41(3), 337-356.
- Saunders, M. N., Saunders, M., Lewis, P., & Thornhill, A. (2011). *Research methods for business students, 5/e*: Pearson Education India.
- Shaw, F. N. (2010). *The Power to Procure: A Look inside the City of Austin Procurement Program*. Texas State University.

- Shen, L. (1997). Project risk management in Hong Kong. *International Journal of Project Management*, 15(2), 101-105.
- Skogdalen, J. E., & Vinnem, J. E. (2012). Quantitative risk analysis of oil and gas drilling, using Deepwater Horizon as case study. *Reliability Engineering & System Safety*, 100, 58-66.
- Smith, N. J., Merna, T., & Jobling, P. (2013). *Managing risk in construction projects*: John Wiley & Sons.
- Stevenson, W. J., & Hojati, M. (2007). *Operations management* (Vol. 8): McGraw-Hill/Irwin Boston.
- Tas, B. K. O., Ozcan, R., & Onur, I. (2008). Public Procurement Auctions and Competition in Turkey.
- Tavakkoli-Moghaddam, R., Mojtahedi, S., Mousavi, S., & Aminian, A. (2009). A *jackknife technique to estimate the standard deviation in a project risk severity data analysis*. Paper presented at the Computers & Industrial Engineering, 2009. CIE 2009. International Conference on.
- The Official Board. (2014). Organizational Chart of NNPC. Retrieved September, 30,, 2014, from <http://www.theofficialboard.com/org-chart/nnpc>
- Tordo, S. (2011). *National oil companies and value creation*: World Bank Publications.
- Uher, T. E., & Toakley, A. (1999). Risk management in the conceptual phase of a project. *International Journal of Project Management*, 17(3), 161-169.
- Van Thuyet, N., Ogunlana, S. O., & Dey, P. K. (2007). Risk management in oil and gas construction projects in Vietnam. *International journal of energy sector management*, 1(2), 175-194.
- Waara, F. (2008). Mitigating contractual hazards in public procurement: a study of Swedish local authorities. *Construction Management and Economics*, 26(2), 137-145.
- Walker, H., & Phillips, W. (2009). Sustainable procurement: emerging issues. *International Journal of Procurement Management*, 2(1), 41-61.
- Ward, S., & Chapman, C. (2008). Stakeholders and uncertainty management in projects. *Construction Management and Economics*, 26(6), 563-577.
- Wickenberg, B. (2004). Translation of sustainability into public procurement practices in Swedish municipalities. *Unpublished, MSc Thesis, Lund University*.
- Williams, T. (1995). A classified bibliography of recent research relating to project risk management. *European Journal of Operational Research*, 85(1), 18-38.
- Zayed, T., Amer, M., & Pan, J. (2008). Assessing risk and uncertainty inherent in Chinese highway projects using AHP. *International Journal of Project Management*, 26(4), 408-419.

- Zou, P. X., Redman, S., & Windon, S. (2008). Case studies on risk and opportunity at design stage of building projects in Australia: Focus on safety. *Architectural Engineering and Design Management*, 4(3-4), 221-238.
- Zou, P. X., Zhang, G., & Wang, J. (2007). Understanding the key risks in construction projects in China. *International Journal of Project Management*, 25(6), 601-614.

KNUST



APPENDIX

QUESTIONNAIRE

This questionnaire is designed to categorize and propose better risk management framework for managing procurement risk in the Nigerian oil and gas industry. Kindly complete this questionnaire as objectively as possible. The information given out is solely for academic purpose and would be treated as confidential. Thank you.

A. Personal Information

Write or tick (✓) the appropriate response to each question

1. Level of education: Degree Master Phd. Others.....
2. Position of respondent.....
3. How long have you been with NNPC?
Less than 2years 2-5years 5- 10 years Above 10 years

Section B: Level of knowledge of the Public Procurement Act (2007)

The following statements indicate your level of knowledge regarding the Act. Indicate your level of agreement or disagreement with the statements by making a tick (✓).

