

**KWAME NKRUMA UNIVERSITY OF SCIENCE AND TECHNOLOGY,  
KUMASI, GHANA.**

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Adoption of Project Management Practices; A Case Study of Kpone Thermal Power Project

by

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## DECLARATION

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

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## **ABSTRACT**

In spite of development's protracted records of enormous projects, and 50 years of developing the discipline, project general performance is disturbingly low especially in Ghana. Various studies have uncovered that most projects are over budgeted, not completed on time and don't meet stakeholders expectations. Research has additionally demonstrated that poor project management practices have added to the desertion of projects over the years. Overtime Traditional project management practices have advanced as the requirements for management and monitoring construction projects. Nevertheless, with the advances of management methods and ICT, traditional practices have tested to be insufficient in meeting the new project necessities. Productive project management is fundamental in a project-based industry such as construction. To enhance project outcomes (e.g. fulfilment, performance, and achievement), A Guide to the Project Management Body of Knowledge (PMBOK® Guide) was set up by the Project Management Institute to arrange general project management processes, knowledge, skills, tools, and techniques. This research work aims at investigating the extent to which the PMBOK Guidelines are adopted in construction projects in Ghana, using Kpone Thermal Power Project (KTPP) as a case study. The study population includes the management, engineers and supervisors who constitute the top and middle level management staff of Zakhem Construction Ghana Limited (ZCGL), the EPC Contractor of the KTPP. Pursuing the research objectives, the research instruments adopted was a close-ended structured questionnaire with questions centred on the Project Management practices outlined in PMBOK Guide under different Project Management process groups and knowledge areas. The research work deployed a quantitative method in measuring and analysing its variables and data. The tool used for arranging the data, performing data cleaning and analysis is Microsoft Excel. The research discovered that Project Management Practices as per the PMBOK guidelines were adopted on the project to a large extent, however there is the need for improvement in some knowledge areas. It was therefore recommended among others that actions should be taken to ensure that the planning and execution of construction projects take into consideration adequate project management skills and strategies.

**Keywords;** Adoption, Project, Management, Practices.

## TABLE OF CONTENTS

|                                                                                    |     |
|------------------------------------------------------------------------------------|-----|
| DECLARATION .....                                                                  | ii  |
| ABSTRACT .....                                                                     | iii |
| DEDICATION.....                                                                    | 2   |
|  |     |
| ACKNOWLEDGEMENT .....                                                              | 1   |
| TABLE OF CONTENTS .....                                                            | iv  |
| LIST OF TABLES .....                                                               | vi  |
| CHAPTER ONE .....                                                                  | 1   |
| INTRODUCTION .....                                                                 | 3   |
| 1.1 Background to the Research .....                                               | 3   |
| 1.2 Statement of the Problem .....                                                 | 6   |
| 1.3 Aim of the Research .....                                                      | 7   |
| 1.4 Objectives of the Research .....                                               | 7   |
| 1.5 Research Questions .....                                                       | 8   |
| 1.6 Significance of the Research .....                                             | 8   |
| 1.7 Scope of the Research .....                                                    | 9   |
| 1.8 Research Limitations .....                                                     | 9   |
| 1.9 Organisation of the Research Work .....                                        | 11  |
| CHAPTER TWO .....                                                                  | 12  |
| LITERATURE REVIEW .....                                                            | 12  |
| 2.1 Introduction .....                                                             | 12  |
| 2.2 Definition of Project and Project Management .....                             | 12  |
| 2.3 History of Project Management .....                                            | 14  |
| 2.4 Project Management in Ghana .....                                              | 15  |
| 2.5 Project Management in Construction Projects .....                              | 17  |

|                                               |                                                              |    |
|-----------------------------------------------|--------------------------------------------------------------|----|
| 2.6                                           | Current Construction Industry Trends.....                    | 17 |
| 2.7                                           | Project Management Practices and Processes (PMPs) .....      | 19 |
| 2.7.1                                         | The PMI's PMBOK Guide Approach.....                          | 19 |
| 2.7.2                                         | Project Management Processes Groups (PMI, PMBOK, 2008) ..... | 19 |
| 2.7.3                                         | Project Management Knowledge Areas.....                      | 23 |
| 2.8                                           | The Adoption of Project Management Practices.....            | 26 |
| 2.9                                           | Organisational Practices and Project Management .....        | 28 |
| 2.10                                          | Assessment Models for PMP's .....                            | 31 |
| 2.11                                          | Benefits of PMP's .....                                      | 33 |
| 2.12                                          | Conclusion .....                                             | 34 |
| CHAPTER THREE .....                           |                                                              | 12 |
| METHODOLOGY .....                             |                                                              | 36 |
| 3.1                                           | Introduction .....                                           | 36 |
| 3.2                                           | Research Design .....                                        | 36 |
| 3.2.1                                         | Type of Study .....                                          | 37 |
| 3.3                                           | Sampling Procedures .....                                    | 37 |
| 3.3.1                                         | Study Population.....                                        | 37 |
| 3.3.2                                         | Sample size .....                                            | 37 |
| 3.4                                           | Data Collection .....                                        | 38 |
| 3.4.1                                         | Survey Instrument.....                                       | 38 |
| 3.5                                           | Data Analysis .....                                          | 38 |
| 3.5.1                                         | Variables (PMPs for assessment/analysis) .....               | 38 |
| 3.5.2                                         | Model Specification for data analysis .....                  | 39 |
| 3.5.3                                         | Reliability and Validity Test.....                           | 39 |
| 3.6                                           | Conclusion .....                                             | 40 |
| CHAPTER FOUR .....                            |                                                              | 12 |
| DATA ANALYSIS AND DISCUSSION OF RESULTS ..... |                                                              | 41 |

