

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

COLLEGE OF ARCHITECTURE AND PLANNING

DEPARTMENT OF BUILDING TECHNOLOGY

**KNUST**

**EMPIRICAL UNDERSTANDING OF THE STATUS OF PROFESSIONAL PROJECT  
MANAGEMENT PRACTICES IN THE GHANAIAN BUILDING INDUSTRY**

BY

**KISSI ERNEST B.Sc. (Hons)**

A THESIS PRESENTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR A  
DEGREE OF MASTER OF PHILOSOPHY IN BUILDING TECHNOLOGY

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**DECLARATION**

I hereby declare that this work is the result of my own original research and this thesis has neither in whole nor in part been prescribed by another degree elsewhere. References to other people’s work have been duly cited

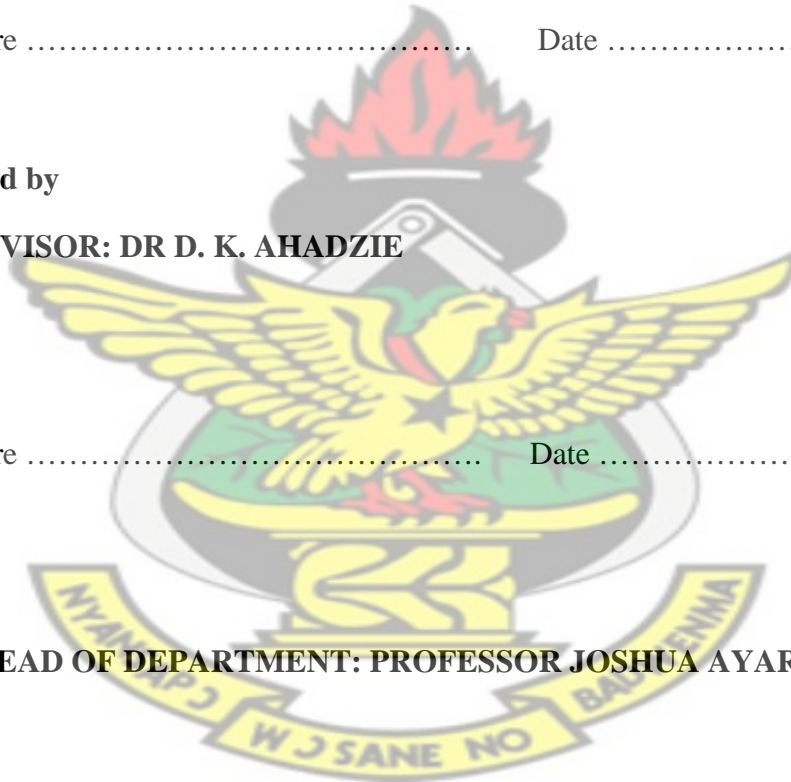
**STUDENT: KISSI ERNEST**

**KNUST**

Signature ..... Date .....

**Certified by**

**SUPERVISOR: DR D. K. AHADZIE**



Signature ..... Date .....

**THE HEAD OF DEPARTMENT: PROFESSOR JOSHUA AYARKWA**

Signature ..... Date .....

## ABSTRACT

Professional project management practice has become a vital discipline in the modern construction practices in the world over all. The antecedent of its practice and application is perceived by practitioners and researches as vehicle for efficient goods and services delivery in the construction industry. In this perspective, professional project management has been practiced in the Ghanaian Building Industry since the 1980s; since the first attempt was made, not much has been done in the practical application and regulation of the practice. Moreover, stakeholders appear to be confused of what constitute the professional practice and application of project management in the industry. Today, the adoption of the project management practice has extended to the business and manufacturing sector in Ghana but yet its practice remains not well regularized from being fully integrated into the Ghanaian Building Industry. This study sought to identify the challenges and opportunities for effective project management practice in the Ghanaian Building Industry (GBI) by adopting two stages data collection entailing qualitative and quantitative techniques. The qualitative help in identifying eighteen project management variables that stakeholders believe are posing challenges to good project management practices in Ghana. To help understand these factors better, factor analysis was used to analyse the eighteen factors identified. The findings highlighted on five major constraints to the development of PMPP namely: weak project management knowledge base; lack of clearly defined role for project managers; poor procurement management practices; weak institutional framework and poor communication management. Descriptive data collected also revealed that even though the conditions of contract for medium-size projects made mention of the title project manager for public sector works, the practice of the project management is yet to be fully integrated into Building Industry

in Ghana. The study concludes with six (6) most significant strategies geared towards the improving of the professional project management practices in GBI. These strategies includes the following: i) setting-up of regulatory institutions ii) encouraging stakeholder's engagement and round table discussions among project participants, iii) policy makers recognising the benefits of the practice and enforcing procurement laws iv) encouraging continuous professional developments, v) awareness creation among organisations and institutions; and vi) developing an attitude at the corporate level by treating any assignment as project management task. It is anticipated that the conclusion made in this study will provide a basis for new strategies to promote the development of professional project management practices in Ghana.

**Keywords:** Empirical, Understanding, Status, Professional Project Management Practices, Ghanaian Construction



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## DEDICATION

This thesis is dedicated to all my family members and especially to the memory of my late sister Twumwaa Patience



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## LIST OF ABBREVIATIONS

<b>ABCEG</b> .....	Association of Building and Civil Engineers Ghana
<b>ARCH</b> .....	Architect
<b>ENG.</b> .....	Engineer
<b>CI</b> .....	Construction Industry
<b>CIOB</b> .....	Chartered Institution of Builders
<b>CPD</b> .....	Continuous Professional Development
<b>CPM</b> .....	Construction Project Management
<b>C'TOR</b> .....	Contractor
<b>FIDIC</b> .....	International Federation of Consulting Engineers (Contract Form)
<b>GDP</b> .....	Gross Domestic Product
<b>GCI</b> .....	Ghanaian Construction Industry
<b>GIA</b> .....	Ghana Institution of Architects
<b>GhIE</b> .....	Ghana Institution of Engineers
<b>GhIS</b> .....	Ghana Institution of Surveyors
<b>GREDA</b> .....	Ghana Real Estate Developer Association
<b>LD</b> .....	Lead Consultant
<b>MDAs</b> .....	Municipal and District Assemblies
<b>MWRWH</b> .....	Ministry of Water Resource, Works and Housing
<b>OECD</b> .....	Organization for Economic Committee Development
<b>PM</b> .....	Project Management
<b>PMBOK</b> .....	Project Management Book of Knowledge
<b>PMI</b> .....	Project Management Institute
<b>PMP</b> .....	Project Management Practice
<b>PMs</b> .....	Project Manager
<b>PPA</b> .....	Public Procurement Act
<b>PPM</b> .....	Professional Project Management Concept
<b>PPMP</b> .....	Professional Project Management Practice
<b>QS</b> .....	Quantity Surveyor
<b>RIBA</b> .....	Royal Institute of British Architect
<b>SPSS</b> .....	Statistical Package for Social Science
<b>SSNIT</b> .....	Social Security and National Investment Trust
<b>TM</b> .....	Traditional Management

## CHAPTER ONE

### GENERAL INTRODUCTION

#### 1.1 BACKGROUND OF THE STUDY

Project management (PM) is now well established and recognized as a domain for the application of professional expertise as well as area for academic research and discourse (White and Fortune, 2002). Indeed, the notion that project management, a distinctive managerial process requires specialist skills and distinctive organizational design remains crucial in construction management literature (Winch, 1987). More so, with professional practices in the construction industry it remains one of the most demanding roles in the modern construction industry (*c.f* Cheng *et al.*, 2005). Hence, it is one of the most important treasures in the construction industry and plays a primary role in its success (*c.f* Abass and Al-Mharmah, 2000).

To this extent, Godwin (1993) argues that the fundamental concept on which project management hinged is on the basis that a single individual (the project manager) is accountable for the success of the project. Writing in the same vein, Winch (2000) and Walker (2002) also admitted to the fact that project management concept is about a single individual, accountable for the success of the project including planning, execution, monitoring and control, and closing of projects. Ahadzie and Amoah-Mensah (2010), proposed that Professional Project Management Practices (PPMP), in construction industry could be used to define a situation where an independent entity, be it an individual or a consortium, is appointed beside the design team to take responsibility for the management of design and construction phases of a project from conception to completion (*c.f* Ahadzie and Amoah-Mensah, 2010).

Drawing on from the above, it is therefore worth noting that PPM practices in the construction industry is largely to some extent dependent on the efficacy of the project manager's ability to harness all the resource for a successful completion of a project.

Indeed, PPMP integration into the construction industry has been gradual just like any other discipline; however, the construction industry now stands as one of the major benefactors due to the complexity, dynamism, and uncertainty of its activities and operations (Smithers and Walker, 2000). Currently, PPMP has now become a catalyst for growth, representing a universal tool for an efficient and effective development of the construction industry (Barriere, 2003). It is therefore not surprising that professional growth has seen much improvement in both numbers and practices in recent time all around the world including Ghana.

In Ghana, evidence suggests that the antecedent of project management practices in the construction industry emerged around 1980s when used Mass Housing Building Production (MHBPs) by the Social Security and National Insurance Trust (SSNIT) across the country (Ahadzie and Amoah-Mensah, 2010). According to Ahadzie and Amoah-Mensah (2010), it was during this period that project management was first time implemented, which saw the successful completion of 1637 single-storey housing in the Sakumono area in the Greater Accra.

However, it was until 2003 the practice saw improvement and recognition when the government officially through the requirement for selection of consultant as stated in the Standard document for medium sized projects made PMs a mandatory requirement for delivery medium sized projects in Ghana (appendix 4).

Quite recently, the private sector through alliance with their development partners has also established Ghana Chapter of Project Management Institute (PMI) with the aim of providing leading edge in the practices of PM.

There is no doubt that Ghanaian construction industry presents a suitable environment for reviewing the development of professional practices in project management. This is because nearly all its business activities are based on the project management approach (*c.f* Edum-Fotwe & McCaffer, 2000). Thus, PM presents an opportunity to use the GCI in advancing the effective and efficient practices of PM practices in achieving the ultimate industrial needs.

However, despite importance of the practices to the Ghanaian construction industry, evidence suggests that there is lack of understanding to the extent that consensus building in the development of PM to the large extent remain more problematic (Ahadzie, 2009; Amposah, 2010). Hence, a recent call from the government for the improvement of the knowledge base in the area of project management reinforced the need for understanding of the practices if any meaningful progress is expected (Ministry of Finance and Economic Planning Report, 2006; Amposah, 2010). Therefore, the need for understanding professional project management practices in the Ghanaian construction industry cannot be understated.

Admittedly, there have been some studies done in Ghana on the area of PPMP. For example Ahadzie and Amoah-Mensah, (2010) observed the management practices in the Ghanaian construction; Ahadzie (2007) in his studies discussed the model for predicting the performance of project managers in mass house building projects in Ghana. More so, Ahadzie *et al.*, (2008b) have enhanced researchers understanding of the project management competencies while Dogbegah *et al.*, (2011) used principal

component in his analysis to deal with same issues. However, while these studies were making significant contribution towards the practice, the issue of the empirical understanding of the practices was not discussed. Currently, there is no documented data on the issues of the position of the understanding of professional project management practice in the GCI that should have helped in the development of PM practices.

Concisely, while theoretical knowledge and understanding exist, there is lack of empirical understanding on what really; the status of professional project management practices and it is the knowledge gap this study seeks to address.

## **1.2 PROBLEM STATEMENT**

The role of professional project management practice in the Ghanaian construction industry is still a critical issue in the development of the CI. The lack of empirical evidence of understanding of the practice has resulted in managerial inefficiencies, which are perceived in all sectors of the construction industry. Attesting to this fact, Dogbegah *et al.*(2011) indicated that government sponsored projects in the building construction industry are plagued by a lot of challenges arising from myriad project management issues which leave stakeholders of projects not satisfied.

Subsequently, the empirical investigation remains the best approach for understanding the challenges and opportunities of a system within a specific geographical area and its findings present measures for improvement system. The best research evidence is the empirical evidence generated from amalgamation findings to address the problems.

It is against this background that the researcher seeks to undertake a study on empirical understanding of the status of professional project management practices in Ghanaian building industry.

### **1.3 RESEARCH QUESTIONS**

From the foregoing, four main research questions were proposed:

- What is the theoretical knowledge of professional project management practices in the Ghanaian Building Industry?
- What is the position and level PM of involvement of the professional project manager in construction projects?
- What are the specific challenges and opportunities for the development of project management practices in Ghana especially from the perspective of key stakeholders?
- What are the strategies for improving professional project management practices in the construction sector?

### **1.4 AIMS AND OBJECTIVES**

The aim of the study is to help bring to the fore the empirical understanding of the status of professional project management practices in GBI towards appreciating the challenges and opportunities for improvement. The research seeks to achieve these specific objectives:

- To examine the theoretical bases of the knowledge level of project management practices in Ghana so as to get deeper understanding of the situation ;

- To determine the level of understanding of professional project management practices in the Ghanaian Building Industry;
- To determine and understand specific challenges and opportunities for the development of project management practices in Ghana especially from the perception of the key stakeholders ; and
- To establish the consensus of the major stakeholders' guidelines that can be used for development of professional project management practices.

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### **1.5 SIGNIFICANCE OF STUDY**

The construction industry generally plays a vibrant role in a national economy due to the usage of its products such as roads, buildings, dams for the production of goods and service, as project management practices increases the efficient and effective discharging of project. Evidence indicated that there is no empirical studies on the project management practice in the GCI. It is however, expected that the study will provide useful lessons on the knowledge base of project management practices in the industry which will serve as basis for improvement in the construction industry.

### **1.6 SCOPE OF THE STUDY**

The key to efficiency lies greatly in the infusing of professional project management practices into the construction (Abenlayon, 2010). The research was focused on empirical understanding of the status of professional project management practices in Ghanaian construction industry. It took a critical look at the practices of professional project management since its introduction to the Ghanaian construction industry. This will help to bring issues to focus in sense that there will be directional approach to the development of professional project management practices.

## 1.7 RESEARCH METHODOLOGY

The research questions require a general overview of the current practices of professional project management practice in the Ghanaian Construction Industry (GCI). Due to this, both primary and secondary data were collected. The secondary source of data used has been critically evaluated and has been collected from relevant literature, databases, and internet sources to examine the theoretical bases of the knowledge level of project management practices generally in Ghana. The primary data adopts a combination of descriptive (quantitative) and exploratory (qualitative research) survey methods, involving a three-stage data-gathering approach. At the first stage, quantitative and qualitative research approach (mixed method), involved the use of surveys and non-standardised interview to determine the status of professional project management practices on construction site in Ghana.

The mixed method survey was conducted among thirty-(30) construction sites to determine project manager's involvement in the construction project. The second stage of the study took a qualitative approach; an exploratory study was undertaken to determine and understand the specific challenges and opportunities for the development of project management practices in Ghana especially from the perception of the key stakeholders. This involved the use of semi-structured interview conducted with a convenience sample of twenty-(20) major stakeholders such as D1 K1 Contractors, the presidents of institutions such Ghana Institution of Architects (GIA), Ghana Institution of Surveyors (GhIS), Association of Building and Civil Engineering Ghana (ABCEG), Ghana Institutions of Engineers (GhIE) and the Project management Institute (PMI), Ghana Chapter, and prominent consultant who are involved in project management and major clients in the construction industry. An analytically Nvivo 8 software was used for the analyses.

The third stage took the quantitative approach: descriptive study by the use of constructs generated at the exploratory survey stage in designing questionnaires, which were pre-tested and distributed to 183 respondent involving professional (Architects, Quantity Surveyors, Project Managers, and Structural Engineers) and contractors (D1 K1 and D2 K2 construction firms who have registered with ABCEG) who are involved in project management practices. The focal points for administration of questionnaires were Project Managers. Using a five-point rating scale, the respondents were asked to rate the levels of significance and level of importance of challenges and developmental approaches to project management practices respectively. For this, Statistical Package for the Social Science (SPSS) was used analysis involving the use factor analysis and mean score analysis.

### **1.8 ORGANISATION OF THE STUDY**

The research consists of five chapters, these are introduction, literature review, research method, empirical research (analysis or data presentation), and conclusions and recommendation.

The introduction (**chapter 1**) begins with an account of the background to the study. Then, the research subject is presented by stating the questions, research aim and objectives, scope and purpose of the study. Finally, the research method is explained before an account of the study's structure.

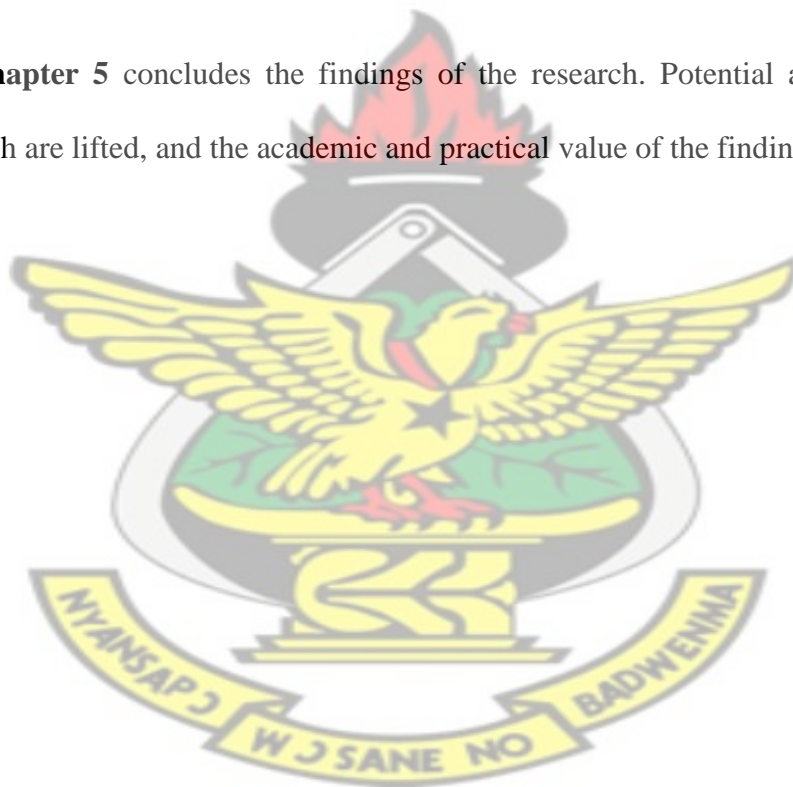
The **chapter 2** presents the concept project management and the overview of project management and definition. It entails the overview of the Ghanaian construction and its significance to the development of its economy is deliberated. This is followed by project management practices in Ghanaian construction industry; challenges

affecting the development, stakeholder's involvement in the industry are also elaborated.

The **chapter 3** entails a description of the research methods used in this study, forming the third part of the thesis. The section focuses on the methods that were used in conducting the empirical research, framework for the study and research design.

The **chapter 4** deals with the empirical data collected from the field and answers various questions raised by the objectives

The **chapter 5** concludes the findings of the research. Potential areas for further research are lifted, and the academic and practical value of the findings is discussed



**CHAPTER TWO**  
**PROJECT MANAGEMENT AND GHANAIAN CONSTRUCTION**  
**INDUSTRY**

**2.1 INTRODUCTION**

This chapter presents the concept of project management. It begins by highlighting the overview of project management and definition. The overview of the Ghanaian construction and its significance to the development of the economy is deliberated. This is followed by the project management practices in the construction industry especially the GCI and challenges affecting its development. Hence, stakeholder's involvement in the industry is also conferred.

**2.2 OVERVIEW OF PROJECT MANAGEMENT**

Project management has been with us since the creation of humankind on earth. This is because projects are not new: monuments surviving from the earliest civilizations testify to the incredible achievements of our forebears and still evoke our wonder and admiration. The evolution of the professional Project management practice had its beginnings in construction, defense and engineering organizations (Morris, 1994). Bourne and Walker (2005), reviewing Morris (1994), conceive that these organisations were typically characterised by the following aspects:

- *the product of the project is tangible or at least easily visualised;*
- *straightforward “command and control” structures;*
- *well-defined management hierarchy;*
- *authority and responsibility is appropriately balanced; and*
- *project objectives clearly understood by most, if not all of the stakeholders.*

Admittedly, growth of PM started in the US defence and aerospace sectors in the late 1950s and the 1960s and developed into a core competency that is widely recognised across most industrial sectors (Morris, 2005). Project management, as it is practiced today came into being after the post-World War II era as a product of a number of forces and complexities at work at the time (Hodgson, 2002). Subsequently, it first came to popular attention in the management literature in the late 1950s (Gaddis, 1959) although its 'heydays' is widely seen to be in the late 1960s and early 1970s (Winch, 2002).

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PM system promises to deliver 'one-off' undertakings 'on time, to budget, within scope' (Morris, 1997), through the planning and control of variables including resources, cost, productivity, schedule, risk, and quality. It is also argued that the techniques or foundation of PM is evident not only in its seminal texts (Cleland and King, 1968; Lock, 1968) but also in the sectors where the original techniques were developed. Following this, a number of projects were administered based on the PM technique such as groundwork in US defence and aeronautics in the 1950s, Manhattan Project, first atomic bomb (Morris, 1994), Apollo space programmes (Harrison, 1981) and US defence programmes for the Cold War (Gaddis, 1959). Notwithstanding, the high concentration on technical projects, PMs techniques have been proliferated in the past 40 years, not only within technology and engineering, but also expanding into areas as diverse as education, health, social services and the arts (Morris, 1994).

In recent development, it has become a vehicle for doing goods and solving social issues or problems as it serves as a source to foresee or predict as many of the dangers and problems as possible and to plan for them (Denis, 2007). On the other hand the past decade has been seen by many within and outside the field as a time of

renaissance for PM practice, as issues of flexibility, knowledge management, innovation and professionalism have come to the fore in the managerial consciousness. Proponents of Project Management are keen to ascribe this expansion to the growing recognition throughout various industry of the success of the PM approaches.

More so, a number of wider influences can be pinpointed which have encouraged this growth in Project Management, ranging from the forceful marketing efforts of PM practitioners to the support and legitimisation of academia, through the action of various stakeholders. In understanding the uniqueness of this development and evolution of professional project management concept it is better to appreciate the meaning of project before Project management is defined into perspective. It is therefore, fundamental to begin with basic academic matters of defining what is and should be called a project and project management.

### **2.2.1 Definition of a Project**

The word project has often times been used in conjunction with the term project management to make it complete and more meaningful to users. Projects are about delivering change (Cleland, 1999) but the successful projects are not just about managing change; they are also about managing relationships and managing uncertainty (Bourne and Walker, 2003).

However, Project Management Institute (PMI), (2008) also defined a project as a temporary endeavour undertaken to create a unique product, service, or result. In giving more insight to the meaning, UK government standard for project management (2009), defined a project as a management environment that is created for delivering one or more business products according to a specific business case. In

the view of, Turner (1993) expanded the meaning of the project by defining it as an endeavour in which human or machine, material and financial resource are organised in a novel undertaken, a unique scope of work, of given specification, within constraints of cost and time so as to deliver beneficial change defined by quantities and qualitative objectives. However, Turner and Muller (2002) realise that this definition addresses the project as both a temporary organisation, and a production function and an agency of assigning resources. Subsequently, Turner and Muller (2002) reviewing Turner (1999) maintain the definition by concentrating more on the features of projects. They emphasised the arrangement of features shared by projects undertaken to deliver beneficial change, it thus has three essential features:

- *It is unique: no project before or after will be the same.*
- *It is undertaken using novel processes: no project before or after will use exactly the same approach.*
- *It is transient: it has a beginning and an end.*

In a related development, Shenhar and Wideman (1996) conclude that there is lack of consensus among practitioners on the term “Project” which this research agrees to and that the meaning remains debatable. However, Anagnostopoulos (2004), concludes that it is fruitful to consider projects as “temporary organisations (Packendorff, 1995; Soderholm, 1995; Turner & Muller, 2003; Soderlund, 2004). This research agrees with Turner and Muller (2003) which considers project as a temporary organisation, which allows project to be analysed as an organisational theory.

### **2.2.2 Definition of Project Management (PM)**

For a project to be successful there is the need to appreciate the role of PM practices within the project (Munns & Bjrirmi, 1996). In fact, PM has existed in theory for centuries with its informal application by the Chinese and Egyptians in the construction of the Great Wall of China and the pyramids of Egypt, respectively (Murphy & Ledwith, 2007). The subject of PM has continued to be in existence since that time and demonstrated after the Second World War as NASA mandated the use of PM for all activities related to the space program (Kerzner, 2003).

However, the definition of PM continues to be an ever-growing debate among practitioners and researchers dating back to the nineties to the present age since there are lack of consensus. (Shenhar & Wideman, 1996). PM definition varies from one discipline to another. However, each definition has direct assimilation to the nature of project or the type of project in question. Osien (1971) defined PM as the application of a collection of tools and techniques (such as the CPM and matrix organisation) to direct the use of diverse resources towards the accomplishment of a unique, complex, one-time task within time, cost and quality constraints. Morris (1993) subsequently defined project management as a process of integrating everything that needs to be done typically using a number of special project management techniques as the project evolves through its life cycle conception to handover in order to meet the project's objectives. Burke (1998) considers project management to be a specialised management technique, to plan, and control projects under a strong single point of responsibility. Turner, (1994) also defines PM as the art and science of transforming vision into reality. Additionally, BS6079 (1996) defined project management as; the planning, monitoring and control of all aspects of

a project and the motivation of all those involved in it to achieve the project objectives on time and to the specified cost, quality and performance.