Statement	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
4. The Act is applicable to all government institutions in Nigeria					
5. All contracts in the oil and gas industry are awarded by the tender committee					
6. Procurement process is					

supervised by a tender committee					
7. A tender evaluation committee check all tenders					
8. the NNPC is autonomous in procurement processes					
9. All contracts in the oil and gas industry must pass through the procurement process					

KNUST

Section C: Risk Management

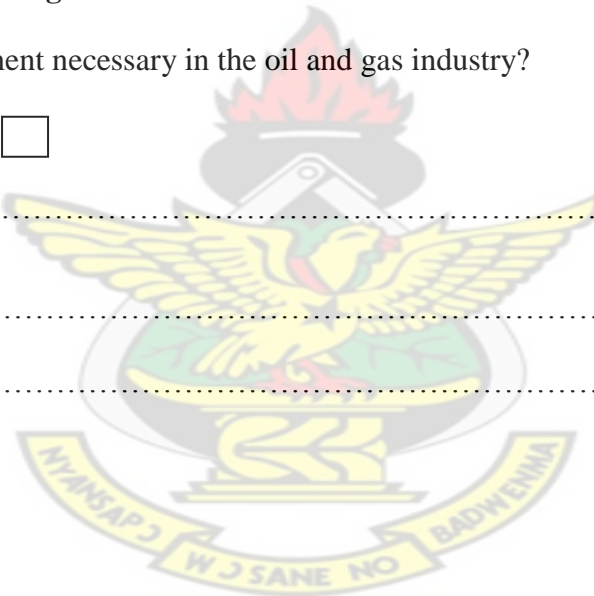
10. Is risk management necessary in the oil and gas industry?

Yes No

11. Explain answer

.....

.....



Section D: The Pre Contract Procurement Risk Management Processes Adopted By NNPC

Risk Management Processes	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
12. Identifying the risk					
13. Brainstorming and meetings 14. Involvement of NNPC's top managers in the process					

Section E: To what extent do you agree the following are challenges to procurement risk management in the Nigerian oil and gas industry?

Planning

Challenges	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
15. Understatement of the need					
16. Overstatement of the need					
17. Insufficient funding					
18. Impractical timeframe					
19. Misinterpretation of user needs					

Sourcing

Challenges	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
20. biased specifications					
21. inadequate statement of requirements					
22. failure to identify potential sources					
23. Terms and conditions unacceptable to tenderers					
24. lack of offers from suitable tenderers					

Evaluation and Negotiation

Challenges	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
25.failure to follow effective evaluation procedures					
26. subjective decision by procurement officers					
27. Breaches of security					
28. Offers failing to meet needs					
Other Challenges not included in the list above					
29.					
30.					
31.					
32.					

Additional comments

.....

.....

Section E: Measures to Address the Challenges of Procurement Risk Management

Challenges	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
33. Analyzing needs accurately					
34. Improving consultation with users					
35. Obtaining clear statement of work and definition of need					
36. Obtaining appropriate approvals before undertaking process					
37. Improved forecasting, planning and consultation with users					
38. Implement a control mechanism to review specification before release					
39. Using Expression of Interest or Request for Information to clarify requirements					
40. Provided staff with appropriate tender assessment and evaluation training and experience					

41. Improve tender assessment and evaluation processes					
42. Ensured that Evaluation Committee members sign Declaration of Conflict and Confidentiality Agreements					
Other Measures to Address the Challenges					
43.					
44.					
45.					
46.					

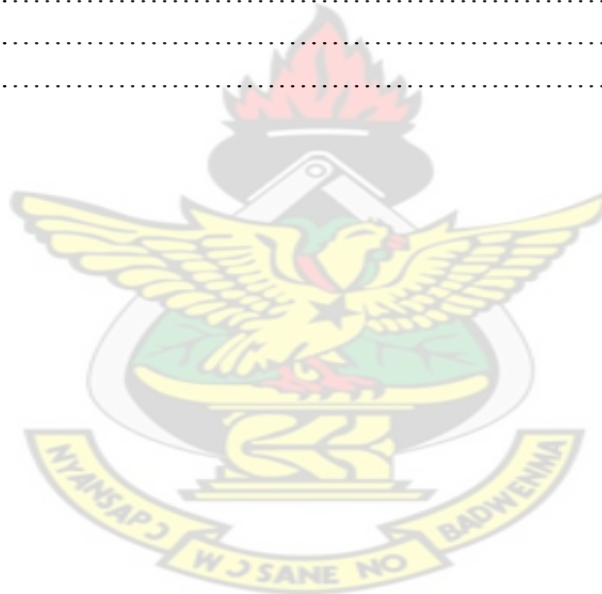
Additional comments

KNUST

.....