|                                                               |    |
|---------------------------------------------------------------|----|
| 4.1 Introduction .....                                        | 41 |
| 4.2 Information on Respondents .....                          | 41 |
| 4.3 Results .....                                             | 42 |
| 4.4 Discussion of Results .....                               | 51 |
| CHAPTER FIVE .....                                            | 55 |
| SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....                 | 55 |
| 5.1 Introduction .....                                        | 55 |
| 5.2 Summary and Conclusion .....                              | 55 |
| 5.3 Policy Contribution Recommended for Further Studies ..... | 57 |
| REFERENCES .....                                              | 58 |
| APPENDICES .....                                              | 62 |
| Appendix 1: Survey Instrument .....                           | 62 |

## LIST OF TABLES

|                                                                                               |    |
|-----------------------------------------------------------------------------------------------|----|
| Table 4.1 showing the Qualification of Respondents .....                                      | 41 |
| Table 4.2 showing the Years of Experience of Respondents .....                                | 44 |
| Table 4.3 showing the Adoption of PMPs on KTPP .....                                          | 45 |
| Table 4.4 showing the causes of not adopting PMPs on KTPP .....                               | 48 |
| Table 4.5 showing the effects of not adopting PMPs on KTPP .....                              | 49 |
| Table 4.6 showing the comparative analysis of PMPs with reference to PM knowledge areas ..... | 50 |

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## DEDICATION

I dedicate this research work to God Almighty, my wife and children.

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## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the Research

Of late one of the most indispensable organizational improvements has been the significant development in project works across various industries (Maylor et al, 2006). Academic researchers in the United Kingdom (UK) and different nations affirm this improvement, which may proceed with increasing numbers of advancement endeavours being sought after through projects and programs (Midler, 1995). Business reports by KPMG (2002) likewise feature the rising adoption of project management practices and guidelines in substantial number of firms, in addition to the creation of project management centres of excellence within the UK government (Thiry and Deguire, 2004).

Project and program management is not only a subsidiary of engineering, it is presently the focal model in many firms particularly for strategic implementation, business change and upgrade and new product development. Additionally, in capacities, for example, infrastructure renewal, urban and community redevelopment; management practices have turned out to be dynamically fundamental, as more works are implemented through projects and programs (Child and McGrath, 2001).

It cannot be doubted that the Ghanaian Construction Industry (GCI) has the strategy for the development of the nation as on account of numerous other developing economies. The financial development and advancement of any country is specifically connected to the construction industry. Engineering management, as one of the necessary aspects of construction engineering, directly affects life and property security in the built environment.

As civilization grows, construction projects spontaneously grow in scale, comprising large numbers of professionals, extended life cycles, and multifaceted boundaries. Hence, the forms and numbers of complex construction-related information required have increased, that has enlarged the complexities of construction processes and operations. Construction projects now need greatly experienced experts and professionals. Traditional operative practices and processes may no more be suitable for solving some management difficulties. Hence, the development of project management processes in response to construction management challenges, by expediting project implementation and delivery (Chou and Yang, 2012).

Owing to the limited information circulated by project management educators globally, the rapid changes in the construction industry now need professionals who will be able to utilise and relate project management skills, tools, and techniques, (STT) in the work practice. Express developments in management discipline have also led to the improvement of project management into a comprehensive structure of knowledge (Indelicato, 2009).

The defence ministries originally developed project management in response to national security needs but this has since developed to emphasize the relations among several operating activities during the project life cycle. A construction project can be analysed in five main stages: feasibility studies, planning, design, construction and operation. Any of the stages can also be dealt with as a single project, which means that a unique product is produced at any stage.

The success of any project requires effective project management in industries such as construction and finding effective approaches to it is critical. The Project Management Body of Knowledge (PMBOK® Guide) was built up by the Project Management Institute in USA to decide general project management knowledge, processes, skills, tools and techniques (PMI, 2008), to enhance projects results. The PMBOK® Guide contains the essential practices that

are result oriented for any organisation, as well as those in the construction industry. Project managers and their teams will be able increase the chances of success for wide-ranging projects by the application of these management practices, (Zwikael, 2009).

Project management practices are becoming more important as more projects are experiencing budget and schedule constraints and other performance issues. Project management conveys consistent and organised performance oriented achievements which eventually bring contentment to stakeholders. The construction industry is evident with large scale projects and the project management practices are commonly implemented in procedures in order to accomplish the aims of huge scale construction projects.

A current trend in the construction industry is the mounting prominence on the utilization of project management. Project management in any case, as misused by most construction firms is more associated to construction or site management instead of looking at a complete view of the project from initiation to closing as far as the various stages of a project life cycle are concerned. Ineffectual incorporation of project management into enterprise operational processes inhibits synergy which leads to waste of resources and decreased operational efficiency. These are some of the failures that have enlarged enterprise difficulties and have disallowed firms from improving their competitive advantage.

Precisely, no distinct standards are developed in ranking project knowledge required for task execution (Zwikael, 2009). Based on experience or legacies passed on by predecessors of the construction industry most firms decide which management techniques or tools that are required on a specific project. However, these techniques are not scientific nor objective. Hence, project managers may not be able to make true judgments concerning project management tools and skills required for a particular project before engineering is performed. Hence the introduction of the PMBOK guide. But how much of the PMBOK guide has been

adopted on projects or to what extent has the guide been adopted by project managers? The adoption of PMBOK® Guide practice on construction projects needs further investigation. Therefore, this research work empirically examines the adoption of the project management practice on construction projects in Ghana, a case study of the Kpone Thermal Power Project in Ghana.