Despite the previous definition, Turner (1999) argues that PM is about managing people to deliver results, not managing work. Others authors have also suggested that the definition should also describe the cultural, structural and interpersonal aspects (Cleland & Ireland, 2002). Following the divergent view of researchers, Wideman (2003), reviewing Pinto, (2001) argues that PM is a philosophy and technique that enables its practitioners to perform to their maximum potential within the constraints of limited resources, thereby increasing profitability. In the same, vain it is still an art of directing and coordinating human and material resources to achieve stated objectives within the limits of time, budget, and client satisfaction (Walker, 2003). To Westland (2006) PM is the skills, tools and management processes required in undertaking a project successfully. It includes:

- *A set of skills: Specialist knowledge, skills and experience are required to reduce the level of risk within a project and thereby enhance its likelihood of success;*
- *A suite of tools: Project managers to improve their chances of success use various types of tools. Examples include document templates, registers, planning software, modeling software, audit checklists and review forms; and*
- *A series of processes: Various processes and techniques are required to monitor and control time, cost, quality and scope on projects. Examples include time management, cost management, quality management, change management, risk management and issue management.*

Subsequently, others have suggested that the definition should be more inclusive and should emphasised the importance of working with stakeholders to define need,

expectations and project task (Jugdev & Muller, 2005). In respond to this Project Management Body of Knowledge (PMBOK, 2008), defined project management as the application of knowledge, skills, tools and techniques to project activities in order to meet stakeholder's needs and expectations from a project.

The debate about the definition is still ongoing, but these definitions of PM surely depend on the perspective of the individual researcher on how purposively that reconciles with his or her interest. It therefore worth noting that in this study Godwin (1993) definition is adopted.

### 2.2.3 Project Management Knowledge Areas

The Project Management Body of Knowledge (PMBOK, 2008) guide defines nine knowledge areas in project management encompassing all the processes used in a project from initiation to closing. These nine areas are shown in the figure.2.1 below

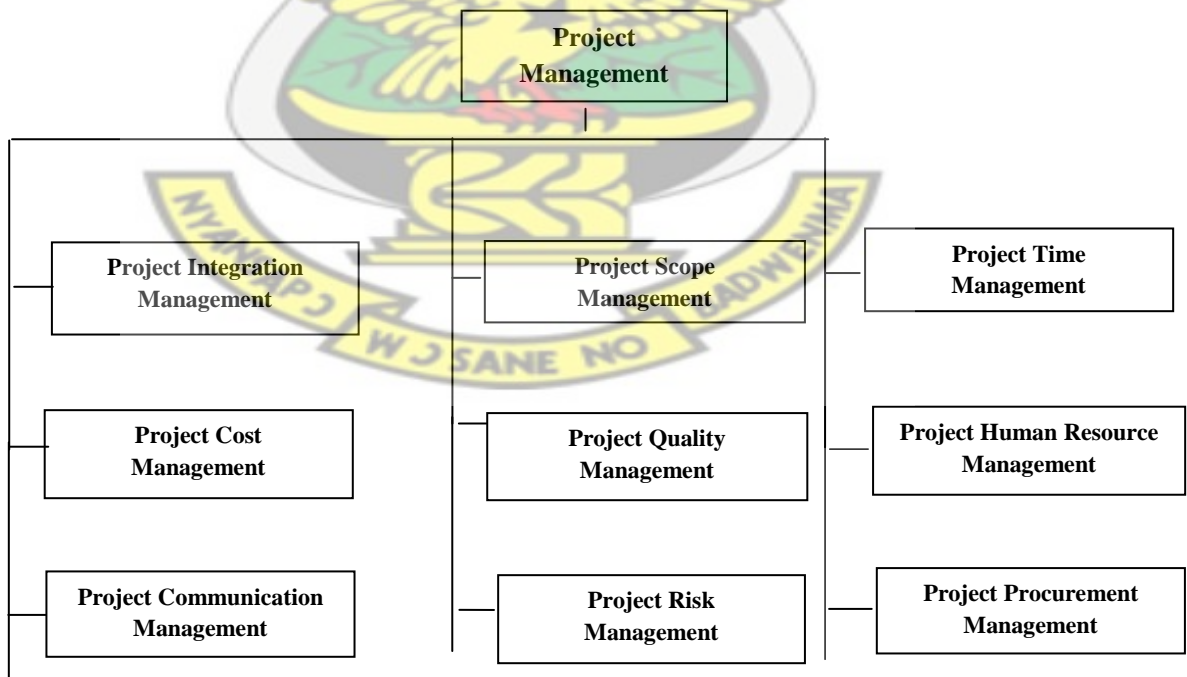


Figure 2.1 the Nine-Knowledge Area

Source: PMBOK, (2008)

The processes within these knowledge areas interact with each other as well as with all the other knowledge areas. A brief description of each of these nine areas is as follows:

**Project Integration Management:** This knowledge area is concerned with the processes and activities that are needed to identify, combine, unify and coordinate the processes and project management activities within the project management process groups (PMBOK, 2008). This process is extremely important, as there are many interactions between different processes during a project. The integrative project management processes are listed below; Develop a project charter, Develop a preliminary project scope statement, Develop a project management plan, Direct and manage project execution, Monitor and control project work, Integrated change control and Close project.

**Project Scope Management:** This knowledge area includes all processes required to ensure a project fulfills all requirements for a project and to ensure that unnecessary work is not done (PMBOK, 2008). This area is primarily concerned with defining what is and what is not included in a project's scope of work. The scope management processes consist of; Scope planning, Scope definition, Create a work breakdown structure (WBS), Scope verification and Scope control.

**Project Time Management:** This knowledge area includes all processes needed to ensure that the project is completed by the deadline (PMBOK, 2008). This area is primarily concerned with scheduling activities and determining which activity is dependent on each other. The time management processes consist of; Activity definition, Activity sequencing, Activity resource estimation, Activity duration estimation, Schedule development and Schedule control.

**Project Cost Management:** This knowledge area includes all processes involved in estimating, budgeting, planning and controlling costs (PMBOK, 2008). The primary focus of this area is the cost of resources needed to complete the project and include the following processes; Cost estimating, Cost budgeting and Cost control.

**Project Quality Management:** This knowledge area includes all processes that help in establishing quality policies, objectives and responsibilities to ensure the requirements for the project are met (PMBOK, 2008). The processes involved in this knowledge area are; Quality planning, quality assurance and quality control.

**Project Human Resource Management:** This knowledge area includes all processes involved with the organizing and managing of the project team (PMBOK, 2008). The processes included here are; Human resources planning, which includes identifying the skills required, Acquire the project team, Develop the project team and Manage the project team.

**Project Communication Management:** This knowledge area includes all processes to ensure generation, collection, distribution, storage, retrieval and disposition of information regarding the project in a timely fashion (PMBOK, 2008). The following processes are included in this area: Communications planning, Information distribution, Performance reporting and Manage stakeholder.

**Project Risk Management:** This knowledge area includes all processes involved with risk planning, identification, analysis and control of a project. The primary focus of this area is to increase the possibility and impact of positive events, and decrease the possibility and impact of adverse events on the project (PMBOK, 2008). The following processes are included in this area; Risk management planning, Risk identification, Qualitative risk analysis, Quantitative risk analysis, Risk response planning and Risk monitoring and control.

**Project Procurement Management:** This knowledge area includes all processes involved in the purchase or acquisition of all the needed products and services needed to perform the work required for the project (PMBOK, 2008). It also includes all contract management and purchase order required. The following processes are included in this area: Plan purchases and acquisitions, Plan contracting, Request seller responses, Select sellers, Contract administration and Contract closure.

### 2.3 OVERVIEW AND SIGNIFICANCE OF THE GHANAIAN CONSTRUCTION INDUSTRY

The construction industry in Ghana, as in other parts of the world, is huge and a crucial segment in economic development (UNESCO, 2010). According to Anaman *et al.*, (2007) adopted from Lange and Mills (1979), is defined as a group of firms with closely related activities involved in the construction of real estates, building, private and public infrastructure. More so, in Ghana, Civil Engineering firms undertake projects which involves heavily engineering characteristics such as bridges, roads, railways and dams, while the Building Construction Firms (BCF) also undertake projects such as the construction of schools, hospitals, health centres, hotels, offices. Furthermore, GCI is characterised by large, medium and small construction firms, it is reported that the large and medium construction firms form about 10% of the total number of construction firms registered with the Ministry of Water Resources, Works and Housing (Egmond *et al.*, 2007). These firms, according to Egmond *et al.* (2007) do not have the appropriate technological capabilities, plant and equipment and key personnel to handle awarded projects properly and the evidence is the fact that the nation's major construction projects are awarded to the very few large foreign contractors. The remaining 90% are the small firms or small

contractors whose number in 1999 was 7095, these small firms engage in simple construction work with contract sum not exceeding US\$ 200,000 or GH¢400,000.00 in public jobs, and their total construction output ranges between 10% and 20% as compared to large and medium firms.

However, construction industry is the catalyst for the development of any economy. To this, Ghanaian Construction Industry (GCI) therefore presents a viable industry in the nation's economy by making meaningful contribution to its economy (Fugar and Agyakwa-Baah, 2010). The construction industry can mobilise and effectively utilise local and human material resources in the development and maintenance of housing and infrastructure to promote local employment and improve economic efficiency (Anaman and Amponsah, 2007).

In the words of Field and Ofori (1988), the industry makes a noticeable contribution to the economic output of a country; it generates employment and income for the people and therefore the effects of changes in the construction on the economy occur at all levels and in virtually all aspects of life. Hence, the construction industry is regarded as an essential and highly visible contributor to the process of growth (Field & Ofori, 1988). In addition, Ahadzie (2007) supported the above assertion that in the early 1990s, the contribution of the industry to GDP dropped to a long-term low level of about 2.7% but mentioned again that, recent figures indicate that it has once again appreciated to a significant level of 4.2%. Currently, the construction industry's share of GDP and contribution to growth are 10.5 and 11.2% respectively (ISSER, 2012). It is well known that an active construction industry contributes to growth as it employs skilled and unskilled labour, from engineers and consultants to artisans and labourers (UNESCO, 2010).

### 2.3.1 Professional Project Management Practice in Ghana

In Ghana, the introduction of Professional Project Management Concept into construction industry is dates back to the late 1980s when the framework was first introduced to the Social Security and National Insurance Trust (SSNIT), (Ahadzie and Amoah-Mensah, 2010). Until this, SSNIT relied largely on traditional management practices in the implementation of its housing project, which led to time and cost over-runs; estimated to be more than 100% of the actual cost and time. Government of Ghana and the general public, whose contribution were being used for such investment became alarmed and lost confidence in SSNIT as reliable housing providers (Ofori, 1989; Ahadzie and Amoah-Mensah, 2010). It was during this trying period that SSNIT appointed their first Professional Project Manager involving the construction of 1,637 single storey- housing in the Sakemono area, Greater Accra Region of Ghana (*Ibid*).

Professional Project Management (PPM) practice in the construction industry is still a critical issue in the development of the whole industry. Although, the expansive role of the private sector in recent time in this agenda, infrastructure supply has not improved any better, and there is no clue that project management practice of these projects has received any knowledge-based improvement (Ahadzie & Amoah-Mensah, 2010). More so, it remain very critical in all developing countries due to the advancement of technology, the increasing complexity of projects and the scarcity of human capital (Thomas & Winter, 2006), which is compounded with highly competitive market in the CI (*c.f* Sutherland & Maxwell, 2000). In addition, Goodwin (1993) indicated that effective project management decision rank as a single most influential contributor to achieving improved performance in the construction industry. It is therefore important for this research to be undertaken to

find the empirical understanding of the status of PPM practices in the Ghanaian construction industry to improve on the best practices and delivery of projects. It is therefore; not surprising Project Management Institute of Zimbabwe indicated that “*failure to recognise the value of project management as being at the core of development in our civilized society is like depriving ourselves of mastering a critical life skill*” (See [www.pmiz.com](http://www.pmiz.com))

Granted that, PPMP presents a mechanism for developing countries such as Ghana to compete effectively and efficiently with their developed counterparts in areas like finance, engineering, aerospace and construction. However, it is not been fully implemented due to the extent that (PM) practice in developing and emerging economies is complicated (c.f Andersen *et al.*, 2002).

### **2.3.2 Challenges facing PM Practices in Ghana**

According to research by (Crown Agents, 1998; Westring, 1997; Anvuur & Kumaraswamy, 2006) all attest to the fact that, project management performance of the construction industry in Ghana is saddled with several problems ranging from contract administration, through; complex and lengthy payment procedure, delayed payments to that of project execution (Frimpong *et al.*, 2003). It is noteworthy that clients’ delay in payment to service providers (contractor and practitioners), also affects payments of salaries and wages of their staff (World Bank, 1996; 2003) This is because sometimes these delays run into several months and thus, these employers find it difficult to continue paying their staff. The unskilled labourers of the contractors form the largest group and the lack of guaranteed income, despite their commitment to work, shows an unpleasant side of the industry that is one of the largest employers of labour (c.f Gyadu-Asiedu 2009). Because of the representation of construction workers in the working population of the country, such situation

reflects on the socio-economic life of ordinary Ghanaians. The reverse is also true. This could be likened to a period of freeze on government projects. To some extent, in Ghana, there are practical reasons to subscribe to the argument that construction industry is a regulator of the economy (Ashworth, 2004). For instance, in Ghana some of the typical challenges faced by the construction industry are linked to excessive bureaucratic conditions, a weak materials supply base, financial uncertainties, an unregulated labour market and poor management practices (Amoa-Mensah, 2002). Ahadzie (2007) also indicated that the challenges stem from the weak technological, economic and structural conditions. The table 2.1 below indicates the summary of challenges from literature.

**Table 2.1: A Summary of Constraints, Ghana**

<i>AUTHORS</i>	<i>CONSTRAINTS</i>
<i>Ahadzie,2007</i>	<i>Weak Technological, Economic and Structural Conditions, and Unregulatory Bodies, Poor Communication at Site Level Between Consultants and Contractors, Limited Knowledge in Application of Management Practice, Inadequate Contract Information,</i>
<i>Amoah –Mensah,2002</i>	<i>Excessive Bureaucratic Conditions, Weak Materials Supply Base, Financial Uncertainties and Unregulated Labour Market,</i>
<i>Crown Agents (1998) and Westring (1997),Anvuur and Kumaraswamy,(2006)</i>	<i>Poor Contract Administration Complex and Lengthy Payment Procedure, Delayed Payments</i>
<i>Dansoh, 2005; Westring, 1997.</i>	<i>Lack of Respect for Contract, Difficulties, In Long-Term Strategic Planning, Poor Monitoring and Control of Procurement.</i>
<i>World Bank, 1996; 2003</i>	<i>Poor Procurement Practices, Delayed Payments and Arrears to Contractors and Consultants, Frequent Price Changes due to Extensive Renegotiation</i>

## 2.4 OVERVIEW OF CONSTRUCTION PROJECT MANAGEMENT

The construction industry has realized that it goals for continuous improvement in its performance and ability to deliver higher quality, better value, and innovative products and services which can only be achieved through proper understanding of the dynamic role of its main resources, that is, its people (Dulaimi and Langford, 1999). The main key actors in the construction process are the project managers (PMs) therefore; any development in the understanding of the dynamics of project management practice is in the right direction (*Ibid*).

Consequently, project manager could from any background provide he or she have requisite skill and competence in managing all aspects of projects from conception to completion (CIOB, 2002; Ahadzie and Amoah-Mensah, 2010). However, the general consent is that degree of technical skill relating to the project at hand should be a major factor in deciding on the project manager professional background should be (Ogunlana *et al.*, 2002; Ahadzie and Amoah-Mensah, 2010).

In related development, others contended that any construction related professional could be a project manager, provided a good overall knowledge and experience of the industry is demonstrated (*c.f* Ahadzie and Amoah-Mensah, 2010). While the debate would definitely continue to be contextual because of the variety of stakeholders' interest involved, it is agreeable that some form of postgraduate training in project management and membership of an appropriate professional body is an advantage (Ogunlana *et al.*, 2002; Ahadzie & Amoah-Mensah).

Certainly, the emerging growth of the Professional Project Management Concept in construction industry is now a universal phenomenon (Wilkinson, 2001; Ahadzie & Amoah-Mensah, 2010). The first concept, which started in the United States of

America (USA) in the early 1950s, and later in Western Europe in the early 1960s is now, practiced the world over. This is large due to the occurrences after the World War II, which compass with complexities of project and shrinking wartime labour linking to supply and demand new organisational structure in the construction field. Edum-fotwe (2000) indicated that from the 1990s, the business climate in the construction industry has experienced unprecedented dynamics, as organisations respond to increasing competition within a stagnant or declining demanded for more PMs.

Furthermore, there is expansive growth, which is reflected, in the international nature of the membership of the Project Management Institute (PMI), USA and the International Project Management Association (IPMA), Europe (Austin, 2000). In developing countries, as well, evidence of the recognition of the PPMC is manifested in the rising numbers of educational institutions offering project management courses and papers recently published on the subject matter (Abassi & Al-Mharmah 2000; Ahadzie *et al.*, 2008). Admittedly, in developing countries it remains a new phenomenon, which (PPMC) is still evolving but researchers and practitioners are strongly convinced that the concept has come to stay as a most plausible approach for achieving improved performance in management of construction projects (Abassi & Al-Mharmah 2000; Odusami *et al.*, 2003; Ahadzie & Amoah-Mensah, 2010). PM in construction is responsible for the overall success of delivering the owner's physical development within the constraints of cost, schedule, quality and safety requirements (Edum-fotwe, 2000). As such, they play a crucial role not only in the operational activities of architectural and engineering construction companies but also in the development of infrastructure in every country.

#### 2.4.1 Definition of Construction Project Management (CPM)

Construction Project Management, (CPM) had been defined by so many authorities and researchers in literatures. In recent times, it is frequently use in reference to site or construction management rather than taking a holistic view of project from conceptual stage to its ultimate completion and maintenance. For example, Walker (2002),as cited by Farrell (2008), define CPM as the planning, co-ordination and control of a project from conception to completion (including commissioning) on behalf of a client requiring the identification of the client's objectives in terms of utility, function, quality, time and cost, and the establishment of relationships between resources, integrating, monitoring and controlling the contributors to the project and their output and evaluating and selecting alternatives in pursuit of the client's satisfaction with the project outcome. In the words of De Wit, (1988) project management is the process by which the project manager plans and controls tasks or activities within the project and harnesses the resources available such as people, material, time, money, information, knowledge, equipment and space to achieve set goals, standards and objectives. Due to this diverse and complex nature of the project system, Goodwin (1993) suggests project integration as one of the key functions of the project manager. These functions require a broad base of knowledge and skills, which encompasses a set of objectives to accomplish by implementing a series of operations subject to resource constraints. There are potential conflicts between the stated objectives with regard to scope, cost, time and quality, and the constraints imposed on human material and financial resources (Hendrickson and Tung, 1998). The Chartered Institute of Builders, (CIOB,2002) describes the project management as emergent professional discipline which separates the management function of a project from the design and execution's functions and defines project management as

the overall planning, coordination and control of a project from inception to completion aimed at meeting a client's requirements in order to produce a functionally and financially viable project that will be completed on time within authorized cost and to the required quality standard. Royal Institute of British Architect (RIBA), (2000) describe CPM as a process of harmonising the functions of planning, communicating, monitoring and controlling in order to meet the project's overall objective as defined by the scope, time cost, quality and client satisfaction. The debate about the precise and clear definition of the construction project management is ongoing with new definition now edging towards stakeholder satisfaction requirements.

The definitions from the above also give a clear indication that PM is about given a responsibility of managing a project from inception to completion to one individual with a requisite knowledge in that field. This further indicate that PM is a scenario where an independent entity, be it an individual or a consortium, is appointed besides the design team to take responsibility for the management of design and construction of a project from conception to completion. (Ahadzie & Amoah-Mensah, 2010; Winch, 2002; Godwin, 1993). Hence, it is understandable that in a context of great uncertainty and ongoing competition, all projects will impose different challenges particularly on those involved in managing the project. The project manager is responsible for planning, organising and controlling the project. In order to deliver a successful project, project manager and his team have to clearly understand what factors and criteria in the project needs to be managed. Thus, to become a successful project manager who is responsible for managing the successful project; he or she needs to possess an appropriate level of knowledge and skills. By possessing such knowledge on project management techniques, project managers would be able to

plan and execute their construction projects to maximize the chances of projects succeeding. Accordingly, this researcher determines empirical understanding of status the professional project management practices in undertaking their jobs in construction projects as its principal focus. It sets out to explore the wider range of knowledge and skills of project managers, which are deemed as contributor to projects success. Traditional project management practices have evolved over time as the requirements for managing and controlling construction project unfolded. Nonetheless, the advances of the management techniques and information including; communication technology and traditional practices have proven to be insufficient in meeting the new project requirement. The materials are purchased and delivered through strategic alliance with suppliers. The research is conceived that, all things being equal, the fundamental concept on which project management draws its definition is when a single entity is given the authority and responsibility for the management of the design and construction phase of a project (Goodwin, 1993)

#### **2.4.2 Knowledge Area in Construction Project Management**

Construction project management is described as unique among all the other disciplines because its project activities have an inherent high degree of risk in their projections of cost and time (PMBOK, 2007). However, PM integration into the industry was gradual but now stands as one of the major benefactors due to the complexity, dynamism, and uncertainty of the construction industry (Smithers and Walker, 2000, Oyedele, 2011). Hence, highly motivated individuals are required to deliver high quality projects at lower costs in shorter times. Project success is dependent on, amongst other factors the performance of the participants who are entrusted to execute the project. Amidst Soderlund, (2004) indicated that professionals in the field of project management today are diverse, multifaceted and

contradictory in several respects. Construction project in the public and private sector requires intricate interface with technology licensor that demand construction techniques that are varied to suite the nuances of their technology transfer. (PMBOK, 2007). In order to achieve the stakeholder's goal and aim at the end of a project, the PMBOK, (2007) in reviewing the construction industry indicated that the industry is characterised by many stakeholders such as public taxpayers, regulatory agencies, government, and environmental or community groups with varying project expectations which other types of project do not include. According to Atkinson, *et al.* (1997), successful construction project performance is achieved when stakeholders meet their requirements individually and collectively. In consonance to this development, there was the need to create additional important knowledge areas that apply specifically to construction project management as indicated in the figure 2.2 below



**Figure 2.2: Additional Knowledge Area**

**Source: PMBOK, (2007)**

The processes within these knowledge areas interact with each other as well as with all the other knowledge areas. A brief description of each of these four areas is as follows:

**Project Safety Management:** This knowledge area includes all processes required to ensure a project fulfills all safety requirements in terms of safety planning, safety assurance and safety control.

**Project Environmental Management:** This knowledge area includes all processes required to ensure a project fulfills all safety requirements in terms of procedure and processes of environmental planning ,environmental assurance, control, and performing continuous improvement of activities throughout the project as appropriate.

**Project Financial Management:** This knowledge area includes all processes required to ensure a project fulfills all safety requirements in terms of financial planning, control and administration and records.

**Project Claim Management:** This knowledge area includes all processes required to ensure a project fulfills all safety requirements in terms of identification, quantification, prevention and resolution.

#### **2.4.3 Challenges Affecting Construction Project Management Practices**

A great deal of project management involves avoiding problems, tackling new grounds, managing a group of people and achieving clear objectives quickly and efficiently (Reiss,1995). However, in most developing countries, is the vice versa. Rwelamila, (2004) also noted that the project management competencies of public sector organisations, which are responsible for infrastructure development in most developing countries are poor although these organisations portray themselves as being able to manage projects effectively. The industry in most developing countries is faced with numerous abandonment of project, as reported by Ahadzie and Amoah-Mensah, (2010) and Nwachukwu *et al.*, (2010). In addition, time and cost overrun,

resultant claims and disputes remain norms in developing countries (Al-Moumani, 2000; Kumaraswamy & Chan, 1998; Mezher & Tawil, 1998; Ogunlana & Promkuntong, 1996; El-Razek *et al.*, 2008; Assaf & Al-Hejji, 2006; Chan & Kumaraswamy, 1996; Kaming *et al.*, 1997). More so, poor performance is often attributed to lack of effective working relationships among project participants (*Ibid*). The lack of project management concept has led to low productivity and poor quality, which has been the bane of construction industries in several countries, particularly in developing countries (Mutijwaa & Rwelamila, 2007; Le-Hoai *et al.*, 2008, Gyadu-Aseidu, 2009). On the other hand, professionals in developing countries lack the ability to innovate and adapt to new ways of working (Ligny & Erkelens, 2008; Kumaraswamy, 2009). For instance, the construction industry in South Africa is stuck in the seventies' attitude of adversarialism and negativity (Gidman, 2001 & Barriere, 2003). It is no wonder that Didibhuku and Mvubu, (2008) indicated that construction organisations in developing countries lack capacity and cannot meet the demand of construction work. Furthermore, Ofori, (2003) indicated that these challenges facing the construction industry in developing countries are well known due to poor performance on projects that takes place in these nations.