.....

.....



ORGANISATIONAL CHART OF (NNPC)

BOARD MEMBERS

DEPARTMENTS

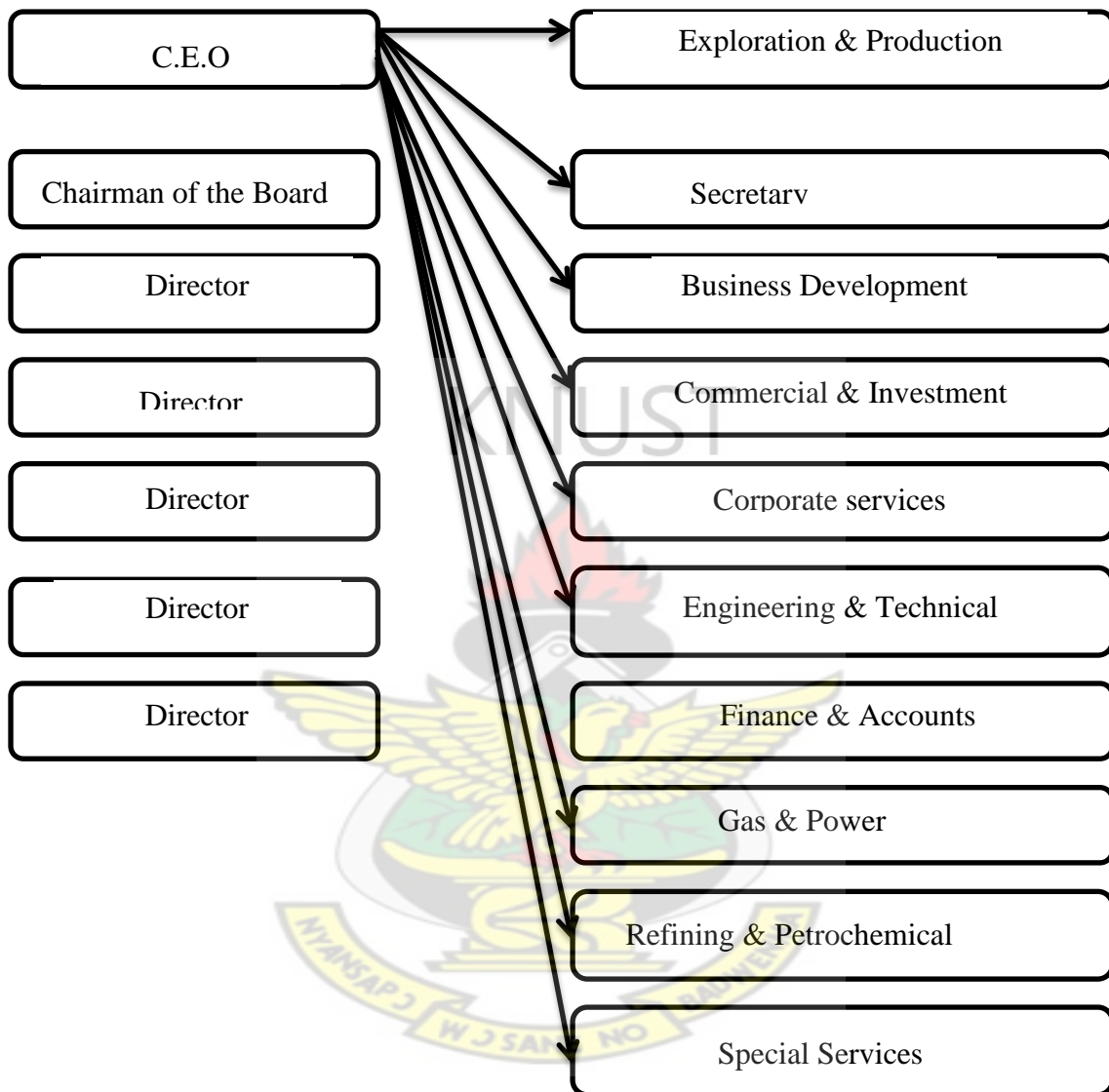


Figure 3.1 Organizational Chart of NNPC

Source: (The Official Board, 2014)