## **1.2 Statement of the Problem**

Construction Projects whether owned by the government, a private firm or by an NGO, generally face many challenges in developing countries. In an attempt to increase organizational capabilities, meet new demands, and realize new opportunities or to overcome the challenges faced due to very regular change of organization's environment projects are initiated, but it is more likely that difficulties could occur during execution of the project. Significant causes of project failures to meet their objectives were statistically found to be schedule delay, budget over-run and poor manpower quality of projects.

In Ghana, sufficient research had not been done in assessing usefulness of project management practices on performance of projects. Studying the relationships between the extent of adoption of project management practices against that of project success or failure is required in recognising and understanding which project management practices are very effective, other projects can then draw lesson from it.

Traditional project management practices have advanced as the requirements for management and monitoring construction projects. Nevertheless, with the advances of management methods and ICT, traditional practices have tested to be insufficient in meeting the new project necessities.

The invention of virtual project teams where construction projects are designed by varied number of designers at different geographical locations, the purchasing and delivery of materials through strategic alliances with suppliers, etc. have highlighted a number of flaws in the traditional construction management practices.

To increase benefit, intensity, and quality and to build an incentive to customers the industry players are for the most part searching for a change in the construction industry. Focusing on those exercises that really include value is the attention now as against the customary concentrate on the need to deal with the interface between the project and the customer.

The need to coordinate project's stages, from origination to final delivery, which will bring about performance upgrade, and for designers to create greater understanding for how they can contribute value in the project process is presenting another atmosphere, which has featured the disadvantage of existing conventional project management practices in meeting the new requirements, Egan Report (1998).

### **1.3 Aim of the Research**

This research work is aimed at examining the extent to which the PMBOK Guidelines are adopted in construction projects in Ghana, a case study of the Kpone Thermal Power Project (KTPP).

### **1.4 Objectives of the Research**

The research is geared towards achieving the following specific objectives:

1. To identify the project management practices adopted on KTPP.
2. To identify the gaps in the implementation of project management practices on KTPP.
3. To identify the causes and effects of the gaps in the implementation of project management practices on KTPP.

## 1.5 Research Questions

Because of the research objectives, the accompanying research questions are inquired:

1. What project management practices are adopted on KTPP?
2. What are the gaps in the implementation of project management practices on KTPP?
3. What are the causes and effects of the gaps in the implementation of project management practices on KTPP?

## 1.6 Significance of the Research

There is a requirement for the advancement of a suitable structure for project management which would bring about appropriate methods of project management in Ghana and Africa as a whole (Crawford and Muriithi, 2003). This research work backs such a call.

Project management is a discipline with a developing body of knowledge, this research can contribute in adding some concepts to the existing body of knowledge with a specific emphasis on construction management practices presently being employed. Despite the research focuses on construction projects, the outcomes and the conclusion could be relevant to specialists in other types of projects.

The result, that is, discoveries and proposals got from this study would fill in as points of reference in further studies on this topic. It will serve as one of the fundamental basis for all those who will in one way or the other have the desire to conduct any future research into this area of study and will also contribute to knowledge on the subject matter.

The output of this study will also serve as a source material for lecturers of Project and or Construction Management programmes of study. To them, the study will help have an additional and current information and literature concerning Project Management Practices

especially in developing countries. By this study they will come up with additional integrated notes for lecture on the subject matter.

### **1.7 Scope of the Research**

This research work mainly focuses on the adoption of project management practices to enhance performance of construction projects in Ghana. Even though the research aims at the national level, due to time, financial and other limitations, it focuses on the Kpone Thermal Power Project (KTPP) in the Kpone-Akatamanso District in Greater Accra Region. Hence, any generalization and usage of findings from this study should consider its scope.

### **Research Methodology**

This section gives an in-depth representation of how the research was led by demonstrating a framework on the research design, study population, sampling procedures, data gathering and investigation techniques. At the end of the day, it clarifies the research methodology that was utilized for the accomplishment of the objectives of this research work. The research work deployed a quantitative method in measuring and analysing its variables and data.

The point of this study is to look at the adoption of Project Management Practice on the management of construction projects in Ghana. Hence, in light of the research design and method, it is indisputable that the most appropriate research method for this present research is the quantitative research method.

Data for examination was gathered utilizing questionnaires, which was administered to a total of 30 top and middle management level staffs on the project. For the essential overview for this research work, the census sampling method was used in administering the questionnaire. For

that reason, all 30 staff of the EPC contractor on the KTPP project responded to the questionnaire distributed.

From the Likert Scales that were used in the questionnaire, Mean Score was worked out for every variable. The following formulae was used to calculate the Mean Scores:

$$MS = \frac{\sum X}{N}$$

Where N is the total number of respondents and X is the ranking given to every variable by respondents. The apparatus utilized for arranging the data, performing data cleaning and analysis is Microsoft Excel. The information was assessed to determine any recognizable input mistakes, and to clear up obvious differences within the data set.

### **1.8 Research Limitations**

Project Management Institute (PMI) standard practice, the PMBOK guide fifth Ed, is utilized as a reference for comparison due to the extensive global recognition and rising acceptance of these models in private and public organizations in Ghana. One of the limitations of this study is that PMI ideal is generally created from North American experience and research.

The degree to which the respondents of the questionnaire understand the terms and requirements of project management practices is the other limitation. The generalizability of findings and validity is also limited due to the fact that this research focuses on one project, KTPP.