Agreeably, professional project management is still evolving over the world but its implementation to construction projects in developing countries presents some of the most challenging arenas within which to apply effective project management techniques (El-Saaba, 2001 & Ahadzie, 2009). These challenges in implementation of effective project management are due to the culture and other characteristics of the particular society and configuration of its economic, political and administrative system in developing countries (Barriere, 2003). In buttressing this, Barriere (2003),

reviewing Abbasi and Al-Mharmah reveal that project management practices should be consistent with norms.

In addition, Gow and Morss, (1998) indicated nine constraints, which are critical to the effective execution of project management practice, which are also now prevalent in developing countries. These constraints: includes cultural values, political and economic conditions, organisational environments, social problems, lack of skills, and lack of resources (Muriithi and Crawford, 2003; Stuckenbruck & Zomorrodian 1987; Gow & Morss, 1988). In the public sector, government bureaucracy, bribery, and corruption are much perceived as run deep into projects, which is reported to be a bother project management practice (Stuckenbruck & Zomorrodian, 1987).

Developing effective project managers however is becoming a larger challenge with the increasing complexity of projects and the scarcity of human capital (Thomas & Winter, 2006). Furthermore Loo, (2002) indicated some barriers which retard the development or the growth of project management practice in all diverse of disciplines and it is also therefore the same in the construction industry. These barriers are leadership and organisational culture, inadequate investment in training, resistance to change, individual versus team compensation, time pressures and constraints and no project management champion in organization.

Despite, this challenging business conditions, project management remains an exciting and evolving practice. Table 1 below gives a summary of constraints factors.

**Table 2.1: A Summary of Constraint Factors**

<b>AUTHORS</b>	<b>CONSTRAINTS</b>
Abbasi and Al-mharmah (2000)	Lack of knowledge, Change in authority, Weak interface with customs, High cost of management and Difficulties in communication with other professionals.
Kartam et al., (2000)	Lack of owner's awareness, lack of A/E's awareness, Lack of contractor's awareness, Existing owner's administration system, Approval procedures adopted by the statutory Authorities, Endless and continuous user's requirements, Lack of authorities delegated to the PM, Political impacts and Changes to project scope and plans
Li (2000)	Qualification of the practitioners, Status of PM companies, Work scope of PM companies, Coordination with other professionals, Management of PM companies and External environment of PM
Du (2001)	Misunderstanding of pm system, Ownership of PM companies, Poor qualification of CS Practitioners, Lack of management knowledge and skills; Management of PM companies and insufficient laws on PM
Kliem (2003)	Lack of IT knowledge
Kerzner (2006)	Technology advances, Insufficient resources, Low team member commitment and morale, Little formal authority lacks authority and Maturity or technical expertise
Ascher (1983) and Bryce; Crawford (2003)	Highly bureaucratic, Large numbers of professional staff, Complex process, procedures, and Rigorous reporting requirements.
Oluikp et al., (2005)	Leadership problem, Lack of visible support for group, Inability to capture and codify core project knowledge mechanisms, Reinvention of the wheel and Inadequate learning from projects
Gow and Morss, 1988	Political, environmental and economic constraints, Institutional realities, Personnel constraints, Technical assistance shortcomings Decentralization and participation shortcomings, Timing, Information systems and Differing agendas, Sustaining project benefit.
Loo, (2002)	Leadership and organizational culture, Inadequate investment in training, Resistance to change, Individual versus team compensation and Time pressures and constraints
Muriithi and Crawford, (2003):	cultural values, political and economic conditions, organizational environments, social problems, lack of skills, and lack of resources
Ahadzie (2007)	
Stuckenbruck and Zomorrodian (1987)	Government bureaucracy, effective control of the project and Bribery and corruption
Toor and Ofori (2008)	lack of focus on leadership research, and professional development programs
Ligny and Erkelens, 2008	Inability to innovate
Adnan et al., 2006	No requisite experience and are small
Thomas & Winter, (2006)	Increasing complexity of projects and the scarcity of human capital
Lee et al., (2005), Iyer & Jha (2005)	Lack of appropriate software
Iyer and Jha (2005), Kumaraswamy and Chan (1998), Kartam et al., (2000), Al-Momani (2000)	Conflict between project parties

## 2.5 PROJECT STAKEHOLDERS MANANAGMENT

The understanding of projects management practices as an alliance of powerful individuals and interest groups remain as one of the most important issue in construction management practices (Newcombe, 1996; 2003). These powerful individuals and interest groups are termed as stakeholders .In effect, stakeholders are those who have a stake in the success of a project as well as the environment within which the project operates and can significantly influence the success of a project (Newcombe, 2003). However, in the earlier works of Bryson (1988) posit that stakeholders are any persons, groups or organisations that can place a claim on an organisation's attention, resources or output, or is affected by that output. To this extent, Nutt and Backoff, (1993), contended that stakeholders are therefore individuals in a position to influence the organisation or place demands on it. In other words, a stakeholder ultimately determines whether a project is a success, based on the project result (Jergeas *et al.*, 2000).

Admittedly, stakeholders are individuals or groups, inside or outside the construction project, who have a stake in, or can influence the construction performance and are therefore, the major source of uncertainty in project management practice. It is therefore not surprising that large and complex construction projects attract the attention of such diverse and disparate people (Walker, 2000).

Nevertheless, major issues, which, project management practices, consider in dealing with stakeholders, includes which stakeholders are relevant, how they might influence a project and what their project-related motives are (Ward & Chapman, 2008). This is due fact that stakeholders can be either proponents or opponents; hence, it is essential to understand and evaluate the impact that they could bring to

the project (Olander, 2007). To this extent, stakeholder management is considered as an integral part of project management process. However, managing stakeholders needs to balance competing claims on resources between different parts of the project, between the project and other projects and between the project and organisation (Bourne,2005 ;Jing *et al.*,2011).But an environment of uncertainty and complexity makes achieving this balance more difficult.(Turner and Muller,2003).

Subsequent to this, Hillman and Keim, (2001) suggested that effective stakeholder management enhances the firms' ability to outperform competitors in the long-term. Indeed, given reasonable attention to stakeholders as part of the project management process would help to maintain the desired project implementation as well as avoiding unnecessary conflict and controversy (Olander & Landin, 2008). Aaltonen *et al.*, (2008) argued that managing the relationship between the project and its stakeholders is the key issue in project stakeholders' management. Stakeholders' management is critical for projects, particularly to those being executed in demanding and unpredictable institutional environments (*Ibid*).

Drawing from above, it appears that stakeholders' management cannot be neglected in project context due to its significant effect on the project outcome. Concisely, in project management practices stakeholders are categorized into two groups according to their legal or contractual relationship with a project: internal (or primary) stakeholders and external (or secondary) stakeholders (Madsen & Ulhoi, 2001; Cleland & Ireland, 2002; Winch, 2002; Olander, 2003 Winch, 2004; Chinyio & Olomolaiye, 2010). Internal stakeholders refer to those who are members of the project coalition, provide finance or have a legal or contractual relationship with the project (Aaltonen, 2011; Chinyio & Olomolaiye, 2010). External stakeholders are those who influence or are influenced by the project, but are not normally engaged in

transactions with the project and may not be essential to the survival of the project (Clarkson, 1995; Chinyio & Olomolaiye, 2010). Parties such as owners, consultants, suppliers, customers, users, contractors and financial institutes are usually internal stakeholders, while the public community, local residents, local or national authorities, interest group may vary according to the project.

However, in GCI there are five main groups of stakeholders' namely: client, consultants, contractors, community and local or national authorities. In the same vein, grouping these stakeholders into primary and secondary stakeholders indicate that client, consultants and contractors (main and sub-contractor) are primary stakeholders whilst secondary stakeholders include the community and local or national authorities(see table 2.3 below).

**Clients** are described as the core or initiators of the construction process (Bennett *et al.*, 1988; Kamara *et al.*, 2000; Latham, 1994) and are therefore internal stakeholders who provide the funds for the project. They are divided into four, namely: Government (being the major client), Real Estate Developers, Investors and Owner-occupiers.

**Consultants** are individuals or organisations who have been well trained academically and practically to provide specialist service in the construction industry and are part of internal stakeholders. Indeed, appropriate and capable project consultants are the fundamentals to the success of a project (Chinyio & Olomolaiye, 2010). The government and high profile clients normally engage these services. These consultants includes Project Managers(PMs) ,Architects(ARCH), Quantity Surveyors (QS), Geodetic Engineers (GE), Structural Engineers (St.E), Electrical Engineers (EE) and Services Engineers (SE). More so, they are all regulated by their professional institutions, namely, Project Management Institute; Ghana Chapter,

Ghana Institution of Architects (GIA), Ghana Institution of Surveyors (GhIS) for the QS and GE and Ghana Institution of Engineers (GhIE) respectively.

The Ministry of Water Resource, Works and Housing group contractors into eight categories (A, B, C, S, D, K, E and G) according to the type of works they undertake, which are also part of the internal stakeholders. These are

- Roads, Airports, and Related Structures (A);
- Bridges, Culverts and other Structures (B);
- Labour based road works (C);
- Steel bridges and structures: construction rehabilitation and maintenance (S);
- General building works (D);
- General civil works (K);
- Electrical works (E); and
- Plumbing works (G).

In each category, they are grouped into 4, 3, 2 and 1 financial classes in increasing order (Vulink, 2004). In addition, Dansoh (2005) notes a combined category of AB for road contractors. According to Dansoh (2005), Class 4 contractors can tender for contracts up to \$75,000; class 3 up to \$200,000; class 2 up to \$500,000. Class 1-take contracts of all amounts. However, a large number of small- and medium-sized firms, that is, classes 3, 4, and some few classes 1 and 2 who are internationally acclaimed in undertaking special projects and fall into in the categories D and K groups dominate the industry. In Ghana, local contractors are found in the classes of 3, and 4 because such firms are able to register with as little equipment as possible and is of sole proprietors, (few cases of partnerships), and normally characterised by high attrition rate. Gyadu-Asiedu (2009) indicated that there are often more jobs within their financial class than those above their limits, and because they form the

largest group, their performance affects greatly on the performance of the industry. Because of this, the classification by the Ministry of Water Resource, Works and Housing has been criticised as being too general and obsolete with the registration criteria, list of contractors and monetary thresholds are not regularly updated (Eyiah & Cook, 2003; World Bank, 1996). The two upper classes (D1 and D2) are more organised and hence more stable, taking on both bigger and smaller works. However, these firms (especially the D2 firms) do not always employ the very qualified workers. The Ghanaian-based foreign contractors are able to do this and hence performance better. Vulink, (2004) noted that because of the poor performance of Ghanaian local contractors, most of the nation's major projects are usually awarded to foreign contractors. Assibey-Mensah (2008) attributes this to the “non-businesslike culture” with which indigenous firms operate in Ghana.

**Communities and Local or National Authorities** are public organizations involved in construction projects, including government authorities, labour unions, trade associations and nationalized industries(c.f Chinyio & Olomolaiye, 2010, 2010). The influences of these parties on a project are varied. Some of the public agencies of government authorities, such as planning departments and building departments, have a legitimate authority within the project as construction projects have to be designed and built according to the building regulations and have to be approved by government authorities. In addition community groups are individuals or societies who represent the general view of the masses at the place in which the project physically takes place. In Ghana, the community groups form the largest part of the stakeholders in project management practices. These groups directly or indirectly affect or influence the PPMP. It is therefore important that much attention be given to this form of stakeholders. Opinion leaders or chiefs in their localities mostly

represent them. Hence, in order to ensure sustainable project management practice, the consultation of external stakeholders should not be ignored.

**Table 2.2 Summary of stakeholder in GCI**

CATEGORIZATION	STAKEHOLDERS GROUPINGS
<b>PRIMARY</b>	<b>Clients:</b> Government (being the major client), Real Estate Developers, Investors and Owner-occupiers.
	<b>Consultants;</b> Project Managers, Architects, Quantity Surveyors, Geodetic Engineers, Structural Engineers, Electrical Engineers and Services Engineers.
	<b>Contractors:</b> Roads, Airports, and Related Structures (A);Bridges, Culverts and other Structures (B);Labour based road works (C);Steel bridges and structures: construction rehabilitation and maintenance (S);General building works (D);General civil works (K);Electrical works (E); and Plumbing works (G)
<b>SECONDARY</b>	<b>Community:</b> Chiefs, General Public And Opinion Leaders
	<b>Local or National Authorities :</b> Government Authorities, Labour Unions, Trade Associations And Nationalized Industries

## SUMMARY

This chapter discussed the concept project management, overview of project management and its definition. It further provided discussion on the overview of the Ghanaian construction and its significance to the development of its economy is deliberated. The chapter also emphasized on project management practices in construction industry especially in GCI and challenges that affect the development of PMPP. Lastly, chapter elaborated on the stakeholder’s involvement in construction industry.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 INTRODUCTION**

This chapter discusses how the research was carried out in order to meet the study's aim and objectives. The first section of the chapter considered the assumptions and framework adopted for study. Cooper and Schindler, (2005) indicated that the next important step in any research process after study of literature and identifying the research question is deciding on the most suitable methodology. More so, Collis and Hussey, (2003) argued that research methodology is the overall approach to the design process from the hypothetical foundations to the collection of data and analysis adapted for a study. Methodology is therefore the way in which we discover how to go about a task of finding out what we believe to be true (Christou *et al.*, 2008). Hence, this section highlights on the following: philosophical point of the research, framework for the study, design of research instrument research design, data collection and data analysis.

#### **3.2 PHILOSOPHICAL POINT OF THE RESEARCH**

Philosophical interrogations of knowledge and value significantly influence the research framework adopted (Koetting, 1996; Christou, *et al.*, 2008). Accordingly, philosophical paradigms such as ontology, epistemology, axiology and methodology assumptions needs to be addressed explicitly since they shape the choice of research instruments (Christou, *et al.*, 2008). These paradigms are important, since a researcher, select research method that should be most appropriate for a context matching its underlying assumptions. More so, these paradigms are a set of interrelated assumptions about the social world, which provides a philosophical and

conceptual framework for the organized study of that world (Filstead, 1979; Hesse-Biber and Leavy, 2006). This means that paradigms are selected to guide the researcher in philosophical assumptions about the research in the selection of tools, instruments, participants, and methods used in his or her study (Denzin and Lincoln, 2000).

However, the research follows epistemology branch of philosophy which, deals with how individuals define what is right; positivism and interpretivism (Streubert & Carpenter, 1999). There are two main methods of these assumptions namely; positivism and interpretivist, which are associated with quantitative and qualitative. Positivism considers the social world as if it were concrete, objective reality, in a way that laws can be found that explain this reality. According to this view, this real world can be studied only through the utilisation of methods that prevent human contamination of its apprehension or comprehension. Interpretivist paradigm on the other hand, views social world as one that individuals create, modify, and interpret the environment within which they function. In essence, the understanding is that this interaction of individuals and the environment can produce knowledge of phenomena under investigation through the accumulation of verified facts; scientific knowledge is established (Bryman, 1992; *c.f* Osei-Hwedie, 2010). In effect, the research is on the proposition of the identification factors affecting professional project management practices and opportunities for development which must be carried out on unbiased and can be replicated.

Furthermore, ontological level, the position adopted for this research is objectivism. Ontology refers to enquiring the existence of a 'real' world that is sovereign of our knowledge; it is a theory of living being (Marsh & Stoker, 2002). This is because the understanding of PPMP in the GCI exists as external facts that are beyond the reach

and influence of the researcher. In addition, effective strategies PPMP are objective realities and not constructions of the researcher. Thus, in answering the research question: what are the strategies for improving PPMP? The objectivism ontological position was followed.

Subsequently, research strategy adopted for this study is the mixed method which combines quantitative (positivism) and qualitative (interpretivist) research approach to data collection, and the analysis of data which is also link to the empirical framework for the studies (*See figure 3.1*). In addition, combining two methods, it gives the opportunity for each of these methods to benefit from each other thereby avoiding the weakness in each approach (Mingers, 1997; Morgan, 2006). Creswell and Clark, (2007) point that mixed methods provide a more comprehensive approach in examining a research problem than either one of qualitative or quantitative method.

In achieving the first objective, a detailed literature review has considered. However, for the second objective, mixed method was adopted, in order to find out the infusion of project managers in the construction processes. In addition, the third objective of the research, it requires a deeper understanding of factors that are affecting and opportunities for the development of professional project management practices as pertain in GCI. It was therefore imperative that, the qualitative approach be selected because perceptions, beliefs, ideas and opinions are difficult to measure in a quantitative way. Lastly, in achieving the last objective quantitative approach was adopted in order to evaluate various factors identified from the second objective.

### 3.2 FRAMEWORK FOR THE STUDY

The framework of a study relates to the philosophical basis on which the research takes place and forms the connection between theoretical aspect and practical constituents of the investigation undertaken. However, frameworks are identified or developed to add an understanding to the phenomena undertaken or been observed by explaining it to the simplest form as possible (*c.f* Camp, 2000). It deals with the cognitive processes of discovering or manipulating intellectual categorization among relationship form the basis of theorization of any studies (*Ibid*).

To this extent, theoretical framework is a key to this study to position and hinge the critical issues of this study for operationalization of study variables to reflect the previous works to this study. It will be unrealistic to conduct the study without any theoretical basis as theory, knowledge and empirical understanding of issues especially the professional project management practices must be built on or within the existing acceptable standards.

Notwithstanding, the important nature of theoretical understanding of framework development in project management studies it must be known that there exist no explicit theory in project management practices (*c.f* Koskela and Howell, 2002).

More so, from literature point of view the research posit on developing empirical framework because the research is built on the empirical understanding, which places more primacy on observation and data collection without observing theory thereby using evidence to induce generalization (*c.f* Smyth and Morris, 2007). In addition, empiricism framework was the best approach considered in this research due to the extent that research decouples itself from the existing belief systems (*Ibid*).

The justification behind empiricism philosophical notion is that, evidence, as opposed to thought or discourse, is required to be able to make a satisfactory claim to have added to the body of knowledge (Pathirage, *et al.*, 2008). Hence, the empiricist goes out to into the world and observes through experiment or even by relatively passive observation of what is happening. The study therefore involved the collection of data based on real life situation and collection of related evidence, thus drawing conclusions of adding new knowledge to the body of knowledge.

To this extent, the framework is hinged on five major themes in the study, which is related to various research questions, and interrelated and interrelated. A variable in one theme can influence a variable in the others, and vice versa. Subsequently, these variables have been separately and collectively, been hypothesized as examination, understanding, opportunities, challenges and strategies for effective PPMP (*See figure 3.1*). The framework, deals with a number of independent the variables with central focal point been the key actors that is stakeholder, with the independent variables; examination can influence the understanding of PPMP base on stakeholders. For instance, basis on understanding the opportunities and challenges or constraints were identified. Consequently, these two will lead to strategies for effective PPMP.

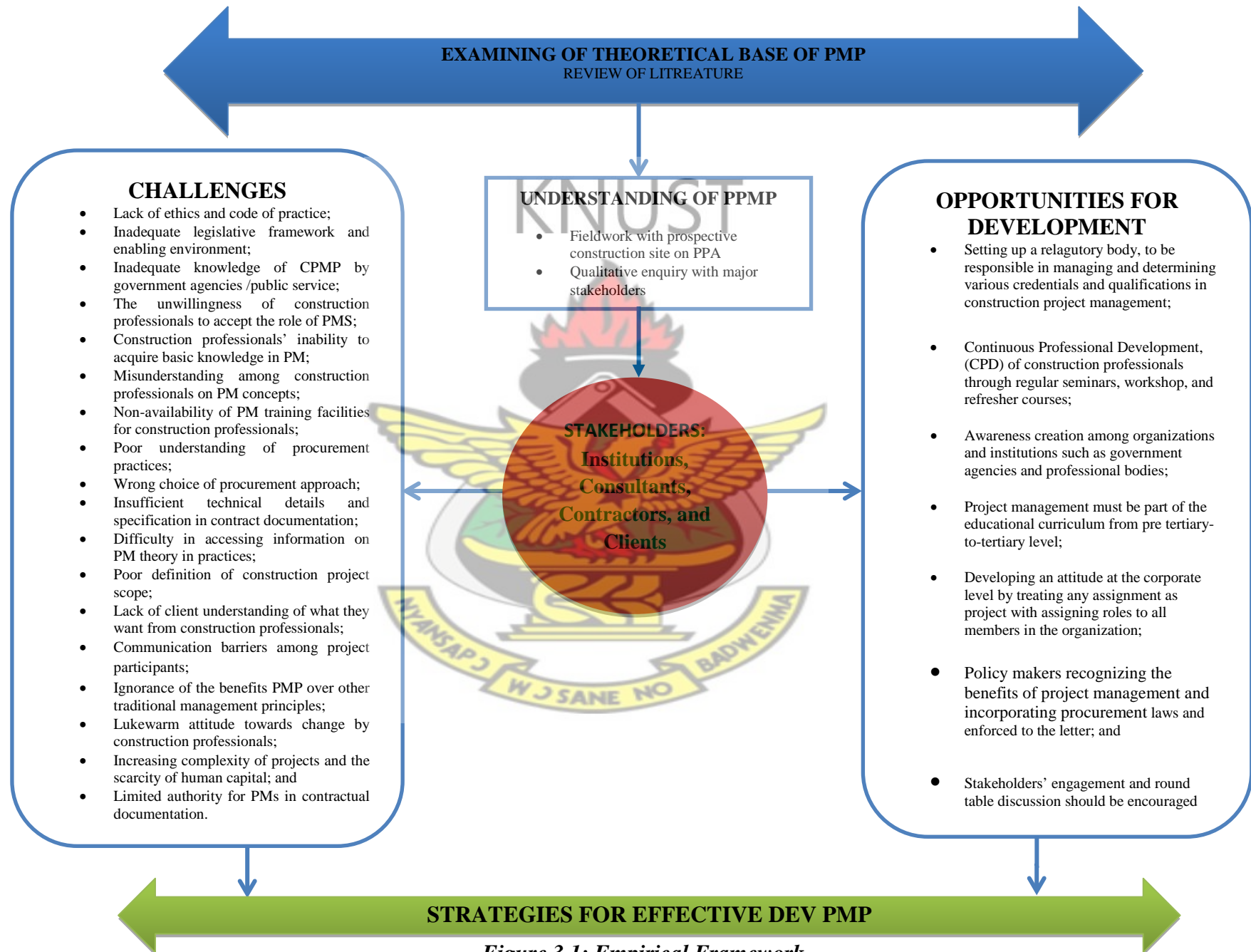


Figure 3.1: Empirical Framework

### 3.2.1 Defining the Independent Variables in Figure 3.11

The variables in figure 3.1 were obtained from the qualitative study in section 4.3 of the 4.3.1.6 and 4.3.1.7 under headings of challenges of PPMP and strategies for development of the PPMP. The following explain each independent variable:

**Examining theoretical** content PM practice considered literature review to establish the research gap for the need of this research.

**Understanding of PPMP:** in dealing with this it was therefore necessary to consider the critical and deep rooted issues of practicing project management as these affect the very foundations of the knowledge of project management practices; notable among these issues include the approaches for studying projects and project management (c.f. Svetlana & Damian, 2006). Key authorities notably Koskela & Howell, 2002; Maylor, 2001; Morris, 2004; Morris *et al.*, 2000; Winch, 1996 have all underscored the need for studying, developing and introducing pragmatic theoretical approaches to the field of projects and project management practices especially in conceptual building and its application in practice. In their elucidation on the theory of project management, Svetlana and Damian (2006) argued extensively that project management literature rely largely on language design; regularity and control to advance models for recommendation to enable humans to control and manipulate the complex world (c.f. Stacey, 2001; Wood, 2002). Hence, in understanding PPMP the social structure and patterns of interaction between those working within and affected by, the built environment and the agencies and institutions which structure was considered critical (Dainty, 2007). The theory of project management knowledge hinged on the natural sciences, which clearly recognizes the critical role of project actors and managers, referred to in Svetlana & Damian, (2006) as implementers whittled down the role with a resources bond.

**Challenges affecting PPMP** in GCI was drawn on basis of basis of the understanding of the major stakeholders, through a qualitative approached which indicated eighteen dependent variables (*see figure 3.1*). In addition, these challenges were further classified in various categories namely; Institutional, Client-related Professional, Contractual and Environmental.

**Opportunities for effective development of PPMP** were also drawn from the understanding perspective for stakeholders involved in the practices of PM in GCI.

**Strategies for Effective PPMP** for the effective development were basically based on analytical analyses on the bases of dependent variable conceded from the opportunities taking the challenges variables in consideration.

Drawing on from the above review, the proposition is to position the study in it theoretical sense is within the major key themes of research (*see figure 3.1*).

### **3.3 DESIGN OF RESEARCH INSTRUMENT**

In order to achieve the aim and objectives of the study, desk survey, semi-structure interview schedule, and close-ended questionnaires were designed to gather information from practitioners in the fields of project management practices. These questions were ethical and feasible. The wordings were without bias and the questions provided multiple choice options which gave the respondents the opportunity to present their ideas by way of selecting from the options provided.

The desk survey (literature review) forms an essential aspect of the research since it sets the pace for the development of questionnaire and interviews (Fadhley, 1991). As the research framework consisted of both qualitative and quantitative approaches,

the examination of the existing literature was therefore imperative (*see figure 3.1: examining of theoretical base of PMP*).

In addition, semi-structured interview was chosen as the method in the first part of research. The reason for choosing the semi-structured interview technique was essentially due to the researcher's aim to encourage the interviewees to freely discuss their own opinions or perceptions of PPMP. This method with open-ended questions allows for adjusting the questions depending on the attributes of the specific firm/client/institution/ professional and the given type of problems in their knowledge area. According to Darmer, (1995) the semi-structured interview is neither a free conversation nor a highly structured questionnaire. Semi-structure interviews provide the opportunity to regulate the order of the questions and the respondents have the possibility to expand their ideas and speak in detail about diverse subjects rather than relying only on concepts and questions defined in advance of the interview. In other words, semi-structured interviews are more flexible than standardised methods such as the structured interview or survey [See appendix 2].

Lastly, Close-ended questionnaires were which was easier for respondents to answer and it also help researchers to analyze their data easily. Salant et al (1994) are also of the view that closed-ended questions with unordered choices, for example the multiple choice questions are useful for ranking items in order of preference. In this case the study uses the construct generated the qualitative to develop the close ended questionnaires as these variables are indicated in figure 3.1 under these heading of challenges and opportunities. Further, Fowler et al (1995) suggested that close-ended questionnaires are used to gauge the respondents' ability to provide informed

responses or to identify respondents who believe they are informed and compare their responses to those who do not believe they are informed. McIntyre (1999), Fowler et al (1995) and Salant et al (1994) further asserted that researchers must avoid questions that ask the respondent for data they could not or do not have, including questions that assume the respondent knows something about the subject and more so personal questions. Objectionable statements that reflect the researcher's bias and questions that require difficult calculations should similarly be avoided in the case of wording of questionnaires. They observed that questions with predisposition type, either for or against a particular perspective should be avoided, because such questions may be leading or may include assumptions that may not be true. [See appendix 2].

### **3.4 DATA COLLECTION**

#### **3.4.1 Sampling Techniques and Sample Frame**

The sampling approach adopted for the study followed a sequential process (Teddlie and Yu 2007), involving first a purposeful sampling technique for the selection for participation in semi-structured interviews, followed by snowballing sampling technique for administering survey questionnaires.

#### **3.4.2 Purposive sampling**

Purposive sampling refers to strategies in which the researcher exercises his or her judgment about who will provide the best perspective on the phenomenon of interest, and then intentionally invites those specific perspectives into the study.

To this extent, the first section of the research deal with a total sample of thirty (30) construction sites which were selected in both Accra and Kumasi. This involved the use of signpost and non-standardised interview approach. These sites were selected

on the basis that projects undertaken were mega projects even by international standards. The location of the projects as listed also indicates that these projects are located in very prime areas of Accra and Kumasi, the capital and second largest city respectively (*see table 4.3*).

Furthermore, the second section, a sample size of twenty (20) was involved by the use of major stakeholders. These people and organisation were chosen because of their experiences in the GCI and the type of project they have undertaken over the past years and recently [see appendix 3]. However, in most clients' organisation, consultants, contractors, and institutions interviewed, the focal point was people in charge of project management issues, principal consultants, project managers, and presidents were respectively involved.

Data was collected by the use of semi- structured interviewed schedule; each interview lasted for one to two hours as the process deals with: identify client/institutions/consultants and contractors, identification of key contact, set up interview, obtaining of supporting document from these organisation, interview on main issues, interview on issues raised by interviewee, transporting, noting and recording of text and analysed by the use of Nvivo 8. However, in order to increase the reliability of the answers all interviews were recorded. Subsequently, transcribed materials were sent back to the respondents, statements were amended according to the respondents' comments and finally the materials were approved by the interviewees. To avoid some obvious ethical problems, the interviewees were informed of the research they were about to part take, and that the interviews were to be recorded.

The last section of the data collection combines the use of purposive sampling snowball sampling method. The purposive sampling techniques were used to select

the class of construction companies for the questionnaire administration. However, snowball sampling was utilised in attaining the sample size because of the difficulties encountered in assessing the population size of the class of contractor and professional who practice project management. Snowball sampling is a technique for finding research subject (Atkinson and Flint, 2001). One subject in this sampling technique gives the researcher the name of another subject, who in turn provides the name of a third, and so on thereby overcome the problems associated with concealed or hard-to-reach populations. This survey covered D1 K1 and D2 K2 construction firms registered with the Association of Building and Civil Engineering Contractors in Ghana. This is because the first source for the list of contractors, which should have been the Ministry of Water Resources, Works, and Housing, which register contractors, did not have a general list as at March 2012. The second source available therefore was the Association of Building and Civil Engineering Contractors in Ghana. This is the biggest association which Building and Civil Engineering contractors in Ghana belong. However, the research considered only D1 K1 and D2 K2 contractors in Greater Accra Region and Ashanti Region. These regions were chosen because of the high concentration of multi-national and large-scale local of construction projects. More so, contractors were selected based of their experience and the type of project they have undertaken in terms of the complexity.

Similarly, snow balling technique was used to in administering questionnaires to professionals who were involved in the project management practices. These professionals were made of quantity surveyors, architect, project managers, and Structural engineers. In order to contact them a list of these professional was obtained from their professional bodies namely: the Ghana Institute of Surveyor (GhIS), Ghana Institute of Engineer (GhIE), Project Management Institute (PMI),

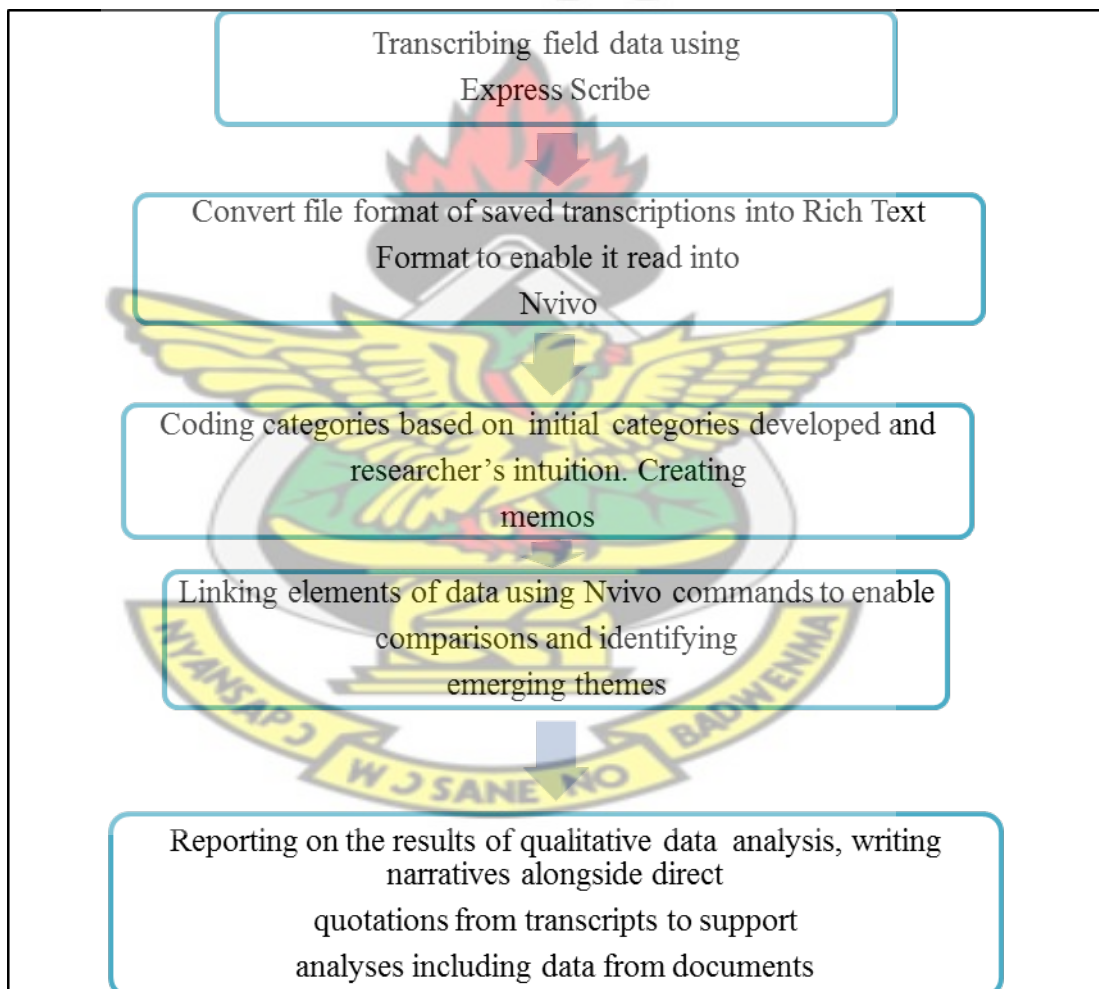
Ghana chapter and Ghana Institute of Architect (GIA). For this, the research adopted the use of likert scale in the determination of the level of influence for constraining factors (least to highest that is on five scale levels) and development factors the level of importance was determined. On a whole, a total number of 183 questionnaires were sent, out of which 143 were retrieved which represent 78% response rate.

### **3.5 DATA ANALYSIS**

The analyses were also in two parts that is both qualitative and quantitative. The qualitative involved inducting insights from the interview data, and processing the data further in order to gain more in-depth understanding of the phenomenon under studied. Organizing the research data for analysis is a phase that often demands substantial effort when qualitative methods, as in this case, are used (Hirsjarvi *et al.*, 1997). Hence, critical error in qualitative research is to combine data without adding interpretation or analysis (Koskinen *et al.*, 2005). In avoiding this, transcriptions of the interviews were categorized and coded using Nvivo 8 Software Method (figure 3.2 below, procedure for Nvivo 8 analysis). The thinking, reflecting, linking elements of data and developing memos and annotating of the contents of responses and documents allowed themes to emerge.

The interview transcripts were coded based on what was discussed and what the key findings from the specific interviews were. The key findings were then classified and arranged into categories that developed from the data. Furthermore, the interview transcripts were cross-referenced to identify relevant information that complemented some of the institutions. Notwithstanding, notes and documents from the field were analysed and interpreted in the light of the interview reports. Different data were then examined for corroborating evidences and contradictions.

In the quantitative analysis, chi-square tests employed to compare observed and expected frequencies objectively, since it is not always possible to tell just by looking at them whether they are "different enough" to be considered statistically significant, factor analysis was also employed with the aim of finding groups of related variables and thus idea reducing a large number of variable into a more easily understood framework and one sample T-test e sample was employed statistical to performed test for the mean value of the distribution of factors identified for effective practices of PM in GCI.



**Figure 3.2: Procedure for Nvivo 8 Analysis**

## **SUMMARY**

As noted, this chapter outlined key elements that are very primary in deciding a suitable research methodology to address any research problem. The research the underlying philosophical assumptions of the research methods and framework linking between the five variables thereby indicating methodology adopted for the study; method of data collection employed by the study. The analytical technique adopted for the study has also been explained. The chapter that follows presents the results of the study.



## CHAPTER FOUR

### ANALYSIS AND DISCUSSION OF RESULTS

#### 4.1 INTRODUCTION

Previous chapters addressed the introduction, the review of relevant literature, and the research methodology adopted. This chapter provides a detailed explanation of the main survey results and relating its findings to the Ghanaian construction industry. This chapter is in four sections, which represents the various analysis and findings in relation to the specific objectives set. These are:

- Status of the Project Management on Ghanaian Construction Site;
- Stakeholders Understanding of Professional Project Management Practices;
- Constraints to the Development of Professional Project Management Practices in the Ghanaian Construction Industry; and
- Strategies for Improving Professional Construction Project Management Practices in the Construction Industry.

The data analysis is in two parts; qualitative and quantitative respectively. The qualitative analysis involves the use of Nvivo 8 which is shown in the **section 4.3**. The quantitative analysis involves the use of chi-square (as shown in **section 4.2**), factor analysis (principal component) (as shown in **section 4.4**) and one sample t-test or mean score analysis (as shown in **section 4.5**).

## 4.2 STATUS OF THE PROJECT MANAGEMENT ON GHANAIAN CONSTRUCTION SITE

This section deals with the status of project manager on Ghanaian construction site in public sector works procurement. In order to ascertain the status of project manager in construction projects, thirty (30) construction sites were visited through a questionnaire survey, interview and observation. The results of quantitative data collected are indicated in the Table 4.3. The designations as found on the billboards were Quantity surveyors (QS), Architects (Arch), Contractors (C'tor) and Engineering services (Eng.) were recorded (*see table 4.3*).

### 4.2.1 DATA ANALYSIS

#### 4.2.1.1 Chi-Squared Test for PMs Involvement in Construction Projects

Ho:  $\mu \leq 0.05$ : All construction projects involved PMs

H1:  $\mu \geq 0.05$ : All construction projects do not involved PMs

This hypothesis was tested using Chi Square ( $X^2$ ) test of significance at conventionally p-values of  $p \leq 0.05$ . The rule for acceptance or rejection hypothesis is that, accept if p-value is  $> 0.05$ ; and reject if p-value  $\leq 0.05$ . The results of the Chi Square tests as presented in Table 4.2 above indicated that; that p-value of 0.000  $< 0.05$  therefore there is enough evidence to reject the claim project manager are involved. This further indicates that, not all project sites, which were, involved in the study use project managers (PMs).

#### 4.2.1.2 Discussion of Result

As already noted, the earliest indication of the use project management in Ghana dates to the late 1980s, when it was reportedly used on mass housing in building projects (Ahadzie and Amoah-Mensah, 2010). The case studies documented through anecdotes suggested the use of project management concept on these projects proved successful (Ahadzie *et al.*, 2004; Ahadzie and Amoah-Mensah, 2010). These case studies are equally true that the use of project management in the general construction sector is not very much highlighted; casting doubt on the true reflection of how vital, the concept may be to an integrated contemporary construction practice in Ghana. The specific requirement for project manager in public sector medium size construction projects marks a turning point in GCI on the integration of the PM system. However, this empirical data suggest that even though enough recognition is given to the PM concept, this is all theoretical, as the practical application is not manifested.

Indeed, a very important issue to be confronted in the Ghanaian case is that the definition of the term PM is vague and contentious. As noted by Godwin (1993), the fundamental premise on which project management is based by given a single individual or group; the authority to manage and lead the design and construction of the project from inception to completion. This means that the PM then becomes accountable for the success or failure of the projects. Many seminal works (*c.f.* Walker, 2002; CIOB, 2002) concur that the PM is responsible for the management of the project from inception to completion. As has been shown in the data collected only three (3) representing 10% of projects site visited presently had the title PM designated on the billboard. On these projects, there is an indication that there is a mismatch or perhaps misunderstanding on the theoretical and practical application of

PPMP in Ghana. Furthermore, project management concept indeed spans many generations having started in the 1950s/1960s (Austin, 2000). There is also numerous evidence that, PM presents a potential of addressing many managerial challenges in modern construction management (Liu et al., 2004). With all the advantages of PPMP, Ghana has not taken pragmatic steps to integrate it into construction practice. From the data collected, it was realized there is little or no awareness of the project management practice as required by the condition of contract for medium size projects for public sector works as even some of these project were public works and some qualify as medium-sized project (see appendix 4). The title project management is at least as shown in the evidence gathered is largely theoretical for now and has yet to be feature on billboard of many construction site.

**Table 4.1: The involvement of project managers in construction projects**

	<i>Observed N</i>	<i>Expected N</i>	<i>Residual</i>
YES	3	15.0	-12.0
NO	27	15.0	12.0
Total	30		

**Table 4.2 Test Statistics**

<i>The involvement of project managers in construction projects</i>	
Chi-Square	19.200 <sup>a</sup>
df	1
Asymp. Sig.	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 15.0. N=Number of respondents, Df=Degree of freedom

**Table 4.3: Showing professionals listed on billboards**

Project Name	General Professionals			PM	Location
	QS	Arch	Eng.	C' TO R PM	
Offices, Shopping Mall, Hotel and Restaurant Complex	✓	✓	✓	✓	✓ Accra Central
Const. of 12 Storey Law House	✓	✓	✓	✓	× Airport City- Accra
Three Storey Office Complex	✓	✓	✓	✓	× Airport City-Accra
Const. of Multi-Storey Car park	✓	✓	✓	✓	× Tema Station-Accra
Hotel Complex	✓	✓	✓	✓	✓ Osu -Accra
Three Storey Office Complex	✓	✓	✓	✓	× Tema station -Accra
Church Hall Complex	✓	✓	✓	✓	✓ Ridge, Osu-Accra
Const. of Residential Building Complex	✓	✓	✓	✓	× Osu-Accra
Const. of Storey Ministerial Building	✓	✓	✓	✓	× Osu-Accra
9th Avenue Square	✓	✓	✓	✓	× Osu-Accra
National Data Centre	✓	✓	✓	✓	× Osu-Accra
Head Office Building for an Insurance company.	✓	✓	✓	✓	× Independence Avenue ,Accra
Shipper Centre	✓	✓	✓	✓	× Independence Avenue ,Accra
Visit and Tourist Information Centre	✓	✓	✓	✓	× 37,Accra
Office Complex	✓	✓	✓	✓	× Osu-Accra
Shopping Mall	✓	✓	✓	✓	× Airport City-Accra
Office Project for PPA and Internal Audit Agenda	✓	✓	✓	✓	× Airport-Accra
Office Building for Ministry of Foreign Affairs	✓	✓	✓	✓	× Airport-Accra
Conversion of State House Tower into Office for Parliamentarian(Job 600)	✓	✓	✓	✓	× Osu-Accra
Office complex council of state	✓	✓	✓	✓	× Airport-Accra
Fuel Project for Airport	✓	✓	✓	✓	× Tetteh Quarshie,Accra
Polo Height Complex	✓	✓	✓	✓	× K.N.U.S.T-Kumasi
Const. of Five(5)Storey Building for College of Engineering	✓	✓	✓	✓	× K.N.U.S.T-Kumasi
Const. and Completion of Four(4) storey	✓	✓	✓	✓	× Adum –Kumasi
Const. of Pedestrian Footbridge	✓	✓	✓	✓	× Adum –Kumasi
Office Complex for Ben Delta	✓	✓	✓	✓	× Komfo Anokye-Kumasi
Eye Care Surgical Training Centre	✓	✓	✓	✓	× Komfo Anokye-Kumasi
Const. Mother and Child Unit	✓	✓	✓	✓	× Asafo –Kumasi
Redevelopment of Asafo Market	✓	✓	✓	✓	× Kumasi Polytechnic
Const of Multi-Storey Academic Block Complex	✓	✓	✓	✓	

### **4.3 THE STAKEHOLDERS UNDERSTANDING OF PROFESSIONAL PROJECT MANAGEMENT PRACTICES**

This section presents the results of the fieldwork in the study setting. This section deals with qualitative enquiry in stakeholders understanding of PPMP in the Ghanaian construction industry. The results of exploratory interviews conducted with a total number of twenty (20) major stakeholders were selected purposively based on their experiences and profile of works they have undertaken (see appendix 3 and Table 4.2).

It presents empirical data on stakeholders understanding of PPMP obtained from semi-structured interviews and documentary sources as narratives and quotations. The section presents results from the viewpoint of institutional stakeholders, on understanding of PPMP within Ghanaian construction in relation to:

- Their understanding of PM;
- Their understanding of the term project manager;
- Their understanding of the and duties of the project manager;
- Their understanding of what should constitute of appropriate educational level of the PMs;
- Condition of Contract for Medium- Sized Works on Project Management;
- Challenges Affecting Practicing of PMPP in the Industry ;and
- Strategies for Development of the PPMP

**Table 4.4: Sample Size for Section Two**

<i>CLIENT</i>	<i>CONSULTANT</i>	<i>CONTRACTOR</i>	<i>INSTITUTION</i>
<i>Social Security and Insurance Trust(SSNIT)</i>	<i>BRRl</i>	<i>Krane Construction Limited</i>	<i>Ghana Institute of Surveyor (GhIS)</i>
<i>HFC Bank Limited</i>	<i>CSI Consult</i>	<i>Consar Limited</i>	<i>Ghana Institute of Engineers (GhIE)</i>
<i>Ministry of Water, Work and Housing</i>	<i>A-KON Consult</i>	<i>Michelettic and Company Limited</i>	<i>Ghana Institute of Architect (GIA)</i>
<i>Newmont Ghana Limited</i>	<i>Sohne &amp; Partners</i>	<i>Berock Ventures Limited</i>	<i>Project Management Institue,Ghana Chapter (PMI)</i>
<i>Getfund</i>	<i>Architectural Engineering And Services Limited</i>	<i>Jescan Construction Limited</i>	<i>Association of Building and Civil Engineers Ghana.(ABCEG)</i>

### **4.3.1 PRESENTATION OF INFORMANTS' VIEWS**

#### **4.3.1.1 Project Management (PM)**

Every organization or institution has a conceptualized definition for project management. Similarly, the term project management has become one of the most common term used by various stakeholders in the construction industry. The comments of a respondent explain this term as follows:

*“PM it is a set of management processes for creating any unique value in a project context, which is mission driven, systematic, time bound, and resource constrained” (informants’ view)*

However, this definition as given by the respondents records the same understanding by several authors notably Akewushola *et al.*, (2012) and Walker (2002). In addition, five respondents were of the view that there should be three basic principles guiding the definition as commented below:

*“Establishment of the requirements and objectives of the project. The formulation of a management plan to meet the objectives of the project and ensuring that the*

*project completed successfully and that the necessary stakeholders accept all deliverables* “(informants’ view)

This concurs with the assertion by Koskela and Howell, (2002) on the three basic action of PM. More so, definitions vary depending on the type of industry or discipline under consideration, which confirms Ahadzie *et al.*, (2005) asserting that definition varies depending on the industry under consideration.

#### **4.3.1.2 Project Manager (PMs)**

The term project manager is well known and has been attributed to the success or failure of a project. Ahadzie *et al.*, (2005) indicated that the definition for the title PM is a subject that remains debatable amongst academic writers. However, the title commented as:

*“PMs in two parts thus; project manager on the perspective of the client and that of the contractor” (informants’ view).*

Notwithstanding, Walker (2002) argues that, it is necessary to concentrate on the duties of the PM rather than what should be the precise definition or title, since what the PM does and not the title holds the key to achieving project objectives. As lamented by the respondents are as follows:

*“On the perspective of the client, project manager is the leader of the construction team and liaison officer between the client and the design team thereby coordinating the works of the consultants and managing the project from inception to completion acting as a separate entity or part of the consultant group” (informants-Consultants).*

*“Project managers are referred to as project directors or coordinators as per their roles they undertake especially in government institutions” (informants’-client organization).*

*“Project management on the perspective of the contractor they act as spokesperson to the construction team and they must not be referred to as project managers but instead contract manager” (informant- construction companies).*

Despite this, the research is pinned on a situation of having one individual or an entity-managing project from inception to completion thereby harnessing resources to achieve the desirable of the client (Godwin, 1993, Winch, 2000).

#### **4.3.1.3 Roles and Duties of Project Manager**

The duties of project manager as identified depend on the time and the stage upon which the project manager's contract administered. These stages are pre-contract, construction or contract and post-contract. Winch and Kelsey (2005) argued that for project management practices to be a success, a project must be managed and administered under the three stages mentioned. Some of these duties as commented by respondents are:

*“Take client brief, Site Acquisition and funding, Setting up project team, Establishing a clearly defined scope of works including specifications, Recruiting of staff, Development of project cycle, Scheduling the various components of the project to meet the overall project objective, Identifying possible risks and the formulation of risk management plans, Implementation of design, Review of design and managed construction, Resource auditing in the utilization process, Establishing the various inputs (materials, labour and equipment), Effective monitoring and controlling of various aspects of projects with the aim of remedying any deviations from the original plan, Updating the client – making sure that things go well as the client's specification, Coordination of activities with the entire consultant, Serve as liaison officer between the client and the consultants, Communication management, Planning, and executing and managing the procurement of the various inputs required for a successful implementation of the project” (informants' view)*

#### **4.3.1.4 Educational Level of Project Managers**

The need for successful completion of a project and management skills depends on the educational level of PMs (Hatchett, 1980), it therefore imperative to examine the educational level and training needs of PMs in developing their knowledge and skills. As indicated by respondents;

*“The minimum educational level of PMs is a tertiary degree either a Bachelor or Higher National Diploma (HND) with requisite experience. In addition, fresh*

*graduates from tertiary institution cannot assume the position of PMs, whether his or her tertiary degree is in PM” (informants’ view)*

This finding is in accord with Enhassi *et al.*, (2009) who indicated that novice should not manage construction site, since requisite skills, knowledge, and experience are required for effective and efficient project management practices.