### **1.9 Organisation of the Research Work**

Chapter one of this research work provides a general introduction and the motivation that preinformed the research. The chapter also discusses the problem statement and the significance of the research work.

In Chapter two an empirical and a theoretical review of other research works already available on the chosen topic is discussed.

The research methodology that was used for this research, the sources of data, the methods of collecting data and analytical methods are discussed in chapter three.

The analysis and the discoveries of the present study are talked about in Chapter four; and Chapter five covers the summary, conclusions and recommendations for further studies.



## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The point of this chapter is to exhibit the literature review identified with Project Management Practices (PMPs). The literature review is structured in a way that covers both empirical and theoretical areas of PMPs. The intention is to put together basic knowledge of researchers in similar fields. Here the position and importance of comparable themes important to this study from existing scholarly sources are analysed. This is to establish a logic that supports the

research questions and assist in meeting their objectives by means of information obtained through a review of knowledgeable project management specialists.

## **2.2 Definition of Project and Project Management**

Evolving economies, rising advancements and developing business styles as often as possible prompt new recommended systems with the calling of project management. This demonstrates that the universe of project management is dynamic. Organizations realize that it's not really what they do, but rather how they do it that gives them a focused advantage.

According to Wysocki et al. (2000), a Project is a plan of unique, complex, and related exercises taking one goal or point that should be finished by a particular time, within budget, and according to specification. This is in contrast to an ongoing repetitive activities or operations which are required to be endless exercises with no planned finish. Projects are also characterized by regular attributes, for example, the life cycle, reason, interdependencies, conflict and uniqueness as demonstrated by (Meredith and Mantel Jr., 2000). Merna and Al Thani, (2008) also portrayed a project as an exceptional assembly of assets to fulfil specific objectives, for instance, the production of goods and services, with a particular true objective to make a profit or to give a help to a community. A project has the characters of a permanent change, a life cycle, a definite start and a finish date. The part played by a key player fittingly called the project manager is the main character of projects. The project manager alongside being key to the methodology of managing projects, is almost the same as the project group he leads. In this way, it is more than accurate to say the project manager is ultimately responsible for the success or otherwise of the project.

The planning, execution, monitoring and control of all project exercises, the motivation of all required to complete project objectives within the expressed time, cost and scope is depicted as project management (PMI, 1996). In 2013, the PMI also portray project management to be

the application of skills, knowledge, tools, and techniques to project exercises in order to meet project requirements (PMI, 2013). The capacity to harness the skills of various people, rally them together and empower them to satisfy project objectives and assures the achievement of the project is portrayed as Project management. A basic impact in measuring project management practices and the achievement of projects is Quality.

Be that as it may, there are varieties in the meanings of Project Management starting with one discipline then onto the next. Every definition has direct assimilation to the nature of project or the type of project being referred to. Osien (1971) characterized Project Management as the use of a collection of tools and techniques, (for example, the CPM and matrix organization) to coordinate the utilization of different resources towards the achievement of a unique, complex, temporary activity within cost, time and quality requirements. Morris (1994) in this manner described project management as a procedure of incorporating everything that should be done regularly utilizing various extraordinary project management techniques as the project develops through its life cycle up to handing over with a specific end goal to meet the project's objectives. Burke (2003) considers project management to be a particular management procedure, to plan, and control projects under a solid single purpose of duty. Generally, Turner, (1993) in like manner describes Project Management to be the craftsmanship and specialty of changing dream into actuality. Turner (1999) argues that Project Management is tied in with directing people to deliver results, not administering work. Nevertheless, other authors have also suggested that the definition should also describe the cultural, structural and interpersonal aspects (Cleland and Ireland, 2002). Following the unique perspective of researchers, Wideman (1990) contends that Project Management is a philosophical procedure that empowers its professionals to perform to their greatest potential within the constraints of limited resources, thereby expanding profitability. In a similar vein, it is a specialty of coordinating and organizing

human and material resources to accomplish expressed objectives within the boundaries of time, budget, and customer satisfaction.

### **2.3 History of Project Management**

Having reviewed enough literature on the history of Project Management, the researcher finds the account of Aaron Shenhar and Dov Dvir, (2008) very detailed but concise. They state that since the start of advancement, individuals have been engaged in systematized creations that have affected lives and countries. Nowadays, they are called projects. Notable memorials and wonderful stories are routinely left by such beginnings which have motivated future generations and driven the exploration of historians, sociologists, archaeologists, and management researchers. Humankind has constantly been enchanted by the knowledge and creative ability of the human mind and by the command and capacity to develop, manage, and implement collective people's efforts since the Roman Aqueducts to the Great Wall of China to the Egyptian Pyramids.

A "project" was depicted by the authors as a momentary organisation and method set up to satisfy a communicated objective under the containments of time, budget, and unique resources. Project management was also described as the management practices required to lead a project to a prosperous end. Project Management as an authentic managerial discipline, is still generally new. It has formally developed in the midst of the twentieth century, after the first program evaluation and review technique (PERT) marked the commencement of another discipline when time, tools, techniques, and methods became standardized across industries and organizations, and a consistently expanding number of establishments started seeing the advantages of organising task around projects. A colossal milestone in the development of the discipline was achieved by the establishment of the Project Management Institute (PMI) in

1969 as the principle professional association. A Guide to the Project Management Body of Knowledge (PMBOK® Guide) - Third Edition was made the leading standard on how to manage the current projects (PMI, 2004). The PMBOK® Guide has since been regularly revised until the current version, the Fifth Edition in 2013.