Moreover, professional recognition, through associations with professional bodies have become predominant among project management professionals for boosting individual career development and should not be the main yardstick for job placement.

On this basis, the research probes further into project manager qualification, which it remains a contentious question (Ahadzie *et al.*, 2005) of what should be the appropriate professional background of the PMs. As recounted by respondents;

*“Any professional in the built environment can be qualified to be a construction project manager” (informants’ view)*

This however, contradicts with the assertion of CIOB (2002) and Ogunlana *et al.*, (2002) that PMs can be from any professional background. However, this finding is mainly in the context of respondents working experience and environment in which they operate. In addition, construction is technical in nature and requires technical knowledge and experience, which are key factors in achieving a comprehensive and effective project management system.

PM is therefore not only about the use of project management tools and systems but individual technical expertise. Drawing from the above, the research advances that there should be training processes for which construction project managers go through in order to qualify as project manager. This training should deal with the following requirement as lamented by respondents:

*“Advance training in PM; Exposure and knowledge in managing projects; Must have worked under someone not less than five years; Ability to organise work and personnel; and Knowledge in contract administration” (informants’-institution).*

#### **4.3.1.5 Condition of Contract for Medium- Sized Works on Project**

##### **Management**

The condition of contract for medium-sized works gives a further indication of the need of project management practices in Ghana; respondents lamented on the situation

*“They were aware of the condition of contract for medium- sized works making of a specific mention of the title project manager” (informants’-view).*

More over the project manager is more of a specialty or trade training rather than been referred in the past as the **lead consultant**, who has much weakness in dealing with modern construction system such as integrated approach in stakeholders’ management. Therefore, as indicated, project manager concept is a one-stop system where clients deal only with project manager, who has other people or consultants working under him or her with no contractual relationship with the client. However, respondents lamented that this concept is not reflective of normal practice of PMs.

*“The roles given in the condition of contract for medium- sized works are not comprehensive enough, it lacks technical expertise of a project manager and the meaning is too shallow to fit the role to be performed by the project manager. And three were not aware” (informants’ view).*

#### **4.3.1.6 Challenges Affecting Practicing of PMPP in the Industry**

PMPP in the construction industry is strongly beneficial to the users, due to this respondents were asked what they thought were the main difficulties they faced in the project management practice. Respondents’ answers described various challenges confronting the construction industry in the practices of the project management in Ghana. More so, some of these challenges were concurrence with

literature as expressed by other researchers. Notwithstanding, some these challenges were not consistent with literature, which give strong indication that this is peculiar to Ghana building industry in it reference to it socio-economic development. The respondents recounted as shown in **Table 4.5**

**Table 4.5: Challenges of PPMP in Ghana**

<i><b>CONSISTENT WITH LITERATURE</b></i>	<i><b>AUTHORS</b></i>	<i><b>INCONSISTENT WITH LITERATURE</b></i>
<i>Inadequate knowledge of construction project management practices by government agencies /public service;</i>	<i>Rwelamila,2004;Gow and Morss,1988 ;Kartam et al.,2000</i>	<i>Lack of ethics and code of practice for construction project management professionals</i>
<i>Construction professionals inability to acquire basic knowledge in project management</i>	<i>Du,2001</i>	<i>Inadequate legislative framework and enabling environment for project management practices</i>
<i>Misunderstanding among construction professionals on project management concepts</i>	<i>Liu 2004</i>	<i>The unwillingness of construction professionals to accept the role of project managers</i>
<i>Poor definition of construction project scope</i>	<i>Chung-Suk and Edwards,2001;</i>	<i>Non-availability of project management training facilities for construction professionals</i>
<i>Lukewarm attitude towards change by construction professionals</i>	<i>Loo,2002</i>	<i>Poor understanding of procurement practices</i>
<i>Communication barriers among project participants;</i>	<i>Abbasi And Al-Mharmah,2000</i>	<i>Wrong choice of procurement approach</i>
<i>Lack of client understanding of what they want from construction professionals</i>	<i>Irem,2005</i>	<i>Insufficient technical details and specification in contract documentation;</i>
<i>Increasing complexity of projects and the scarcity of human capital</i>	<i>Crawford et al.,2006</i>	<i>Limited authority for project managers in contractual documentation</i>
<i>Difficulty in accessing information on project management theory in practices</i>	<i>Koskela and Howell,2002 ;Shenhar 1998;Turner,1999</i>	<i>Ignorance of the benefits of project management practices over other traditional management principles;</i>

#### **4.3.1.7 Strategies for Development of the PPMP**

In all respondents lamented on the following as a medium for the improvement of the practices in GCI. Many of the respondents indicate that for efficient system to be in place and complement with condition of contract for medium- sized works these strategies should be instituted. These are as follows:

- *“Setting up a regulatory body, to be responsible in managing and determining various credentials and qualifications in construction project management;*
- *Continuous Professional Development, (CPD) of construction professionals through regular seminars, workshop, and refresher courses;*
- *Awareness creation among organisations and institutions such as government agencies and professional bodies; Project management must be part of the educational curriculum from pre tertiary-to-tertiary level;*
- *Developing an attitude at the corporate level by treating any assignment as project with assigning roles to all members in the organisation;*
- *Policy makers recognising the benefits of project management and incorporating procurement laws and enforced to the letter; and*
- *Stakeholders’ engagement and round table discussion should be encouraged among project participant e.g. pre-construction conference” (informants’ view)*



#### **4.4 CONSTRAINTS TO THE DEVELOPMENT OF PROFESSIONAL PROJECT MANAGEMENT PRACTICES IN THE GHANAIAN CONSTRUCTION INDUSTRY**

This section deals with quantitative analysis PPMP constraints. A total number of one hundred and eight-three (183) questionnaires were administered to respondents' professionals and contractors, who were involved in the use of project management concepts. One hundred (143) questionnaires were retrieved which represent 78% response rate. A questionnaire had two (2) parts: demographic and constraining factors affecting the development of PPMP.

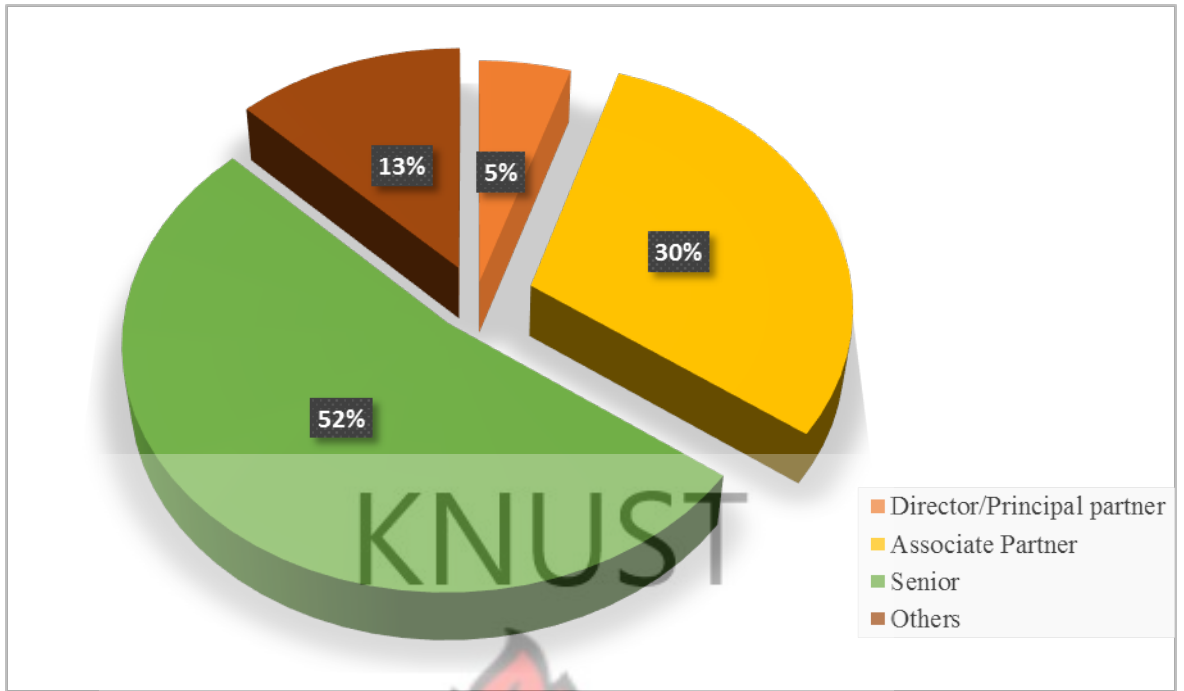
##### **4.4.1 Demographic of Respondents**

The presentation of the results from the survey on the demographic of respondent was analysed using descriptive analysis. The goal was to present both the background information of professionals and contractors who took part in the study. Knowing the background information will help generate confidence in the reliability of data collected. The following indicates background information of respondents:

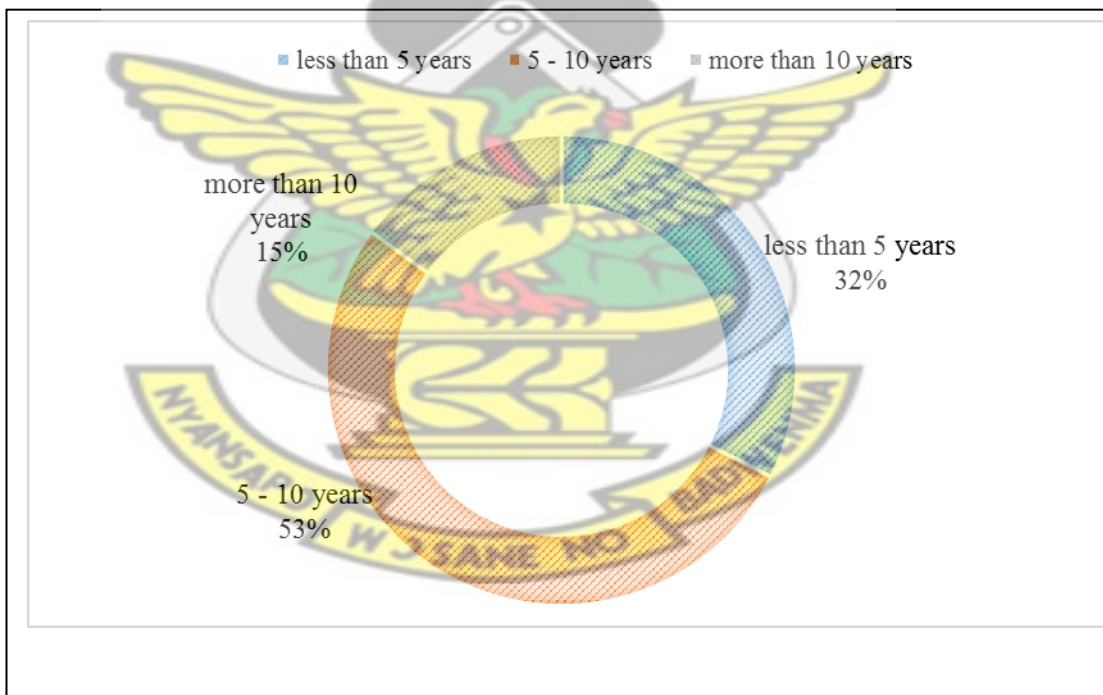
- 4.6 Professionals considered and their professional association;
- 4.7 Status of Professionals in their organization;
- 4.1 Experience of respondents in professional construction PPMP;
- 4.2 The number of projects managed within the last 5 years;
- 4.8 Kinds of construction projects professionals;
- 4.3 Classification of Contractors;
- 4.4 Experience of respondents;
- 4.9 Number of projects undertaken within the last 5 years;
- 4.10 Kinds of projects undertaken within the last 5 years; and
- 4.11 Kind of construction projects respondents managed within the last five years

**Table 4.6 Cross tabulation of Profession of respondents and Professional Association respondents belong to**

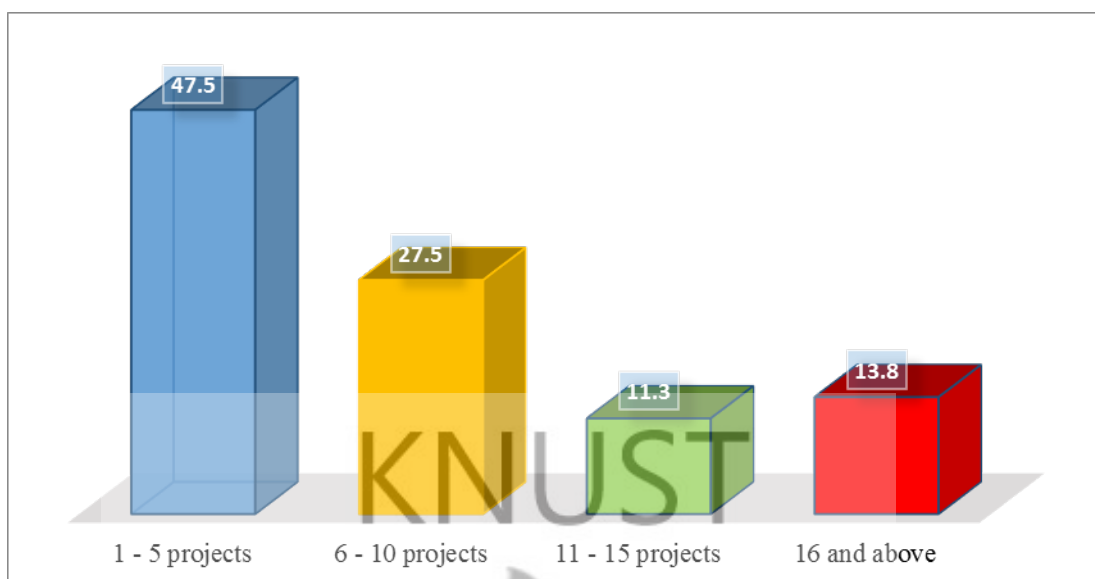
		Professional Association respondents belong to							
		Ghana Institution of Architects (GIA)	Ghana Institution of Surveyors (GhIS)	Ghana Institution of Engineers (GhIE)	Project Management Institute (PMI)	International Project Managers Association (IPMA)	Others	Total	
Profession of respondents	Architect	<i>Count</i>	20	0	0	0	0	0	20
		<i>% within Profession of respondents</i>	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
		<i>% of Total</i>	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.0%
	Quantity Surveyor	<i>Count</i>	0	16	0	0	0	4	20
		<i>% within Profession of respondents</i>	0.0%	80.0%	0.0%	0.0%	0.0%	20.0%	100.0%
		<i>% of Total</i>	0.0%	20.0%	0.0%	0.0%	0.0%	5.0%	25.0%
	Project Manager	<i>Count</i>	0	1	1	16	2	0	20
		<i>% within Profession of respondents</i>	0.0%	5.0%	5.0%	80.0%	10.0%	0.0%	100.0%
		<i>% of Total</i>	0.0%	1.3%	1.3%	20.0%	2.5%	0.0%	25.0%
	Civil Engineer	<i>Count</i>	0	6	14	0	0	0	20
		<i>% within Profession of respondents</i>	0.0%	30.0%	70.0%	0.0%	0.0%	0.0%	100.0%
		<i>% of Total</i>	0.0%	7.5%	17.5%	0.0%	0.0%	0.0%	25.0%
<b>Total</b>	<b>Count</b>	<b>20</b>	<b>23</b>	<b>15</b>	<b>16</b>	<b>2</b>	<b>4</b>	<b>80</b>	
	<b>% within Profession of respondents</b>	<b>25.0%</b>	<b>28.8%</b>	<b>18.8%</b>	<b>20.0%</b>	<b>2.5%</b>	<b>5.0%</b>	<b>100.0%</b>	
	<b>% of Total</b>	<b>25.0%</b>	<b>28.8%</b>	<b>18.8%</b>	<b>20.0%</b>	<b>2.5%</b>	<b>5.0%</b>	<b>100.0%</b>	



**Figure 4. 1 Status of respondents in their Organization**



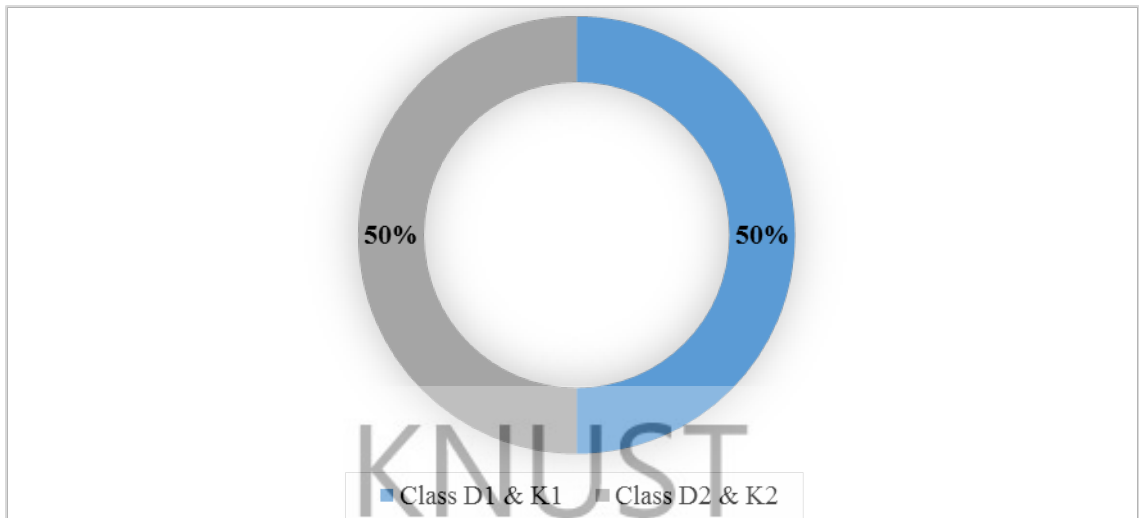
**Figure 4. 2 Experience in professional construction management practices**



**Figure 4. 3** Number of projects undertaken in last 5 years

**Table 4.7** Kind of Construction Projects Respondents Managed Within the Last Five Years

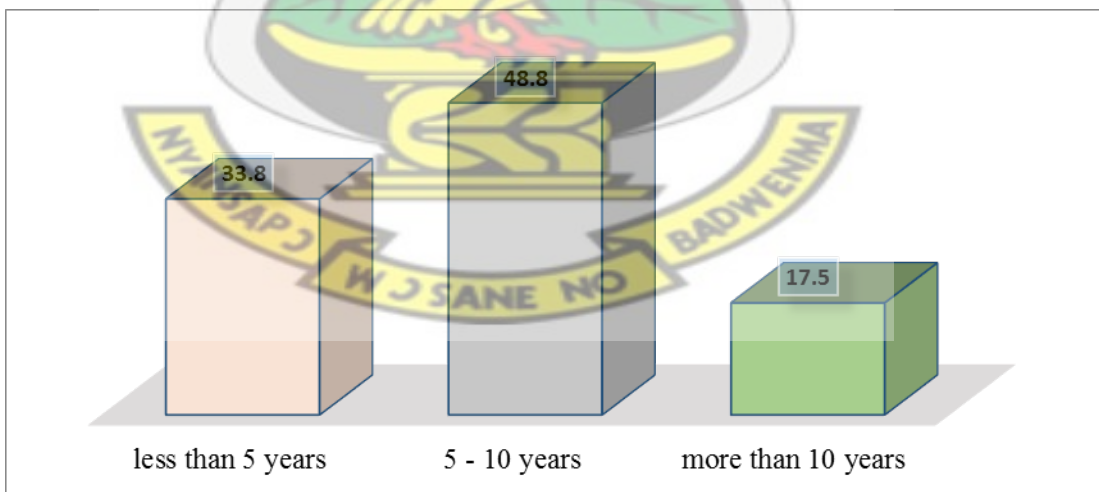
	Number	% of response
<i>Large scale Residential houses (not including storey type)</i>	9	11.3
<i>Large scale Residential houses (only storey type)</i>	5	6.3
<i>Large scale residential houses (all types)</i>	27	33.8
<i>Office accommodation</i>	17	21.3
<i>hostels, hotels etc.</i>	4	5.0
<i>industrial buildings e.g. factories, workshops etc.</i>	1	1.3
<i>institutional buildings e.g. school, hospitals etc.</i>	16	20.0
<i>others</i>	1	1.3
<b>Total</b>	<b>80</b>	<b>100.0</b>



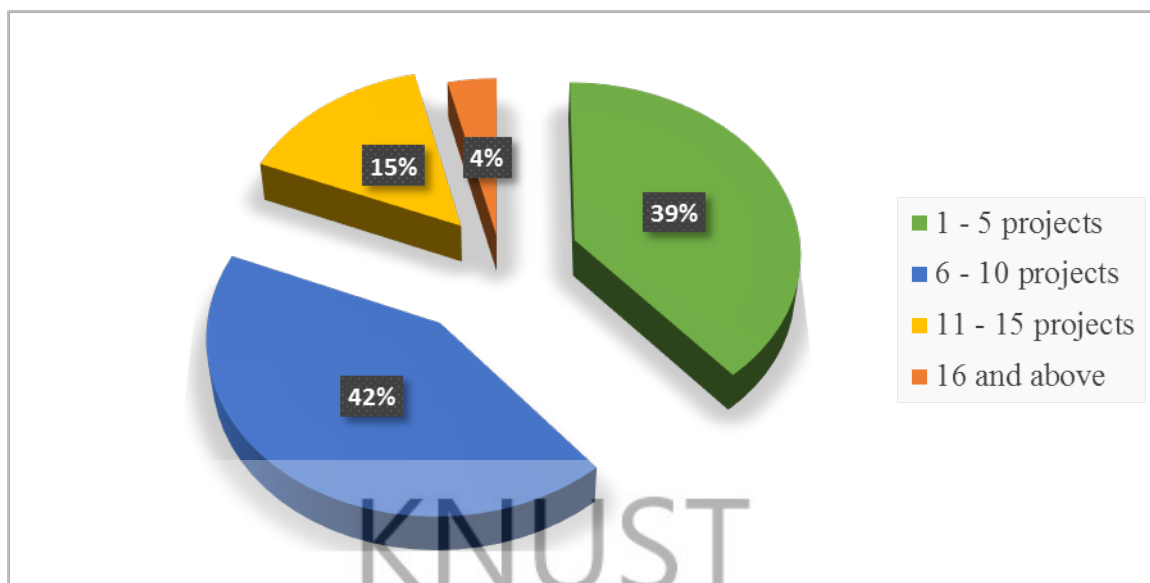
**Figure 4. 4 Classification of contractors considered under the survey**

**Table 4.8 Status of Respondents in their Organisation**

	<i>Frequency</i>	<i>Percent</i>
<i>Director/Principal partner</i>	21	33.3
<i>Associate Partner</i>	22	34.9
<i>Senior</i>	20	31.7
<i>Total</i>	63	100.0



**Figure 4. 5 Experience of respondent**



**Figure 4. 6 Projects undertaken by respondents within last 5 years**

**Table 4.9 Kind of construction projects respondents managed within the last five years**

<i>Projects</i>	<i>Frequency</i>	<i>Percent</i>
<i>Large scale Residential houses (not including storey type)</i>	3	4.8
<i>Large scale Residential houses (only storey type)</i>	1	1.8
<i>Large scale residential houses (all types)</i>	13	20.6
<i>Office accommodation</i>	5	7.9
<i>Hostels, hotels etc.</i>	8	12.7
<i>Industrial buildings e.g. factories, workshops etc.</i>	5	7.9
<i>Institutional buildings e.g. school, hospitals etc.</i>	18	28.5
<i>Self-occupying houses</i>	10	15.7
<b>Total</b>	<b>63</b>	<b>100.0</b>

#### 4.4.2 Analysis of the Factors

The fundamental concept underlying the factor analysis is the ability to statistically manipulate the empirical relationship among several variables to help reveal conjectural constructs of the relationships (Kreuger and Neumann, 2003) thereby address some pertinent issues relating to the appropriate sample size for undertaking and establishing the reliability of factors analysis (Field, 2005a, b). More so, to check reliability that samples are big enough to subject to factor analysis Kaiser-Meyer-Olkin measure of sampling adequacy (KMO-test). According to Field, (2005a) the sample is adequate if the value of KMO is greater than 0.5. Consequently, as presented in *Table 4.10*, the KMO measure of this study achieved a high value of 0.852 indicating the adequacy of the sample size for the factor analysis. The Bartlett's test of sphericity was also significant suggesting that the population was not an identity matrix; therefore, there are some relationships between the variables (Field, 2005a). Bartlett's Test for this study was highly significant ( $p < 0.001$ ), and therefore factor analysis is appropriate (Field, 2005a).