## **2.4 Project Management in Ghana**

The aftermath of colonization brought about a stimulated provision of infrastructure in Ghana, which brought about a rise in project management practice in the mid-1960s. Project management was at first acknowledged as an instrument for the delivery of developmental initiatives despite the fact that there was little knowledge about the practice in Ghana. However there was a change towards making and implementing a number of interventions utilizing differing approaches, especially those slanted towards vertical programming. In the 1980s, when Ghana's development twisted up noticeably by donor supported interventions, the prominence of project management as a better alternative for carrying out developmental interventions was brought back by the contributors who were satisfactorily financing the development and fixing all sectors of the economy of Ghana (Ofori and Sakyi, 2006).

Government sector and the private non-profit sector, who were the dynamic specialists in the transformation of the different sectors of the economy, stretched out their ability to understand the improvement plan through projects as better and profitable management. This is on the grounds that, the non-profit organizations, often referred to as Non-Governmental Organizations (NGOs) frequently use Project Management approach in executing their interventions. Project management approach is embraced because of the restrictive nature of scope and time for delivering donor supported projects. Additionally the budget and resources are completely subsidize by contributors.

With the help of donor aides and using projects and project management, Ghana being one of the developing nations, has built up the country's infrastructure. The country's rural electrification project, development of agribusiness, construction of streets, water and sanitation, rebuilding of basic schools, and transportation are cases of these formative projects. (NDPC, 2005; Millennium Development Agency, 2011). The way corporate Ghana is logically reacting to the multi-faceted nature of the present business condition is by the use of Project Management approaches for the achievement of business objectives (Ofori, 2013). Examples of these ranges from the strategy of organizations in planning events, production of goods, manufacturing, and others in the extractive industries.

It was recently that schools in Ghana began teaching project management. Engineers who are assigned to manage projects learnt from mentoring foreign project professionals and their own experience on projects. With the rising inclination towards projects, project management is as of today being instructed in schools and furthermore by a couple of foundations. The proliferation of presentations and talk of PMP courses in day by day papers, suggests that a demand for project management knowledge has been created (Ofori, 2013).

## **2.5 Project Management in Construction Projects**

The Project Management Institute has since 2003 put out the Construction Extension for the PMBOK Guide® in recognition of the sometime unique attributes that are specific to the construction business. The drive of the Extension is to enhance project management of construction projects by highlighting those methods and techniques that are predominantly principal to this subset of projects (Guerin, 2012).

Section 1.2.4 of the Extension definitely sums up the issues particular to construction project management: When built on different sites, buildings despite the fact that they might be prototypical each may presents its own difficulties to exact time projections, cost, control and

unique subcontracting arrangements, delays to schedules and increments in capital costs. Construction projects comprise of numerous stakeholders with differing requirements, for example, regulatory organizations, taxpayers, governments and environmental or municipal groups (Guerin, 2012).

## **2.6 Current Construction Industry Trends**

It would not be a misrepresentation to state that the construction business, all in all, took a significant decline during the ‘Great Recession’ in the millennium. In any case, there indicate a slow yet stable growth in construction projects. Unquestionably, a few collections of construction projects, for example, regional infrastructure, government buildings and residential rehabilitations or redesigns, have not encountered the significant decline seen in other areas, for example, housing or metropolitan upgrade projects. It is entirely safe to state that construction projects are currently reappearing on the project management skyline (Guerin, 2012).

There are propels in management efficiencies that have turned out to be regular place in the general business environment. However, innovatively, there might be a threat of the construction business not keeping pace with these propelled management techniques. The business, in some ways such a hopeful risk-taker, can be fairly moderate in the adoption of new techniques or methods; it has on a very basic level been building things a similar way for various decades (Guerin, 2012).

There are a ton of numerous and different business effects of the globalization of work and clearly the construction industry is not shielded from this revolutionary force. The construction industry needs to change its management rationality and methodology to suit it. Building Information Modelling (BIM) frameworks is one case of a moderately new innovation that can

adjust to and advance the globalization of construction project management. It permits engineers, managers, owners and architects everywhere throughout the world to simultaneously see and alter plans and designs in 'real time'. This has thus facilitated the current development of the construction management method known as the Integrated Project Delivery (IPD) method (Guerin, 2012).

Along these lines, construction Project Managers must be prepared to make utilization of these and other important innovations that enhance project value, while being aware of plausible constraints or risks posed accordingly.

## **2.7 Project Management Practices and Processes (PMPs)**

Despite the methodology utilized, there are various techniques for overseeing project exercises. Careful consideration must be given to the general project objectives, timeline and cost and the roles and responsibilities of all stakeholders.

### **2.7.1 The PMBOK Guide Methodology by PMI**

PMI's PMBOK Guide methodology perceives a plan of ventures to be advanced. In the PMI's methodology, five processes of a project are recognized in the advancement of a project:

- Project starting or initiation stage;
- Project planning or configuration stage;;
- Project executing or generation stage;
- Project monitoring and controlling stage;
- Project closing or finishing stage;

Not every one of the projects will visit each phase as projects can be ended before they achieve completion. A few projects don't implement an organized planning as well as monitoring stages (PMI, PMBOK, 2013).

### **2.7.2 Project Management Processes Groups (PMI, PMBOK, 2013)**

By and large, project management consolidates different segments: four to five process groups, and a control framework. Despite the terminology or methodology used, the same basic project management processes will be used.

#### **Initiation**

The initiation processes determine the scope and nature of the project. Project success to meet business' requirements is not guaranteed if this stage is not completed well. Perception of the business condition and guaranteeing all required practices and procedures are incorporated into the project are the key measures required here. Any inadequacies should be represented and a proposition have to be made to settle them. The Initiating process has two sub processes with the tools and techniques.

Incorporated into the initiation stage is a plan that is comprised of the following:

- Examining the business requirements/needs in quantifiable objectives
- Appraising of the present operations
- Financial examination of the costs and benefits including a budget
- Shareholder Analysis, including clients, and support work force for the project
- Project charter including costs, tasks, expectations, and schedule

## Planning

The project is planned to a suitable level of detail after the initiation stage. Here resources, time and cost are planned enough to assess the work required and to productively oversee risk all through project execution. The project objective can't be effectively accomplished without sufficient planning.

The following are for the most part contained in the Project planning:

- deciding the best strategy (such as by level of detail or rolling wave);
- outlining a well written scope statement;
- acquiring the team for planning;
- finding the quantifiable goods or services that will be provided upon the completion of the project (deliverables) and making the WBS;
- determining the exercises required to finish the deliverables and sequencing the them logically;
- appraising the resources requirements for the exercises;
- evaluating cost and time for activities;
- creating the schedule;
- preparing the budget;
- planning risk;
- Obtaining official approval to begin work.

Communications and scope management planning, determining roles and duties, choosing what is required for the project and having a kick-off meeting are additional processes incorporated into the planning. Theoretical outline of the operation of the final product might be implemented parallel with the project planning exercises for new item advancement projects,

and may help the planning group while finding deliverables and planning activities (PMI PMBOK, 2013).

### **Executing**

The procedure utilized to complete the work as described in the project management plan to complete the project's objectives is the executing process. This requires coordinating people and resources, and furthermore integrating and execution the activities of the project in accordance with the project management plan. The deliverables are produced as outputs from the processes performed as described in the project management plan.

### **Monitoring and controlling**

The processes implemented to screen project execution so that possible challenges can be seen in a timely way and restorative action can be made when necessary, to control the execution of the project. The key benefit is that project execution is checked and measured all the time to find deviation from the project management plan.

Monitoring and Controlling includes

- Assessing the ongoing project exercises;
- Checking the project deliverables (cost, effort, scope,) against the project management plan and the project execution baseline;
- Recognize corrective exercises to address issues and risks suitably;
- Manipulating the variables that could by-pass coordinated change control so only approved changes are implemented;

The monitoring and controlling procedure in multi-stage projects likewise gives response between project stages, with the aim of executing preventive or remedial measures to carry out the project in accordance to the project management plan.

The scope of work for any project may change over the span of the project. Change is a predictable and common part of the construction process. Required plan adjustments, materials accessibility, distinctive site conditions, owner requested changes, value analysis and influences from outsiders are some of the causes of change in the construction industry. Apart from executing the adjustment in the field, the change for the most part requires to be put on record to indicate what was truly executed. This is called change management. Henceforth, the owner more often than not require a final record to show all changes or, more specifically, any change that modifies the tangible part of the finished work.

As-built drawings are the record of these changes made both on the contract documents and the plan drawings. The obligation for providing them is a standard in construction contracts. At the point when changes are introduced to the project, the viability of the project must be reassessed.

The initial objectives and goals of the project should be kept in focus. The accumulation of changes may alter the initial justification of the proposed investment in the project.

### **Closing**

The official endorsement and end of the project is referred to as Closing. Administrative exercises include the archiving of the files and documenting lessons learned. This stage comprise of:

- **Project close:** Completing all activities across all the process groups to formally close the project or a project phase

- **Contract closure:** Settle and complete each contract (together with the resolution of any open item) and close each contract identified with the project or project stage

### 2.7.3 Project Management Knowledge Areas

What project managers need to know to successfully manage a project is outlined in the Guide to the Project Management Body of Knowledge (PMBOK® Guide) – Fifth Edition. There are 10 project management knowledge areas covered by the PMBOK® Guide. They cover each of the 47 project management practices (Harrin, 2017).

#### Project Integration Management

The PMBOK® Guide first covered this knowledge area, yet it is tied in with bringing together all your knowledge so that you are dealing with the project comprehensively not in a singular process chunks.

#### Project Scope Management

The best way to define what your project will deliver is Scope management. Ensuring that everybody is aware about the project objective and what it incorporates is what Scope management is concerned with. Putting together the requirements and setting up the WBS (work breakdown structure) is what the scope management entails.

#### Project Time Management

To be personally more compelling is not what Time management is about. This deals with the general time the project will take and how you deal with the time individuals are spending on their project undertakings. The comprehension of the exercises in the project, the schedule of

those exercises, and how long they will take is what is in this knowledge area. It is where the project schedule is prepared.

### Project Cost Management

Cost management is tied in with dealing with the project's funds. Setting up the budget which incorporates working out the cost of each task and after that deciding the general project budget estimation is the huge activity in this knowledge area. Monitoring the project's expenditure against the budget and ensuring that the project is quiet on track and not overspending is likewise covered here.

### Project Quality Management

This is a significant but little knowledge area, three processes are covered here. The quality control and quality management exercises on the project are established here to enable the project manager guarantee that the outcomes toward the finish of the project will meet customer's expectations.

### Project Human Resource Management

Project human resource management identifies with how the project manager runs the project group. To start with, there is the need to comprehend what resources are needed to be able to finish the project before assembling a group. Afterwards, it is tied in with dealing with the team members as well as equipping them with additional skills to carry out their works as the need arise, and furthermore inspiring them.