**Table 4.10: KMO and Bartlett's Test**

<b>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</b>		<b>.852</b>
<b>Bartlett's Test of Sphericity</b>	<b>Approx. Chi-Square</b>	<b>7.300E3</b>
	<b>Df</b>	<b>153</b>
	<b>Sig.</b>	<b>.000</b>

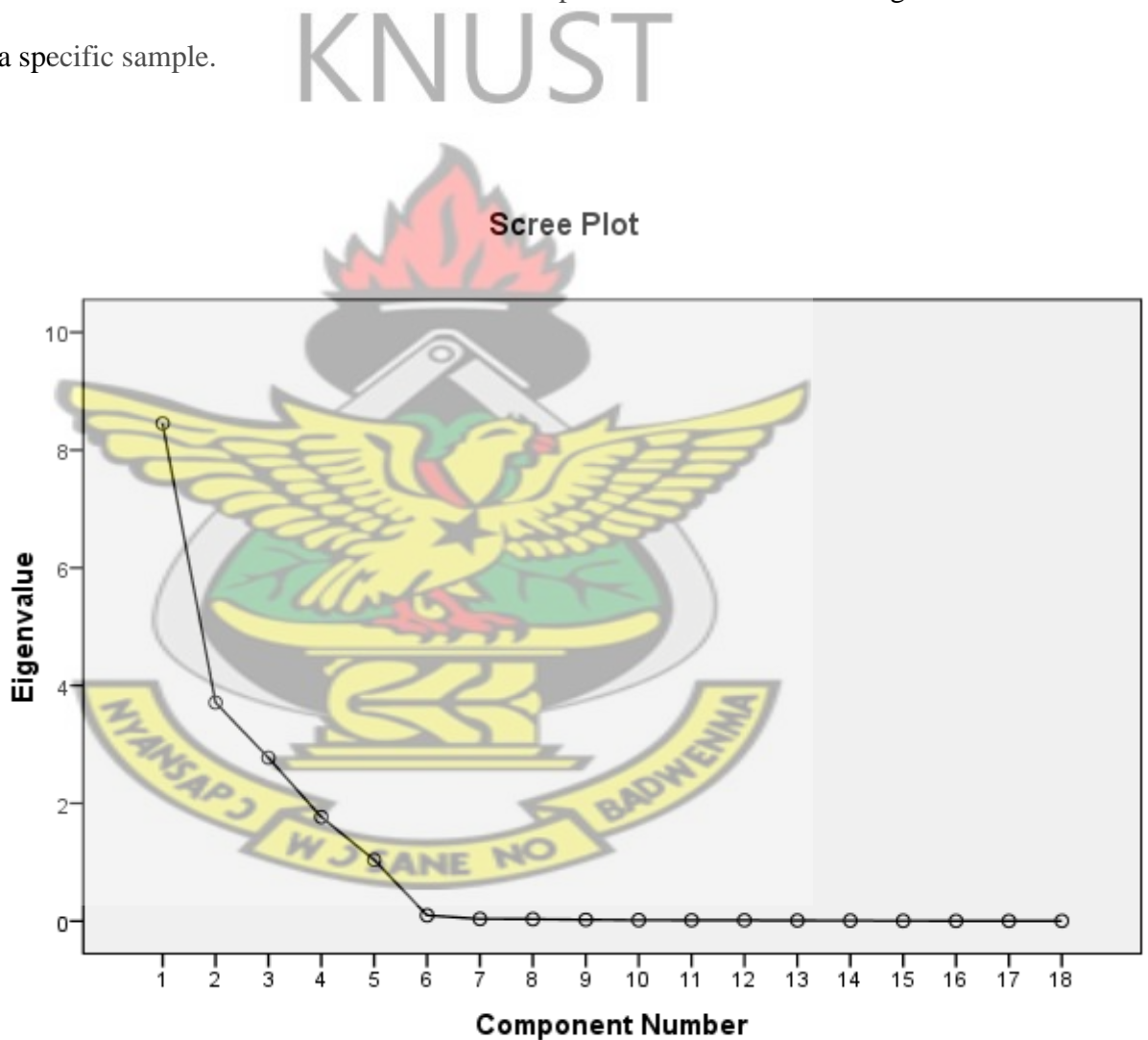
The next stage after establish the adequacy of the sample and the population matrix, data is then subject to principal component analysis (with varimax rotation). Subsequent to principal component analysis, the communalities involved were first established. Communality describes the total amount an original variable shares with all other variables included in the analysis and is very useful in deciding which variables to finally extract.

**Table 4.11: Communalities**

<b>Constraints to the Development of PPMP</b>	<b>Initial</b>	<b>Extraction</b>
Lack of ethics and code of practice for construction project management professionals	1.000	.966
Inadequate legislative framework and enabling environment for project management	1.000	.998
Inadequate knowledge of construction project management practices by government agencies/public service	1.000	.996
The unwillingness of construction professionals to accept the role of project managers	1.000	.994
Construction professionals inability to acquire basic knowledge in project management	1.000	.939
Misunderstanding among construction professionals on project management concepts	1.000	.991
Non-availability of project management training facilities for construction professionals	1.000	.978
Poor understanding of procurement practices	1.000	.997
Wrong choice of procurement approach	1.000	.991
Insufficient technical details and specification in contract documentation	1.000	.980
Difficulty in assessing information on project management theory in practices	1.000	.977
Poor definition of construction project scope	1.000	.990
Lack of client understanding of what they want from construction professionals	1.000	.993
Communication barriers among project participants	1.000	.993
Ignorance of benefits of project management practices over other traditional management principles	1.000	.991
Lukewarm attitude towards change by construction professionals	1.000	.984
Increasing complexity of projects and the scarcity of human capital	1.000	.992
Limited authority for project managers in contractual documentation	1.000	.996
<b>Extraction Method: Principal Component Analysis</b>		

Furthermore, as indicated in *Table 4.12* above, the average communality of the variables after extraction was above 0.80. The conventional rule about communality values is that; extraction values (eigenvalues) of more than 0.50 at the initial iteration indicates that the variable is significant; and should be included in the data for further analysis or otherwise removed (Field, 2005a, b). However, in applying the latent root criterion on the number of principal components to be extracted suggests that five (5)

components should be extracted, as their respective eigenvalues are greater than one. In addition, *table 4.13* and the scree plot in Figure 1; five (5) components with eigenvalues greater than 1.0 were extracted using the factor loading of 0.50 as the cut-off point. In all the five (5) extracted components cumulatively explained 98.582% of the variation in the data, which confirms to the proportion of variance criterion, which says that the extracted components should together explain at least 50% of the variation. Scores are numbers that express the influence of an eigenvector on a specific sample.



*Figure 4.7 Scree Plot*

**Table 4.12: Rotated Component Matrix<sup>a</sup>**

Constraints to the Development of PPMP	Component				
	1	2	3	4	5
Lack of ethics and code of practice for construction project management professionals				<b>.858</b>	
Inadequate legislative framework and enabling environment for project management				<b>.881</b>	
Inadequate knowledge of construction project management practices by government agencies/public service	<b>.978</b>				
The unwillingness of construction professionals to accept the role of project managers		<b>.952</b>			
Construction professionals inability to acquire basic knowledge in project management	<b>.946</b>				
Misunderstanding among construction professionals on project management concepts		<b>.948</b>			
Non-availability of project management training facilities for construction professionals				<b>.880</b>	
Poor understanding of procurement practices			<b>.979</b>		
Wrong choice of procurement approach			<b>.974</b>		
Insufficient technical details and specification in contract documentation		<b>.943</b>			
Difficulty in assessing information on project management theory in practices	<b>.967</b>				
Poor definition of construction project scope		<b>.950</b>			
Lack of client understanding of what they want from construction professionals					<b>.962</b>
Communication barriers among project participants					<b>.969</b>
Ignorance of benefits of project management practices over other traditional management principles	<b>.977</b>				
Lukewarm attitude towards change by construction professionals	<b>.971</b>				
Increasing complexity of projects and the scarcity of human capital	<b>.975</b>				
Limited authority for project managers in contractual documentation			<b>.980</b>		
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 6 iterations.					

Therefore, purpose of rotation is to achieve a simple structure, from the large loadings factors in absolute value for only some of the variables, making it easier to identify and interpret. It is desirable that each variable has large loadings for only a few factors, preferably one, helping to differentiate the factors from each other. If

several factors have high loadings on the same variables, it is difficult to determine how factors differ. As noted by Chris, (2004) results after factor rotation indicate the amount of variance between the variables that each factor accounts for and provides loadings of all the variables on each factor (Chris, 2004). As demonstrated from **Table 4.13** all the five (5) has more than one variable loading on it, resulting in keeping all the five components which form 98.582% of the total variable of eighteen-(18). Thus total variance explained by each component extracted is as follows: The first principal component (component 1) accounted for 46.96% of the total variance whilst the second principal (component 2) component, explained 20.62% % of the remaining variation not explained by the first component. Component 3 accounted for 15.42%, component 4 accounted for 9.824%, and component 5 accounted for 5.772%.

**Table 4.13 Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.453	46.959	46.959	8.453	46.959	46.959	5.896	32.753	32.753
2	3.711	20.619	67.578	3.711	20.619	67.578	4.101	22.784	55.538
3	2.774	15.408	82.987	2.774	15.408	82.987	3.048	16.934	72.472
4	1.768	9.824	92.810	1.768	9.824	92.810	2.695	14.975	87.446
5	1.039	5.772	98.582	1.039	5.772	98.582	2.004	11.136	98.582
6	.096	.533	99.115						
7	.036	.201	99.316						
8	.032	.180	99.496						
9	.023	.126	99.622						
10	.016	.087	99.710						
11	.014	.078	99.788						
12	.013	.073	99.861						
13	.008	.047	99.908						
14	.007	.038	99.946						
15	.003	.016	99.961						
16	.003	.015	99.976						
17	.002	.013	99.990						
18	.002	.010	100.000						

**Extraction Method: Principal Component Analysis**

## Discussion of Results

On the basis of the exploratory factor analysis and critical examination of inherent relationships among various factors under the identified components were labelled assigned (Chen and Choy, 2007). Hence, component 1 was labelled *weak project management knowledge base*; component 2 was labelled *lack of clearly defined role for project managers*; component 3 was labelled *poor procurement management practices*; component 4 was labelled *weak institutional framework* and component 5 was labelled *poor communication management*. These names were derived based on their interrelated characteristics and combination of variables with high factor loadings. The names of various components were derived base on the factors with the highest loadings and the understanding of the relevance of these factors in the Ghanaian construction industry. The following section now discusses each component individually.

### Component 1: Weak Project Management Knowledge Base

Component 1 comprises six (6) variables, which accounted for 46.959% of the total variance. These are : inadequate knowledge of construction project management practices by government agencies/public service (*0.978*) ;construction professionals' inability to acquire basic knowledge in project management (*0.946*); difficulty in assessing information on project management theory in practices (*0.967*); ignorance of benefits of project management practices over other traditional management principles (*0.977*); lukewarm attitude towards change by construction professionals (*0.971*); increasing complexity of projects and the scarcity of human capital (*0.975*) ( *Table 4*). The figures in the bracket indicate that loading of each variables impact on the component. These variables were name as weak project management knowledge base. Dib, (2007), has noted that the construction industry generally suffers from

what is described as the “islands of knowledge syndrome” due to the lack of connectivity between its various participants and functions. Abbasi and Al-Mharmah (2000) and Kartam *et al.*, (2000) opined that lack of project management knowledge are common in most developing countries. It is also interesting to note that, this component is associated with human resources management issues. Indeed Dogbegah, *et al.* (2011) and Isak *et al.* (2009) postulate, that human resources management is an inevitable dimension of project management since it is people who deliver projects. This align with Langford *et al.*, (1995), who postulate that the survival of the industry depends; to large extend, on its ability to develop this basic resource that human resources. Thus if the GCI is to reap the full benefit of PM in today’s competitive environment the stakeholders must critically or strongly pursue a strong knowledge in PM practices

### **Component 2: Lack of Clearly Defined Role for Project Managers**

Component 2 consists of unwillingness of construction some categories of professionals to accept the role of project managers (0.952), misunderstanding among construction professionals on project management concepts (0.948), insufficient technical details and specification in contract documentation (0.943), and poor definition of construction project scope (0.950). This was labelled lack of clearly defined roles for project managers, accounting for 20.619% of the total variance (*see Table 6*). It is worth noting that Liu *et al.*, (2004) in assessing the same situation in China rank misunderstanding as second most influential constraint PM practices in China. Chan *et al.*, (1999) indicates that misunderstanding is normally cause by the influence of traditional construction management systems, which is very much dominant in Ghana as well. In Ghana evidence of PM practice dates to the 1980s when it was first used Mass Housing Building Production (MHBPs) by the

Social Security and National Insurance Trust (SSNIT) across the country (Ahadzie and Amoah-Mensah, 2010). However, while PM practice is general grounds, there is still much to be done especially regarding the full integration of the PM in general construction. Indeed, condition of contract for medium works, given recognition to the PM title yet study conducted recently indicates that there full integration into general construction is lacking (Ahadzie *et al.*, 2012). Similar to the observation by Chan *et al.*, (1999), the Ghanaian construction industry is often managed by architects who have taken the position as leaders to represent the role of PM. In this context the labelling for component 1 also comes to effect, which could be attributed to poor knowledge base. On the hand, project scope relate to how the projects are demarcated and the extent of execution as expected by stakeholders. However, scope of work for PM indicating their roles, should be clearly be highlighted by the condition of contract for medium works. To this effect, Gibson and Hamilton, (1994) suggested that for a project management to be successful, the start-up phases of a project to the completion stage should be highly defined in terms of the procedures and operation to be undertaken.

### **Component 3: Poor Understanding of Procurement Practices**

Three variables loaded onto the third component accounting for 15.408% of the remaining variance. The three variables are poor understanding of procurement practices, (*0.979*), wrong choice of procurement approach (*0.974*) and limited authority for project managers in contractual documentation (*0.980*). Examination of the three variables that correlated very well indicates that the underlying factor for the component could be named as poor understanding of procurement practices. Attesting to this Anvuur & Kumaraswamy (2006) indicated that performance of construction in Ghana is poor and many reports have decried the public sector's lack

of commercial edge in the exercise of its procurement function. This has resulted in incorrect interpretation and application of some provisions of the condition of contract for seized medium works, by construction professional especially relating to the role and authority of the PM. An efficient public procurement remains the principal foundation for effective project management practices and it is therefore, important that the Public Procurement Act is review to more specific for construction professionals. Hence, an appropriate system of procurement should suit the project requirements and client needs.

#### **Component 4: Weak Institutional Framework**

The fourth principal component in *Table 5* reported factors loading as lack of ethics and code of practice for construction project management professionals (**0.858**), inadequate legislative framework, and enabling environment for project management (**0.881**), and non-availability of project management training facilities for construction professionals (**0.880**); and accounted for 9.824% of the variance (*Table 6*). Subsequently, critically examining the latent characteristics of the variables, the component was labelled weak institutional framework. From literature, it is perceived that the majority of project managers (PMs) learn their trade experientially on the job; this is due to fact that, there is no single professional body to regulate their practice for current and future development (*c.f* Odusami *et al.*, 2003; Ahadzie and Amoah–Mensah, 2010). However, in Ghana while there is exist of Construction Management at the university and polytechnic levels, but there is non-existent of course offered at the universities or the polytechnic where project manager can get their training from. In practices also there are no institutions that can help PMs assess and review their current and future skills requirements. Admittedly there is now Project Management Institute (Ghana chapter) but they are yet to make impact.

### **Component 5: Poor Communication Practices**

Component 5 accounted for 5.772% of the variance. The respective loading factors are lack of client understanding of what they want from construction professionals (*0.962*) and communication barriers among project participants (*0.969*). Subsequently, this component was labelled poor communication practices. Considering the complex nature of project management practice, project managers are supposed to communicate the project goals and vision to the team members and ensure that they understand their role and responsibility. For instance, Chan and Kumarsawamy (1999), indicated, that effective communication structure within contracting organisation with clients, consultants and sub-contractors need to be developed, in order to enhance project management practise thereby improving project performance. Hence, in Ghana poor communication practices among project participants has been perceived as one of the bane to project performance in the industry (Fugar and Agyakwah-Baah, 2010). In similar situation BRE (2011), indicated that the most weaknesses in the construction industry is as a result of poor communication. For example, a poorly detailed drawing, operatives being given incorrect instructions or technical information not being available. Kometa *et al.*, (1994) concluded that there is an evidence to suggest that clients are largely misunderstood and dissatisfied with the performance of their project managers. Drawing from this, it is therefore important that communication mediums are clearly defined and the needs of clients are attended to irrespective of the type of client and his level of understanding of construction industry operations

## **4.5 STRATEGIES FOR IMPROVING PROFESSIONAL CONSTRUCTION PROJECT MANAGEMENT PRACTICES IN THE CONSTRUCTION INDUSTRY**

The development of strategies to address the constraints affecting the development of project management practices in Ghana is of paramount essence to the researcher. As part of the data collection, it is necessary to establish the consensus of the major stakeholders' guidelines for the development of professional management practices based on their experiences. It considered that knowledge of this kind would determine developmental factors that would enhance the development of professional project management practices in the Ghanaian construction industry. A total number of 183 questionnaires administered to respondent's professionals and contractors, who were involved in the use of project management concepts, out of this, 143 were retrieved which represent 78%.

In this, the research was interested in strategies in dealing with the order of importance to the development of professional project management practices and addresses the current constraints. Hence, in establishing the relative importance of the variables the mean score analysis was used (see Table 4.13).

### **4.5.1 Descriptive Statistics**

Prior to the principal non-parametric test of the research, preliminary descriptive analysis such as mean scores, standard deviations and standard mean error of each of the variables conducted were used to ascertain the outcome of the survey; and the outcomes are tabulated in **Table 4.23**. For this endeavor, the rating scale adopted credited higher ratings of 1 and 5 to important and very important strategy, an arbitrary mean fixed at an appropriate level of 3.5 (*c.f* Ling, 2002 and Ahadzie,

2007). The significance level was also set at 95% in accordance with predictable risk levels (Cohen, 1992).

The standard error is the standard deviation of sample means and it is a measure of how representative a sample is likely to be of the population (Field, 2005). A large standard error reflects a lot of variability between means of different samples and a small standard error suggests that most sample means are similar to the population mean and so the sample is likely to be an accurate reflection of the population (*Ibid*).

From **Table 4.14** almost all the variables have mean values above the test mean of 3.5, it is reasonable therefore to conclude that they constitute the strategies that would develop professional project management practices in the Ghanaian construction industry. The standard error related with all the means were closer to zero suggesting that the sample chosen is an accurate reflection of the population. As a final point, from the results in **Table 4.14** most standard deviations of a recognised percentage are less than 1.0 beckoning that, there is little variability in the data collected and consistency in agreement among the respondents.

From the pedestals of the descriptive statistics, it could be decided that the variables identified as strategies to the development of professional project management practices through the qualitative survey reflect the consensus of the respondents (i.e. major stakeholders).

**Table 4.14: Descriptive Statistics**

<i>Factors</i>	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>Std. Error Mean</i>
<i>Setting up a regulatory body to be responsible in managing and determining various credentials and qualifications in construction project management</i>	143	4.11	.873	.073
<i>Continuous Professional Developments (CPD) of construction professionals through seminar, workshops, and refresher courses</i>	143	3.92	.797	.067
<i>Awareness creation among organisations and institutions such as government agencies and professional bodies</i>	143	3.73	.905	.076
<i>Project management must be part of the educational curriculum from pre-tertiary-to-tertiary level</i>	143	3.59	1.147	.096
<i>Developing an attitude at the corporate level by treating any assignment as project with assigning roles to all members in the organisation</i>	143	3.62	.758	.063
<i>Policy makers recognising the benefits of project management and incorporating procurement laws and enforced to the later</i>	143	4.01	.896	.075
<i>Stakeholder's engagement and round table discussions should be encouraged among other project participants e.g. pre-construction conference</i>	143	4.05	1.037	.087

The t-test (Table 4.15) shows the mean values (that is, test value) of the population mean,  $t$ , which is the one sample t-test,  $Df$ , which is the degree of freedom and the significance (that is, p-value). This p-value provides a basis for a statistical decision to be made as to whether or not the population mean and sample mean are equal. From the t-test table, the p-value is for two-tailed test and since the study is interested in one-tailed test, the p-values are divided by two. The results of the factors are detailed in Table 4.15.

**Table 4.15: Results of One Sample Test Showing Test Significance**

<i>Factors</i>	<i>Test Value = 3.5</i>					
	<i>t</i>	<i>df</i>	<i>Sig. (2-tailed)</i>	<i>Mean Difference</i>	<i>95% Confidence Interval of the Difference</i>	
					<i>Lower</i>	<i>Upper</i>
<i>Setting up a regulatory body to be responsible in managing and determining various credentials and qualifications in construction project management</i>	8.382	142	.000	.612	.47	.76
<i>Continuous Professional Developments (CPD) of construction professionals through seminar, workshops, and refresher courses</i>	6.349	142	.000	.423	.29	.55
<i>Awareness creation among organisations and institutions such as government agencies and professional bodies</i>	3.002	142	.003	.227	.08	.38
<i>Project management must be part of the educational curriculum from pre-tertiary-to-tertiary level</i>	.912	142	.363	.087	-.10	.28
<i>Developing an attitude at the corporate level by treating any assignment as project with assigning roles to all members in the organisation</i>	1.930	142	.056	.122	.00	.25
<i>Policy makers recognising the benefits of project management and incorporating procurement laws and enforced to the later</i>	6.861	142	.000	.514	.37	.66
<i>Stakeholder's engagement and round table discussions should be encouraged among other project participants e.g. pre-construction conference</i>	6.331	142	.000	.549	.38	.72

#### 4.13 FURTHER EXAMINATION

The descriptive analysis of the results has indicated that the respondents agreed with the identified variables as being the strategies to the development of professional construction project management practices in the Ghanaian construction industry. Nevertheless, there exists a possibility that these observations might be due to chance, rather than being the true reflection of the entire population. It was therefore necessary to test the data with an appropriate statistical method. The mean scores compared to a hypothesised mean of 3.5 (as noted previously) to know the level of importance, respondents regarded the strategies to the development of professional construction project management practices in the Ghanaian construction industry.

Thus, the strategies are ranked with their mean scores. From **Table 4.16**, *Setting up a regulatory body to be responsible in managing and determining various credentials and qualifications in construction project management* ranked the most important strategy. Likewise, *Stakeholder's engagement and round table discussions should be encouraged among other project participants e.g. pre-construction conference* ranked second. It is surprising to note that, this variable had the highest standard deviation of 1.037, indicating variability in the data collected and inconsistency in agreement among the respondents. This indication agrees with conventional wisdom that all parties should be involved from the design phase to the completion phase and thus clearly establish the role of PM. Thus, this strategy would help eliminate challenges such as *the unwillingness of construction professionals to accept the role of project management and communication barriers among project participants*.

*Policy makers recognizing the benefits of project management and incorporating procurement laws and enforced to the later* ranked third as important to the development of professional project management practices in the Ghanaian

construction industry. This strategy would help eliminate the constraints of *misunderstanding among construction professionals on project management concepts, ignorance of the benefits of project management practices over other traditional management principles and insufficient technical details and specification in contract documentation*. These policy makers as conventionally lies in the ability of government willing to project the practice since they are responsible larger part of construction investment and pace setter in development. Thus is the regulator or the balance wheel of the economy especially the construction industry.

The fourth important strategy was *Continuous Professional Developments (CPD) of construction professionals through seminar, workshops, and refresher courses*. The current procurement approaches pose challenges such as *inadequate knowledge of project management practices by government agencies/public services and difficulty in accessing information on project management theory in practices*. Should CPD be enhanced, this would contribute to the development of professional project management practices in the Ghanaian construction industry. Hence, this finding conforms to Ofori, (2007) assertion that continuous professional development should be encouraged among public and private sector in terms of capacity building in the evaluation and management of construction project implementation procedures.

**Table 4.16 Summary of t-test showing rankings, results of 1-tailed test and significance**

<i>Factors</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>Ranking</i>	<i>Sig (1-tailed)</i>	<i>Statistically Significant</i>
<i>Setting up a regulatory body to be responsible in managing and determining various credentials and qualifications in construction project management</i>	4.11	.873	1 <sup>st</sup>	.000	Yes
<i>Continuous Professional Developments (CPD) of construction professionals through seminar, workshops, and refresher courses</i>	3.92	.797	4 <sup>th</sup>	.000	Yes
<i>Awareness creation among organisations and institutions such as government agencies and professional bodies</i>	3.73	.905	5 <sup>th</sup>	.0015	Yes
<i>Project management must be part of the educational curriculum from pre-tertiary-to-tertiary level</i>	3.59	1.147	7 <sup>th</sup>	.1815	No
<i>Developing an attitude at the corporate level by treating any assignment as project with assigning roles to all members in the organisation</i>	3.62	.758	6 <sup>th</sup>	.028	Yes
<i>Policy makers recognising the benefits of project management and incorporating procurement laws and enforced to the later</i>	4.01	.896	3 <sup>rd</sup>	.000	Yes
<i>Stakeholder's engagement and round table discussions should be encouraged among other project participants e.g. pre-construction conference</i>	4.05	1.037	2 <sup>nd</sup>	.000	Yes

The seven developmental strategies passed the test value of 3.5. However, one strategy: *Project management must be part of the educational curriculum from pre tertiary-to-tertiary level* had a low mean score of **3.59**, therefore ranking 7th. The indication is that this strategy is not regarded as that important to the development of professional project management practices in the Ghanaian construction industry. It

is interesting to note that, this variable had the highest standard deviation of 1.147, indicating variability in the data collected and inconsistency in agreement among the respondents.

## **SUMMARY**

In general, the results of the surveys as discussed are found to reflect the true situation in Ghanaian construction industry, particularly the construction sector. It shows that practitioners, institution and clients responded to questions based on the experiences within the industry over the years. Specifically, contextual analysis of the results has alluded to the fact that there are sociocultural features of the industry, which have evolved over the years mostly due the interactions between the key stakeholders, which indeed, influences the way practitioners and clients perceive issues regarding the professional project management practices in Ghana. It began with a brief discussion of the survey participants and the descriptive statistics of the results obtained from the field thereof. The chapter concluded with mean score index (in the form of one sample t-test) of strategies that would develop project management practices in the Ghanaian construction industry. In addition, chi-square, Nvivo 8, factor analysis (principal component) were used to analyse other specific objectives of the research. The finding clearly shows the importance of professional project management practices in the Ghanaian construction industry.

## CHAPTER FIVE

### CONCLUSION AND RECOMMENDATIONS

#### 5.1 INTRODUCTION

The aim of the study is to help bring to the fore the empirical understanding of the status of professional project management practices in Ghana Building Industry (GBI) towards appreciating the challenges and opportunities for improvement and to accomplish this aim, a number of objectives which were being guided by research questions were set. In this chapter, the research questions and the objectives are revisited to bring into light the extent to which the aim of the study has been achieved throughout the various phases of the study. The chapter also presents recommendations of the researcher based on the findings of the study and the states of difficulties that were encountered throughout of the study. Lastly, recommendations are made for further studies.

#### 5.2 THE CONCEPT OF THE STUDY

The study is based on the Godwin (1993) proposition that the fundamental concept of Project Management is given a single individual or entity the authority to manage the design and construction of the project from inception to completion.

#### 5.3 RESEARCH QUESTIONS

From the foregoing, four main research questions were proposed:

- What is the theoretical knowledge of professional project management practices in the Ghanaian Building Industry?
- What is the position and level PM of involvement of the professional project manager in construction project?

- What are the specific challenges and opportunities for the development of project management practices in Ghana especially from the perception key stakeholders?
- What are the strategies for improving professional project management practices in the construction sector?

#### **5.4 REVIEW OF RESEARCH OBJECTIVES**

The aim of the research is to help bring fore the empirical understanding of the status of professional project management practices in GBI towards appreciating the challenges and opportunities for the improvement. In pursuing this aim, four objectives were established. The fulfilment of each of the four research objectives is set out in the following subsections.

##### **5.4.1 Review of First Objective**

The first objective focuses on examining the theoretical basis of the knowledge level of project management practices in Ghana to get deeper understanding of the situation. This objective has been achieved by undertaking an extensive review on project management in the construction industry in Ghana and other developing countries (see **chapter 2**). The literature revealed various factors constraining the development professional project management practices in Ghana.

##### **5.4.2 Review of Second Objective**

The second objective of the research was to determine the level of understanding of professional project management practices in the Ghanaian construction industry. In achieving objective second, construction site were visited within Accra and Kumasi

metropolis to ascertain the level of understanding and the in conclusion of Project managers in construction processes.

### **5.4.3 Review of Third Objective**

The third objective was to determine and understand specific challenges and opportunities for the development of project management practices in Ghana especially from the perception of the key stakeholders: Two propositions were developed in relation to this objective of the research. The achievement of this objective vis-à-vis these propositions are as follows.

#### **5.4.3.1 Proposition One: Qualitative Enquiry of Stakeholders' Understanding on the Practices of Project Management**

This proposition was investigated and ascertained based on major stakeholders in the Ghanaian building industry. In order to achieve these twenty major stakeholders were selected including clients, professionals, contractors, and institution. Nvivo 8 was to use in the analysis, which came with various definitions and contemporary discussion concept was made. In addition, eighteen-(18) challenges affecting practices was identified, and seven-(7) opportunities for effective growth and practice of project management was also identified.

#### **5.4.3.1 Proposition Two: Evaluating of the factors constraining the practices of project management practices**

Similarly, in order to achieve this proposition construct generated from the first proposition was developed into questionnaires which were administered 183 respondents which involved professionals and contractors in project management practices. This was evaluated by use of likert scale: 1-5 to rate the level of influences

each factor identified. For this factor analysis was use involving principle component.

#### **5.4 Review of Fourth Objective**

The objective four was to establish the consensus of the major stakeholders' guidelines for the development of professional project management practices. Concisely, in order achieved construct generated from the first proposition was developed into questionnaires, which was administered to 183 respondents, which involved professionals and contractors in project management practices. This was evaluated by use of likert scale: 1-5 to rate the level of importance of each identified factor. For this, a mean score analysis was used for the evaluation each the research establishes seven strategies for effective development of professional project management practices in the Ghanaian building industry.

#### **5.5 CONTRIBUTION TO KNOWLEDGE IN THE GHANAIAIAN CONTEXT**

There are key contributions that are the outcome of this research. These have not been addressed by other studies. These are as follows:

- It revealed the extent of understanding and involvement of project managers in the GBI;
- Insights into factors constraining effective project management practices in the GBI;
- Establishes six strategies for effective project management practices in the GBI.

## 5.6 LIMITATIONS OF THE RESEARCH

There were problems encountered in the course of conducting the study at the fieldwork phase, which posed serious constraints to the execution of the study. Meeting with project managers involved following some protocol, which was in the first place time unbearable. There is also possibility of sampling and measurement errors and the effects of these errors on the data collected.

## 5.8 SUMMARY OF CONCLUSION

The summary of the conclusion are related each of the objectives of the study are as follows;

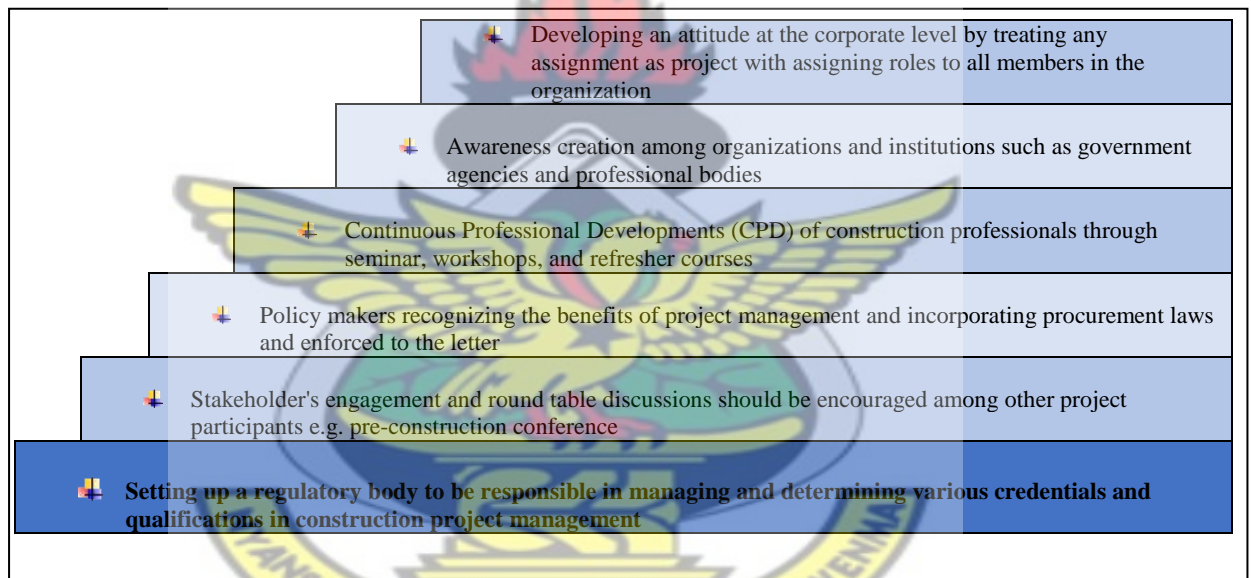
The study revealed that, there was lack of understanding among practitioners in the Ghanaian building industry, which remains bane of the development of PM. Stakeholders' issues are bring to bear, which the study revealed that for effective project management to exist there is the need to draw particular attention to the management of project stakeholders both internal and external stakeholders.

Secondly, assumption made by the study was that **project managers are involved in all construction project** was rejected due to the fact only three projects visited involved the use of project manager. Thirdly, interview and observation made during the survey point out to the fact that insufficient knowledge of project management practices as government institutions are not familiar to the practices of project management. However, this empirical data seek to establish practical reference of the emerging recognition that the project management as a discipline and profession is gaining grounds in Ghana. The evidence gathered suggest that, while in theory the definition and popularity of project is not in doubt its practical relevance is far from being clear. Given that, the title PM is now contractually required on many donor funded, public and some private sector procurement in Ghana for medium-sized

contract, there is the need rigorously pursue its establishment and regulation towards developing PPMP as a core managerial practice in the GCI.

In addition the research identified eighteen constraints factors to the, which was later categorized into five major factors namely: weak project management knowledge base; lack of clearly defined role for project managers; poor procurement management practices; weak institutional framework and poor communication management.

Lastly the study identified six strategies for effective project management practices as indicated in the figure 5.1



**Figure 5.1 Steps in developing effective professional project management practices**

## 5.7 RECOMMENDATION FOR INDUSTRY

In view of the above findings study recommend following;

- Government Institutions must be strengthened by the enforcement of the implementation especially in the GBI;

- Professional institutions including GhIS, GhIE, and GIA should partner in forming PM institution, which will regulate the practices of PPM;
- Contractors of the various construction firms should be encourage to used project management techniques in dealing with project;
- Roles and duties of project participant should be clearly defined before the inception of the project by indicating the type procurement system to be adopted for the project;
- Improving the capability of professionals in construction industry by introducing project management as part of the curricula of tertiary education and technical/vocational education and introducing construction training programmes accessible to persons without formal educational qualifications;
- The general public should be made aware of the benefits all project management systems through the media by the various construction professionals' institutions such as the Ghana Institution of Surveyors ;and
- Capacity building should be encouraged among academia, industry, clients, and government in the area of project management practice for improvement of efficiency and productivity of the construction industry.

## **5.8 RECOMMENDATIONS FOR FUTURE RESEARCH**

Finally, the research has opened perspectives on further research on how project management practice has impacted the GBI. In addition, further research for effective project management implementation among project participants for the management of building construction projects in Ghana can also conducted.

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## APPENDIX 1: LETTER FOR THE STUDY



## LETTER TO MAJOR STAKEHOLDERS

Dear Sir,

### **REQUEST TO BOOK APPOINTMENT TO CONDUCT INTERVIEW ON PROFESSIONAL PROJECT MANAGEMENT (PPM) PRACTICES IN GHANA**

My name is Kissi Ernest an MPhil student at Kwame Nkrumah University of Science and Technology, Department of Building Technology. I write to kindly book an appointment with you for an interview on the above research topic. The theory of PPM continues to grow; however, there is lack of consensus or controversy among practitioners and researchers on its application in Ghana.

This research will like to elicit the views of twenty (20) major stakeholders on the subject, based on their experience and high profile work undertaken in their capacity as Project managers in establishing a common mechanism in understanding the concept. The implication of the findings is for the future development of the project management profession in Ghana and developing countries as a whole, which basically faces similar challenges.

We appreciate that the interview is going to take some of your valuable time, however, we urge you to try and participate, as your contribution is very important towards the success of this research. To this end, we wish to take this opportunity to thank you in advance for your cooperation.

Yours Sincerely,

Kissi Ernest  
**MPhil. Student**  
Mobile: 0243989661  
E-mail: [kisernest@yahoo.com](mailto:kisernest@yahoo.com)  
Or [kissiernest@hotmail.com](mailto:kissiernest@hotmail.com)  
Kumasi

**Project Supervisor**  
Dr.D.K Ahadzie  
Senior Research Fellow  
Centre for Settlement Studies  
College of Architecture and Planning

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## APPENDIX 2: QUESTIONNAIRES FOR THE STUDIES



**Kwame Nkrumah University of Science and Technology**

**College of Architecture and Planning**

Department of Building Technology

KNUST

**TOPIC;**

**EMPIRICAL UNDERSTANDING OF THE STATUS OF  
PROFESSIONAL PROJECT MANAGEMENT PRACTICES IN  
THE GHANAIAN BUILDING INDUSTRY**



## Preamble

Project management is a worldwide discipline and has recent times become a topical issue in all diverse of literature leading to more research in that perspective. However, it appears that there is lack of consensus among stakeholders on the practice.

We are conducting this study to help establish stakeholders understanding of the practices in this country.

The attached is the survey of schedule of interview and information obtained from this survey will be kept anonymous and completely confidential. Only findings in aggregate form will submitted to the relevant authorities.

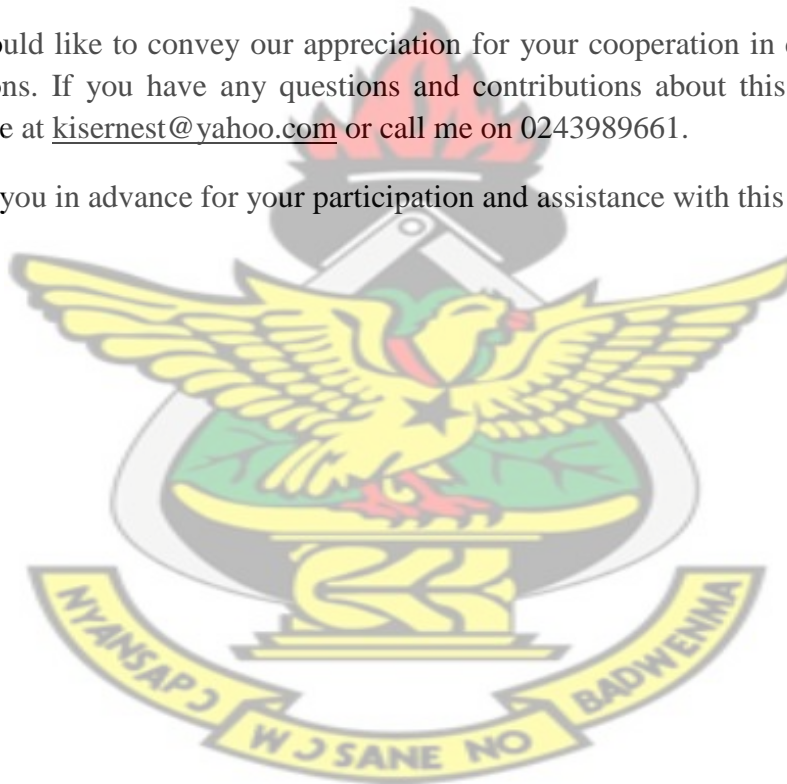
Your participation in this survey is much needed and we will be grateful if you could answer these few questions.

We would like to convey our appreciation for your cooperation in completing these questions. If you have any questions and contributions about this research, please mail me at [kisernest@yahoo.com](mailto:kisernest@yahoo.com) or call me on 0243989661.

Thank you in advance for your participation and assistance with this study.

Kissi

Ernest



## INTERVIEW SCHEDULE

### Section A: Demography

1. What is your professional background?
  - a) Architects
  - b) Builders
  - c) Civil Eng.
  - d) Estate Surveyor
  - e) Quantity Surveyor
  - f) Project Manager
  
2. What is your age?
  - a) 31-40yrs
  - b) 41-50yrs
  - c) 51-60yrs
  - d) Above 60years
  
3. Level of Education
  - a) Professional Diploma
  - b) Bachelor's Degree
  - c) PGD/Master Degree
  - d) Doctorate Degree
  
4. Professional Qualification
  - a) Graduate Member
  - b) Corporate Member
  - c) Fellow Member
  - d) Executive Director/President
  
5. Industrial Experience
  - a) Less than 10yrs
  - b) 10-19yrs
  - c) 20-29yrs
  - d) 30-39
  - e) Above 40yrs
  
6. Do have a special training in project management?  
Yes/No  
If Yes at what level.....  
Where was the degree or training  
acquired.....

**Section B: Main Questions**

1. From your professional perspective how would you define the title project management (PM)?

.....  
.....

2. Apart from the definition is there any definition that you are aware of e.g. from literature or theory.

.....  
.....

3. From your professional perspective how will you define the title project manager?

.....  
.....

4. What do you think should be the appropriate educational justification of a PM?

.....  
.....

5. Who should be qualified as construction project manager?

.....  
.....

6. What are the responsibilities/duties/roles of a construction project manager?

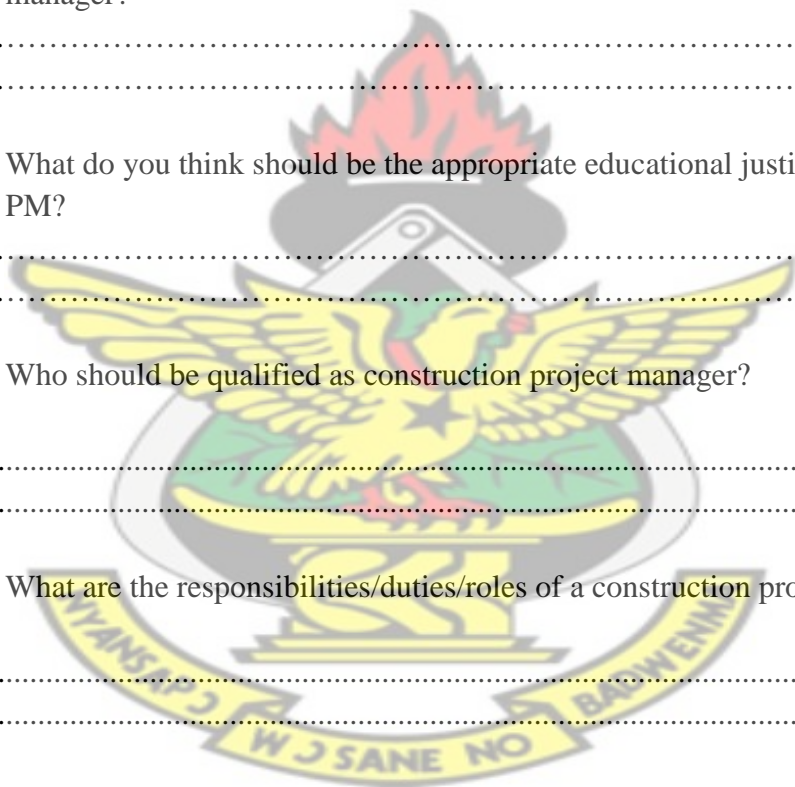
.....  
.....

7. Do you consider project management as a unique discipline which professionals should be belong to?

.....  
.....

8. Do believe PPMP is an ideal solution to construction industry problem.

.....  
.....



9. In your view what do you think is the difference between project management as a discipline and general or traditional management principles?

.....  
.....

10. How do you compare the role lead consultant and the Project manager in modern construction?

.....  
.....

11. Do agree to the fact that project management is very useful for achieving successful delivery of project in modern times.

.....  
.....

12. Can you please offer some examples for your position in question (11) above

.....  
.....

13. What are some of the benefits PPMP has brought to the industry?

.....  
.....

14. If you are to give a few of how developed project management practice is in Ghana, what will be your responsibilities?

.....  
.....

15. Are you aware that the title PM is now specifically mentioned in the condition of contract for medium- sized works?

.....  
.....

16. Does the role given to the PM in the condition of contract for medium- sized works fit your understanding of what a PM professional is supposed to be doing?

.....  
.....

17. To what extent do you think PMs are being appointed on projects as reflected on the condition of contract for medium- sized works?

.....  
.....

18. What are some of the challenges in the PPMP in the industry?

.....  
.....

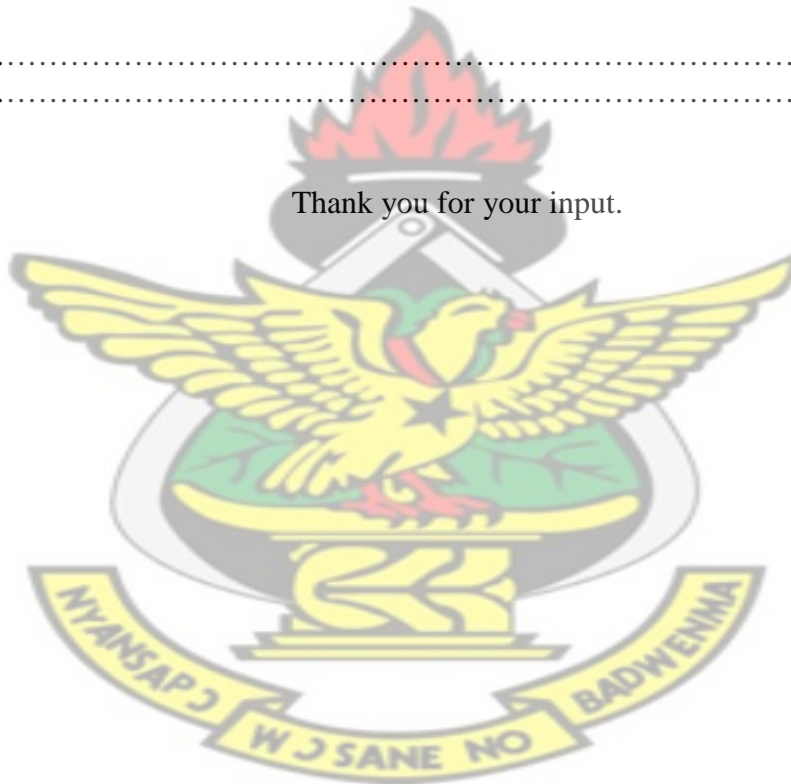
19. Can you suggest ways for improving PPMP?

.....  
.....

20. How do you see the future of PPMP concept in the Ghanaian Construction Industry?

.....  
.....

Thank you for your input.



**Kwame Nkrumah University of Science and Technology, Kumasi**

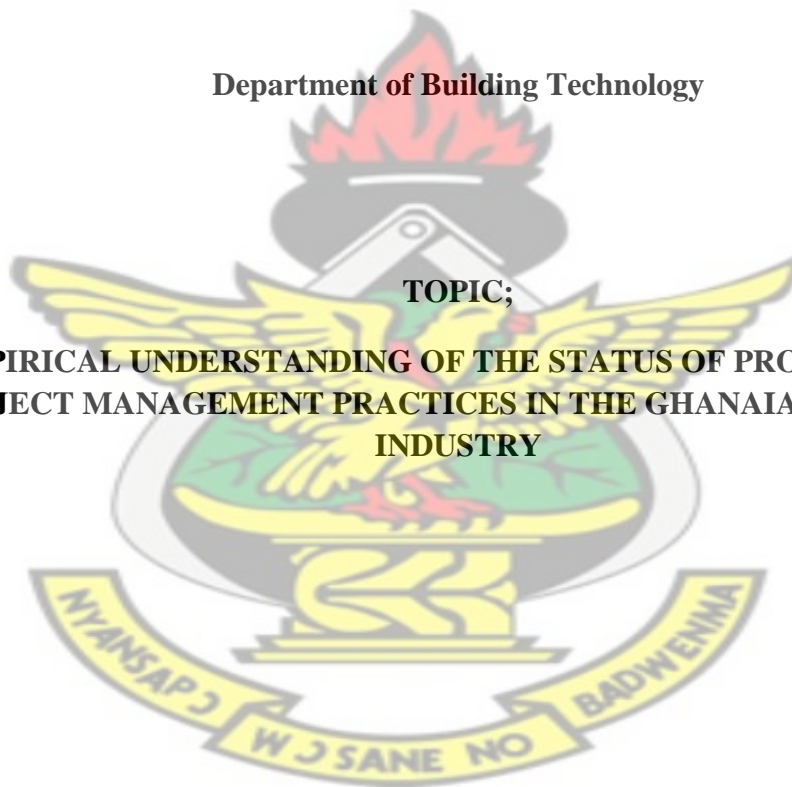
**College of Architecture and Planning**

KNUST

**Department of Building Technology**

**TOPIC;**

**EMPIRICAL UNDERSTANDING OF THE STATUS OF PROFESSIONAL  
PROJECT MANAGEMENT PRACTICES IN THE GHANAIAN BUILDING  
INDUSTRY**



## Preamble

My name is Kissi Ernest an MPhil. student from Department of Building Technology at Kwame Nkrumah University of Science and Technology, Kumasi.

This research questionnaire has been designed to solicit views from stakeholders, based on their experience and high profile work undertaken in their capacity as Project managers as practices in Ghana. It is aimed at:

- Examining the theoretical bases of the knowledge level of project management practices in Ghana ;
- Determining the status of professional project management practices on construction site in Ghana;
- Determining whether there are specific challenges affecting the development of project management practices in Ghana especially from the perspective of the key stakeholders;
- Establishing the consensus of the major stakeholders' guidelines that can be used for development of professional project management practices.

The implication of the findings is for the future development of the project management profession in Ghana and any information provided will be treated with the highest confidentiality. **Kindly respond to the questions by ticking (✓) the appropriate box for each item.**

I would like to convey my appreciation for your cooperation in completing these questions. If you have any questions and contributions about this research, please mail at [kisernest@yahoo.com](mailto:kisernest@yahoo.com) or call on 0243989661.

Thank you in advance for your participation and assistance with this study.