### Project Communications Management

Communication is said to be 90% of the project manager's occupation. This knowledge area is one more imperative knowledge area. There are three processes involved here. Planning, overseeing and controlling are the three processes of project communications. This is where the connections between stakeholder management and human resource management is solidly

established as well. This is where communication plans are noted and recorded for the project and furthermore monitoring all approaching and active communications.

### Project Risk Management

The risk management work begins with risk planning, and after that rapidly proceeding onward to recognizing risks, seeing the way to survey risks on the project. This knowledge area entails a great deal of detail, particularly concerning how numerical and subjective risk appraisals are performed. Risk management is not a coincidental movement. This knowledge area additionally comprise controlling the project risks moving ahead over the project life cycle.

### Project Procurement Management

Although common to projects, procurement management is not something that occurs on all projects. Every project procurement and supplier work from planning through tendering and purchasing processes to dealing with the supplier and closing the agreement when the project is done is underpinned in this knowledge area. This knowledge area has solid links to the work of financial tracking on the project and furthermore to performance management, for there is the need to deal with the performance of contractors as the project advances.

### Project Stakeholder Management

The journey of classifying participants, appreciating their roles and requirements in the project and guaranteeing that they are delivered is covered in this last knowledge area. There is a propensity of further improvement of this knowledge area in the following release of the PMI PMBOK standard.

## **2.8 The Adoption of Project Management Practices**

For projects like International Development (ID) projects regulated by NGOs and other development organizations, two appreciated standards, which are PM4DEV and PMDPro

(made by PM4NGO), are made for PM practices. As a commendable other substitute to or incorporation of standard methodologies (e.g., PMBOK by PMI or IPMA skill baseline), these principles are remarkable among experts. In any case, an examination between these approaches (Golini and Landoni, 2013; Hermano et al., 2013) exhibits that the procedures are alike and that ID projects can profit by the practices developed in business environments, and vice versa. They found by relationship that apart from Logical Framework and tree analyses (problem tree, objective tree, and alternative tree) every tool in the PMBOK® Guide is also present in the other two guides (PM4DEV and PMDPro). It is also highlighted by these authors that the project life cycles and the key Project Management processes are enormously indistinct.

Notwithstanding this closeness in the standards, Project Management tools have as regularly as conceivable a dispersed adoption, some are amazing and have extensive use, while the others are more refined and does not have much usage. The work breakdown structure (WBS) as an instrument supposedly was utilized broadly while others have phenomenally insufficient use with respect to acceptance (e.g., project evaluation and review technique), in a study by Besner and Hobbs (2008). This variance may rely on the industry or the maturity of an organisation from a rudimentary user of Project Management tools to an advanced one.

Industries of origin for instance petrochemical or defence are more mature in terms of project management than enterprises that have gotten the approach more recently, as shown by CookeDavies and Arzymanow (2003). In like manner, four other basic organizations (technical, scientific and professional organizations; finance and insurance; information; and manufacturing) was considered by Grant and Pennypacker (2006) and found that the maturity level was almost equal (level two on a scale of five) among these organizations, however manufacturing showed up to be at a lower level. It was moreover found by Yazici, (2009), that

with higher project maturity, organisations can achieve substantial savings, increase sales growth, show better competitiveness compared with their competitors, and establish best practices in their industry or service sector. A Project Management maturity model and an analysis methodology to assess the maturity of Project Management processes was presented by Ibbs and Kwak (2000). Another model developed by Crawford (2002) relating the PMBOK knowledge areas (risk management, cost management, scope management, and so forth.) and their level of acceptance in a firm to five maturity levels. A model based on five levels (initiation processes; structured process and standards; organisational standards and institutional process; managed process; optimizing process) was likewise built up by Grant and Pennypacker (2006),

The general proposition specified to managers of projects is that the benefits achieved by these tools justifies the effort put in implementing genuine methodologies and immense affirmation has been given in diverse managerial fields. There is the need to comply with certain practices and rules if organizations wish to thrive with regard to project management. This is confirmed by managerial and academic literature, certification organizations and general practice (Golini et al, 2014). Significant empirical evidence is available for these considerations. There is not enough proof that the adoption level of Project Management Practices is related to project success although a couple of studies have indicated this (Papke-Shields et al., 2010).

## **2.9 Organisational Practices and Project Management**

Organisational culture is one of the authoritative viewpoints/parts underlining project management. Organisational culture varies among organisations (PMBOK, 2008). The PMBOK (2008) states that people and organisations, have demeanours towards risk that influence the exactness of the view of risk and the way they react. Risk responses mirror an

organisations' apparent harmony between risks taking and risk avoidance. Thus, the way a project's risk is managed will differ between organisations.

Another case of project management that varies between organisations can be given when contrasting the knowledge area of project human resources management to the qualities of organisational culture. The trademark 'team introduction' directs that there is a degree to which work exercises are engaged around groups or rather individuals. The project human resource management knowledge area comprises of four processes, to be specific human resource planning, procuring the project group, building up the project group and dealing with the project group (PMBOK, 2008).

The organisational culture impacts on a project. Certain societies may negatively affect a project, in which case the project group needs to address the way of life and attempt to transform it (Cooke-Davies, 2003), in spite of the fact that it might be troublesome and complex to do. Organisational culture is impacted and made by different components, for example, authority and role modelling.

What leaders do is influenced by societal cultural values and practices. This statement is backed by considerable experiential evidence (House et. al., 1997). Also leadership behavioural courses of action and organisational norms that varies according to circumstances and seen as authentic among societies is provoked by the abrogating social standards endorsed by societies. Subsequently the qualities and activities of leaders are, to a limited extent, a multiplication of the organisational practices which are thus a picture of Societal Cultures (Kopelman et al, 1990).