Kissi Ernest

## Section A: Professionals

### Background Information

1. What is your profession?

- a) Architect
- b) Quantity surveyor
- c) Project manager
- d) Construction manager
- e) Civil engineer
- d) Others (please specify).....

2. To which professional association do you belong?

- a) GIA (Ghana Institution of Architects)
- b) GhIS (Ghana Institution of Surveyors)
- c) GhIE (Ghana Institution of Engineers)
- d) PMI (Project Management Institute)
- e) IPMA (International Project Managers Association)
- f) GIOC (Ghana Institute of Consultant)
- f) Others (please specify).....

3. Kindly indicate your status in your organization:

- a) Director/principal partner
- b) Associate partner
- c) Senior
- Others (please specify).....

4. For how long have you been in professional construction project management practice?

- a) <5 years
- b) 5-10 years
- c) >10 years
- Others (please specify):

5. How many projects construction have you managed within the last five years?

- a) 1 – 5 Projects
- b) 6 – 10 Projects
- c) 11 – 15 Project
- d) 16 and above.

6. What kind of construction projects did you managed within the period in question 5 above?

- a) Large scale Residential houses (not including storey type)
- b) Large scale residential houses (only storey type)
- c) Large scale residential houses (all types)
- d) Office accommodation
- e) Hostels, Hotels etc.
- f) Industrial buildings
- g) Institutional buildings e.g. School, hospitals etc.
- h) Self-occupying housing
- i) Others (Please specify).....

**SECTION B**

In your experiences, which of the following factors are crucial constraints to the development of professional project management practices in the Ghanaian construction industry? Please indicate the level of severity each factor has on the development of professional project management by ticking the appropriate boxes.

1= Least, 2 = Lower, 3 = High, 4 = Higher, 5 = Highest

Factors	Levels				
	1	2	3	4	5
1. Lack of ethics and code of practice for construction project management professionals					
2. Inadequate legislative framework and enabling environment for project management practices					
3. Inadequate knowledge of construction project management practices by government agencies /public service					
4. The unwillingness of construction professionals to accept the role of project managers					
5. Construction professionals inability to acquire basic knowledge in project management					
6. Misunderstanding among construction professionals on project management concepts					
7. Non-availability of project management training facilities for construction professionals					
8. Poor understanding of procurement practices					
9. Wrong choice of procurement approach					
10. Insufficient technical details and specification in contract documentation					
11. Difficulty in accessing information on project management theory in practices					
12. Poor definition of construction project scope					
13. Lack of client understanding of what they want from construction professionals					
14. Communication barriers among project participants					
15. Ignorance of the benefits of project management practices over other traditional management principles					
16. Lukewarm attitude towards change by construction professionals					
17. Increasing complexity of projects and the scarcity of human capital					
18. Limited authority for project managers in contractual documentation					
<b>If other (please specify)</b>					

### SECTION C

In your experience, kindly rank according to the level of importance of the following developmental factors of project management practices in the Ghanaian construction industry.

**1= not important, 2 = less important 3 = moderately important, 4 = important, 5 = most important.**

Developmental factors	1	2	3	4	5
1. Setting up a regulatory body, to be responsible in managing and determining various credentials and qualifications in construction project management.					
2. Continuous Professional Development, (CPD) of construction professionals through regular seminars, workshop, and refresher courses.					
3. Awareness creation among organisations and institutions such as government agencies and professional bodies.					
4. Project management must be part of the educational curriculum from pre tertiary-to-tertiary level.					
5. Developing an attitude at the corporate level by treating any assignment as project with assigning roles to all members in the organisation.					
6. Policy makers recognising the benefits of project management and incorporating procurement laws and enforced to the letter.					
7. Stakeholders' engagement and round table discussion should be encouraged among project participant e.g. pre-construction conference.					
<b>If other (please specify)</b>					
8.					
9.					
10.					
11.					
12.					

Thank you

**Kwame Nkrumah University of Science and Technology, Kumasi**

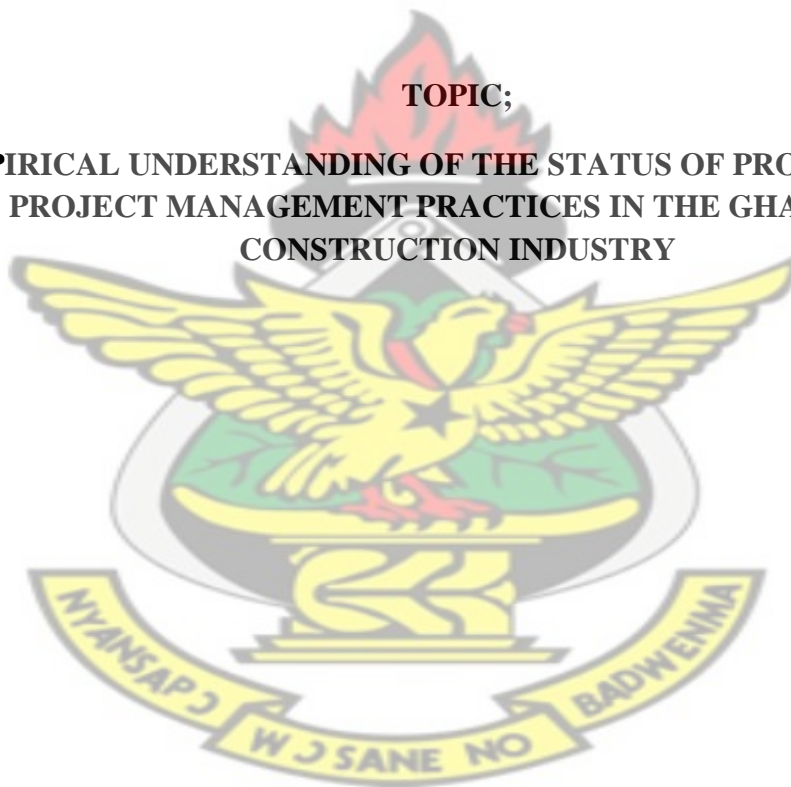
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**TOPIC;**

**EMPIRICAL UNDERSTANDING OF THE STATUS OF PROFESSIONAL  
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## Preamble

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- Establishing the consensus of the major stakeholders' guidelines that can be used for development of professional project management practices.

The implication of the findings is for the future development of the project management profession in Ghana and any information provided will be treated with the highest confidentiality. **Kindly respond to the questions by ticking (✓) the appropriate box for each item.**

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Thank you in advance for your participation and assistance with this study.

Kissi Ernest

**Section A: Contractors**

**Background Information**

1. Which of these classifications apply to you?

- a) Class D1 & K1
- b) Class D2 & K2
- c) Class D3 & K3
- d) Class D4 & K4

2. Kindly indicate your status in your organization:

- a) Director/principal partner
- b) Associate partner
- c) Senior staff
- d) Trainee/intern
- Others (please specify):.....

3. For how long have you been in professional practice?

- a) <5 years
- b) 5-10 years
- c) >10 years

4. How many projects have you undertaken within the last five years?

- a) 1 – 5 Projects
- b) 6 – 10 Projects
- c) 11 – 15 Project
- d) 16 and above.

6. What kind of construction projects did you managed within the period in question 5 above?

- j) Large scale Residential houses (not including storey type)
- k) Large scale residential houses (only storey type)
- l) Large scale residential houses (all types)
- m) Office accommodation
- n) Hostels, Hotels etc.
- o) Industrial buildings
- p) Institutional buildings e.g. School, hospitals etc.
- q) Self-occupying housing
- r) Others (Please specify).....

**SECTION B**

In your experiences, which of the following factors are crucial constraints to the development of professional project management practices in the Ghanaian construction industry? Please indicate the level of severity each factor has on the development of professional project management by ticking the appropriate boxes.

1= Least, 2 = Lower, 3 = High, 4 = Higher, 5 = Highest

Factors	Levels				
	1	2	3	4	5
1. Lack of ethics and code of practice for construction project management professionals					
2. Inadequate legislative framework and enabling environment for project management practices					
3. Inadequate knowledge of construction project management practices by government agencies /public service					
4. The unwillingness of construction professionals to accept the role of project managers					
5. Construction professionals inability to acquire basic knowledge in project management					
6. Misunderstanding among construction professionals on project management concepts					
7. Non-availability of project management training facilities for construction professionals					
8. Poor understanding of procurement practices					
9. Wrong choice of procurement approach					
10. Insufficient technical details and specification in contract documentation					
11. Difficulty in accessing information on project management theory in practices					
12. Poor definition of construction project scope					
13. Lack of client understanding of what they want from construction professionals					
14. Communication barriers among project participants					
15. Ignorance of the benefits of project management practices over other traditional management principles					
16. Lukewarm attitude towards change by construction professionals					
17. Increasing complexity of projects and the scarcity of human capital					
18. Limited authority for project managers in contractual documentation					
<b>If other (please specify)</b>					

**SECTION D**

In your experience, kindly rank according to the level of importance of the following developmental factors of project management practices in the Ghanaian construction industry.

**1= not important, 2 = less important 3 = moderately important, 4 = important, 5 = most important.**

<b>Developmental factors</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1. Setting up a regulatory body, to be responsible in managing and determining various credentials and qualifications in construction project management.					
2. Continuous Professional Development, (CPD) of construction professionals through regular seminars, workshop, and refresher courses.					
3. Awareness creation among organisations and institutions such as government agencies and professional bodies.					
4. Project management must be part of the educational curriculum from pre tertiary-to-tertiary level.					
5. Developing an attitude at the corporate level by treating any assignment as project with assigning roles to all members in the organisation.					
6. Policy makers recognising the benefits of project management and incorporating procurement laws and enforced to the letter.					
7. Stakeholders' engagement and round table discussion should be encouraged among project participant e.g. pre-construction conference.					
<b>If other (please specify)</b>					
8.					
9.					
10.					
11.					
12.					

**Thank you**

# KNUST

## APPENDIX 3: BRIEF BACKGROUND OF RESPONDENTS FOR QUALITATIVE ENQUIRY.



## **BEROCK VENTURES LIMITED**

Berock ventures limited (BVL) is a wholly Ghanaian owned Limited Liability Company registered in 1993 and incorporated under the Companies Code, 1963 on the 22nd of February 1996. Contractor Classification D1, K1 [General Building and Civil Works] and E1, G1 [Electrical and Plumbing Works]. The following various projects the company has undertaken:

- Construction of 15-Storey Shippers' Centre at Ridge for Ghana Shippers' Authority with basement and security posts.
- Construction of 10-Storey Administration Block for Kumasi Polytechnic, Kumasi, Ghana. (Phase 1)
- Construction of 5-Storey Classroom and Offices (N-Block\_ for College of Engineering at KNUST, Kumasi, Ghana
- Completion of Ultra-modern, 4-Storey Student Hostel Complex at University of Ghana – Legon, Accra, Ghana. These include 550 self-contained rooms for 1,800 bed capacity, conference rooms, 16 kitchens, 4 stores, cafeteria and laundries. Building area– 80m x 150m.
- Construction of 4- Storey Exam Block for Kwame Nkrumah University of Science and Technology (KNUST) Kumasi, Ghana. These include lecture halls, offices and examination halls
- Construction of Ultra-Modern 2-Storey Administration Block for Institute of Professional Studies, Accra- Ghana.
- Construction and Completion of International Students Programmes office, Legon, Accra-Ghana.
- Construction of Proposed Classroom and Lecture Theatre for School of Business, KNUST, Kumasi, Ghana.
- Water Supply Extension to over 50 communities in the Volta, Ashanti, Upper West & Northern Regions for MiDA/EU/AFD/World Bank /DANIDA.
- Tamale Rural Electrification Project for MiDA, Tamale, Ghana.  
Community Water and Sanitation Agency, Accra, Ghana

## **JESCAN CONSTRUCTION LIMITED**

JESCAN Construction Limited who emerged the Overall Best Contractor JESCAN CONSTRUCTION LIMITED is a Private Limited Liability Company incorporated in Ghana. A joint venture between Ghanaians and expatriates, JCL is built on the reputation of an experienced, visionary and innovative management team that sees beyond the traditional.

- Ghana @ 50 Secretariat: Retrofitting and Rehabilitation of the Independence Square and Surrounding Environment in Accra.
- Watchtower Society: Construction of 2-Storey Residence, 2-Storey Office Building Extension.
- British High Commission: Renovation of High Commissioner's Residence.

- Canadian High Commission: Construction and Completion of main Chancery Extension.
- Royal Danish Embassy: Re-roofing of Existing Chancery, Modification to main chancery and other works.
- Port Handling Services Ltd: Construction of Vehicle and Transit Terminal, Tema.
- Port G.P.H.A: Construction of Devanning and Clearing Terminal.
- Ghana Telecom: Refurbishment of First, Second and Third Floors of Telecom House.
- Newmont Ghana Gold Ltd: Ahafo Gold Project – Construction of Shared Facilities and Staff Houses at Kenyase.
- Vamed Engineering, Netherlands: Construction of Begoro District Hospital and external road works.
- Bogoso Gold Ltd: Construction of new Office Block.
- Construction of District Hospital in Gushegu.

### **CONSAR LIMITED**

CONSAR LTD leading and premier building and Civil construction company in Ghana, was founded in 1983 and commenced business in 1984 .Consar Ltd. Has over the years, undertake numerous projects nationwide, from the North of Ghana to the South, both Building and Civil works, for a diverse range of Clients. These works have ranged from new building to refurbishment of Banks, Schools, Press Houses, and Recreational/Sport Facilities Buildings for Worship; Mining-associated civil works etc. Among their numerous projects, include:

- Refurbishment of Golden Tulip Hotel, Kumasi
- Construction of Obuasi Airport
- Upgrading of Rehabilitation of the Tamale Regional Hospital
- Refurbishment/Extension of Manhyia Palace
- Rehabilitation of Baba Yara Sports Stadium, University of Ghana (Legon) Sports Stadium
- Construction of Senior Staff Duplex Houses, for Newmont, Ghana
- Construction of Six-Storey New Head Office for SG-SSB
- Construction of Dr. Sam Jonah's Residence
- Bank of Ghana Reg. Offices- Takoradi-Phase 1 &2
- Catholic Archdiocese of Tamale-Conference Hall

### **MICHELETTI and CO. LTD**

Micheletti and Co. Ltd is one of Ghana's leading civil engineering and building construction companies. Operating for over 50years in the range of skill and resources and provides clients with a comprehensive service throughout the entire life cycle of the project in the built environments The company was founded in Ghana in 1955 by F. Micheletti, an Italian.in 1963 ,the company was incorporated as Michelettic and Co. Ltd. a private limited liability company under the companies

code 1963(Act 179). The company obtained government certification under financial class D1 and K1 of Ministry of Water Resources Work and Housing. The company engaged civil engineering, construction and construction products and estates development. Various works undertaken by this company include;

- One Airport Square Ultra –Modern Offices
- National Hockey Stadium, Ghana
- Nine Storey Building for International Commercial Bank Head Office, Accra
- Four Storey Office Complex for an International Financial Corporation, World Bank
- Rehabilitation of Ohene Djan Sport Stadium
- Office complex for NDK Financial Services
- Complex Red Bull Soccer Academy, Sogakope VR.
- Rebranding of Fuel Stations at Liberation Road, Kaneshies Station, Presec for Goil, Ghana.
- Three Storey Complex Housing Six Luxury 3 Bedroom Apartment for Belvedere Court
- MTN Switch 1 and 2 Data Centre, Accra

### **KRANE CONSTRUCTION LIMITED**

KRANE Construction Limited is a Building and Civil Engineering Construction company wholly owned by Ghanaians. Since the establishment of the company in 1990, it has expanded to a reputable financial class 1 (Ministry of Works and Housing classification) construction firm preferred by many consultants and prospective clients in the construction industry of Ghana to undertake various types and sizes of construction projects. Krane Construction has recently created its real estate subsidiary called Krane Estate and Ltd it is about to start the construction of 400 to 600 affordable housing units inclusive of General Service i.e. electricity plumbing etc.

- Data Bank Ltd Head Office, Accra-Adabraka
- Alhija Banda Mosques, Airport Residential, Accra
- Eight Storey Design and Built Pension House Car Park For SNNIT, Accra North Ridge
- Storey Office Complex / Osu - Civil Works for O.A.B Limited.
- Erection and Completion of Balme Library Extension for University of Ghana at Legon, Accra.
- Koala Shopping Mall, Osu-Accra.
- Design and Build of Eight-Storey Office Block & 3 level Car park / Accra Development of Ashesi University Campus-Student Housing.
- Resettlement Project for Salman-Nzema (Lot 2) for Adamus Resources
- 15No. Ghana @ 50 Residences/ Ridge and La
- 5- Storey Office and Shop Complex / Airport City

## **MESSRS. CSI CONSULT**

Surv. Abraham Affum Kwakye is chartered quantity surveyor; hold MSc. Construction Economics & Management from University of London, and Fellow of Royal Institution of Chartered Surveyors (FRICS), Fellow of Ghana Institution of Surveyors (FGHIS) and Fellow of Chartered Institution of Building (FCIOB) and Ghanaian. Mr. Kwakye has over thirty years (30) professional experiences and has worked in several professional consulting practices and government organisations in the United Kingdom and Ghana. Mr. Kwakye is a prominent quantity surveyor, and a writer. He is currently the Principal of Consultant of CSI consult- a Chartered Quantity Surveying firm in private practice. The following are various project and publications he has undertaken:

- Construction of Administration Block for Institute of Professional Studies, Legon – Accra
- Completion to AA Hotel – East Legon – Accra (Pre-Contract)
- Construction of Royal Suites Hotel, Airport City – Accra
- Akwaaba Lounge, KIA – Accra
- Okofo House, Office Refurbishment for SSNIT – Accra
- Office Complex & Shopping Mall at Independence Avenue for SSNIT – Accra
- Construction of Institute of Education Building – University of London
- Construction of Kensington and Chelsea Town Hall
- Construction of Law Institute Building – University of London

### **PUBLICATIONS:**

- Fast Track Construction (CIOB)
- Construction Procurement, UK E Experience (GhIS)
- Understanding Tendering and Estimating (Longmans)
- Built Asset Management (CIOB)
- Handling Risk in Construction Business (GhIS)

## **MESSRS SOHNE & PARTNERS**

Daniel Osei Kufuor is Principal Architect at Osei-Kufuor, Sohne & Partners holds M.Sc., Architecture and B.Sc., Architecture, Kwame Nkrumah University of Science and Technology, Kumasi. He is fellow, Ghana Institute of Architects.

- Pergosus House Accra,
- Rehabilitation of Peduase Lodge

## **MESSRS A-KON CONSULTS**

A-Kon Consult Ltd is a Chartered Quantity Surveying firm with permanent office in Accra, and has significant experience and knowledge of the construction industry in Ghana. A-Kon Consults Limited has partnered with Davis Langdon on a number of projects in providing robust solution with quality output to ensure that all our projects are turned into a reality. A-Kon Consults Limited have been in Practice for ten (10) years, however the founder, Principal and Majority shareholder of the company, Mr. Samuel Asare-Konadu, a Chartered Quantity Surveyor has practiced for eighteen (18) years and has immense knowledge in the Ghanaian and International Construction Industry. The following are some of the project that has been undertaken by the consult:

- Residential Building at Cantonments for the Nigeria High Commission, Accra, Ghana
- Apartment and Gymnasium Blocks for the Feyenoord, Football Academy.
- Luxurious Beach Resort Apartment Accommodation on the Beach Road in Takoradi
- Odam House Is the Head Office of Atlantic Holding Company Limited
- Ten Storey, Elegant and Towering, Maersk Line Head Office Building
- Regional Banking Hall at Bolgatanta for Stanbic Bank
- University Of Ghana Lecture Hall And Offices, Accra City Campus
- Hotel for SYW Development Limited, Airport City, Accra Ghana
- Construction of a Shopping Mall at Adijringanor, Accra
- Refurbishment of Golden Tulip Hotel, Accra

## **HFC BANK GHANA LIMITED**

The establishment of HOME FINANCE COMPANY (HFC) to provide mortgages to potential homeowners and pave the way for acquisition of properties. HFC Realty Company is wholly owned by HFC Bank Ghana Limited. It was incorporated as a private limited liability on May 14, 2003 and began operations in February, 2006. It is the property investment and management subsidiary of the Bank. The company's mission is to 'hold, develop and manage real estate in the country'. HFC Realty develops, maintains and market houses and also provides a wide range of services including property management, valuation, real estate consultancy and project management.

## **MINISTRY OF WATER RESOURCES, WORKS AND HOUSING**

The Ministry of Water Resources, Works and Housing has as its main functions the formulation and co-ordination of policies and programmes for the systematic development of the country's infrastructure requirements in respect of Works, Housing, Water Supply and Sanitation and Hydrology. The Ministry co-ordinates and supervises, by way of monitoring and evaluation of the performance of both public and private agencies responding to and participating in the realisation of the policy objectives established for the sector. The Ministry has four directorates:

Policy Planning Budgeting Monitoring and Evaluation (PPBME) Human Resource Development Unit (HRDU) Research Statistics Information Management (RSIM); and Administration and Finance

## **ARCHITECTURAL AND ENGINEERING SERVICES CORPORATION**

Architectural & Engineering Services Limited (AESL) is a practicing professional group of Consulting Civil, Structural, Electrical and Mechanical Engineers, Architects, Land and Quantity Surveyors. Mainly act as a consultant for most government projects.

## **SOCIAL SECURITY and NATIONAL INSURANCE TRUST**

The Existence of the SSNIT Pension Scheme established by Social Security Law, 1991 (PNDC Law 247). The National Pensions Act, 2008, has repealed this law (Act 766). The Social Security and National Insurance Trust (SSNIT) is a statutory public Trust charged with the administration of Ghana's National Pension Scheme. The Trust is currently the biggest non-bank financial institution in the country. Increased investments by Social Security and National Insurance Trust (SSNIT) in housing (e.g. housing estates at Sakumono and Adenta in Greater Accra)

## **NEWMONT GHANA LTD**

Newmont Golden Ridge Limited (the “Company”), a subsidiary of Newmont Mining Corporation, is proposing to mine gold reserves at the Akyem and Ahafo,kenyasi Gold Mining Project (the Project”) site in the Eastern Region and Brong Ahafo region of Ghana, West Africa

## **GHANA INSTITUTION OF ENGINEERS**

The Ghana Institution of Engineers was officially founded in 1968 to succeed the Ghana Group of Professional Engineers, as an autonomous professional body with no political affiliation. The GhIE was established under the Professional Bodies Registration Decree NRCD 143. To advance the science and the profession of engineering to the benefit of Society and establish and manage a register of Engineers qualified to practise in Ghana

## **PMI GHANA CHAPTER**

PMI Ghana Chapter is being chartered by the Project Management Institute, USA. PMI Ghana is a not-for-profit organisation delivering value to three distinct stakeholder communities. Individuals: Organisations and National. Chapters provide face-to-face contact with peers from various organizations and industries working in the project management field. Chapters advance the mission and objectives of PMI by promoting project management professionalism within local businesses, universities and professional organizations in the chapter area. Project management professionalism is enhanced through chapter activities, meetings and other educational programs designed to strengthen the knowledge, awareness and understanding of project management principles, tools and techniques.

## **GHANA INSTITUTION OF SURVEYORS**

The Ghana Institution of Surveyors (Gh.I.S.) is the leading source of professional advice on Landed Property and Construction in Ghana. There are three main areas of Specialization in the Institution i.e. The General Practice (GP) Division, the Quantity Surveying (QS) Division, and the Land Surveying (L.S.) Division; Qualified Surveyors are permitted to use the letters. FGhIS. AGhIS. TGhIS after their names depending on their professional class. The advice of a professional Surveyor is required at all stages of the life cycle of property from the raw land, through measurement. Planning, funding, design and construction, agency, management and investment, refurbishment and redevelopment.

## **GHANA EDUCATION TRUST FUND (GETFUND)**

The Ghana Education Trust Fund (GETFund) was established by an Act of Parliament in 2000 (Act 581) with the object of providing finance to supplement the provision of Education at all levels by Government. The Fund began operations in the second half of 2001. Getfund remain the sole organisation in Ghana provide finance for building of facilities for school including primary, secondary and tertiary levels.

## **MESSRE AMOAH-MENSAH**

Mr Amoah- Mensah is a fellow of Ghana institution of Surveyors and formal executive director of Building and Road Research Institute (BRRI). More so he was also formal lecturer at the Department Of Building Technology, KNUST. Among his publication includes:

- Amoa- Mensah, K. (1999) Attaining affordability through cost saving house building techniques: a case study of strategies that aided resource optimization in some affordable housing projects in Ghana, The Surveyor, Ghana Institution of Surveyors, pp. 109- 122.

- Amoa- Mensah, K. (2002) The strategy of fast track housing delivery: the Ashongman success story, Paper presented at the Building and Road Research Institute, Research Week Seminar, November, pp 1-7
- Amoa –Mensah, K. (2003) Housing in Ghana: a search for sustainable options as the way forward for enhanced output – year 2003 and beyond, A paper presented at the International Building Exhibition Seminar. Accra, 27th –29th August

# KNUST



# KNUST

## APPENDIX 4: EXTRACT FROM CONDITION OF CONTRACT