Societal values have the probability to impact the way of life of project organizations in Ghana. Social principles have direct impact on organizational culture and implies that consequences

from the prevailing social values, convictions, desires and natural thought processes are encompassed by culture, as per Lord and Maher (1999), and House et. al. (1997).

For productive project management, the study of project management is very significant. This is established by Shore and Cross (2005). This implies that different social environments require the application of unique project success or failure factors, tools and techniques.

Numerous nations, similar to Ghana, have developed their particular cultures through sharing common struggles and history. Social standards are cultures and styles of a people. The "standards" include an open knowledge concerning a way of dealing with the work, which methods are accepted suitable for completing the work, and who is leading in getting the work done.

Indeed, diverse religious groups within states, financial classes, ethnic groups and divergent eras of individuals own their unique arrangements of basic encounters that prompted the advancement of a typical culture, as indicated by Hofstede (1991). Regarding every group, culture contains and can be perceived in (TAIL Analysis):

- Technologies – including cooking, dressing, drug, settlement, standpoints, skills and tools, and so forth.
- Arts – including magnificence, style, tastes, show, shape and shading, and so on.
- Institutions – comprise of social groupings, organizations, political authority, and financial frameworks, and so forth.
- Language – including embodiment of social rationale and the essential medium of articulation.

Cultural patterns in the wider society is reflected by cultural patterns at work. Project groups acquire the way of life of the general public and organizations they work with. Management

techniques and training packages for example, have been developed almost uniquely in every country, beginning from the USA, and based on social assumptions that may not work in other cultures.

In handling international projects comprising partners from socialist societies such as Ghana, it is unacceptable to discuss a man's faults or inabilities openly with him. This is presumably going to discredit cultural norms and may be taken by the subordinate as unfriendly. A subtle, indirect ways of communicating response, for instance, through the removal of a normal goodwill or verbally through a mutually trusted arbitrator is the acceptable norm in such societies.

## **2.10 Assessment Models for PMP's**

### **Project Management Process Maturity Model**

A five-level 'Project Management Process Maturity' of Project Management was built up by a research group led by Professor William Ibbs at the University of California at Berkley, to demonstrate the relative positions of an organization's level of project management with different organizations. An organization's available project management practices and processes are assessed by Project Management advancement as a well-defined level of innovation (Ibbs and Kwak, 2002). Project management qualities, factors and processes are included in each advancement level. The model advances from functionally driven organizational practices to project driven organization that incorporates steady project learning (Ibbs and Kwak, 2002). The following addresses the five level improvement model:

Level 1 – Ad-hoc Stage:

Project accomplishment depends upon individual attempts instead of joint efforts for organizations at level 1. These organizations are for all intents and purposes isolated and don't have the support of senior management. There is neither a consistent Project Management processes or practices nor solid Project Management data collection or analysis.

#### Level 2 – Planned Stage:

Organizations have qualities in doing similar work and are weakly team oriented at the planned stage. At the Planned Stage relaxed and partial processes are defined and informal Project Management data gathering is practiced.

#### Level 3 – Managed at Project Level Stage:

Staff of organization do not have adequate training in Project Management practices and skills. Proper Project Management data are managed and approved project planning and control frameworks exist.

#### Level 4 – Managed at Corporate Level Stage:

Establishments show strong coordinated effort and project team is formally trained in Project Management. Different projects can be supervised, facilitated, and controlled profitably by organizations. Project Management process data are numerically explored, measured and stored.

#### Level 5 – Continuous Learning Stage:

Organizations are project-driven, dynamic, active and liquid at this stage. Project Management processes are unendingly enhanced and Project management information are updated and maintained. Innovative deliberations are strongly pursued.

This model adopts the PMI's Project Management Body of Knowledge by dividing Project

Management Practices and Processes into Ten Knowledge areas and integrate them into Five Project Management Processes (Ibbs and Kwak, 2002). This model helps organizations to identify their strengths and weaknesses with regards to Project Management Practices so they could concentrate on the weak Project Management Practices to attain high Project Management maturity. It serves as an evaluation mechanism and the outcome of analysis is useful for making proposition in upgrading a company's Project Management application and use of innovation.

Kerzner's Project Management Maturity Model (Kerzner, 2001)

It was found by Harold Kerzner and the International Institute for Learning (IIL) that Project Management is a key competency that businesses must develop in order to survive in the present dynamic era. He therefore developed a Project Management Maturity Model to be used by organizations as a benchmark for their PM Practices against performance and their competitors.

This model is used as an evaluation tool for establishing Project Management excellence which is believed to enhance Project success. Comparing with the Project Management model described earlier, there are five maturity levels of Kerzner's model also. Organizations lacking in Project Management Processes are represented on the first level whereas organizations that are successful with regards to Project Management Processes and are continuously advancing their processes so as to keep up their position in the competitive market are represented on the fifth level.

### **Benefits of PMP's**

The motivation behind an organization is to complete objectives and to be as productive as could be allowed. This study looks at the adoption of PM practices recalling the genuine goal

to get productive project management. Along these lines some attention should be paid to the advantages of persuading project management which is attained by adopting PM practices.

Project management guarantees that a project can be tracked and controlled and in this fashion, that project objectives can be met. The extra cash that is spent on management through genuine planning far outweighs costs due to poor management choices, overrun, reworking and mistakes made (Burke, 2003).

Project achievement guarantees that a project is done within cost, time, at the desired performance/improvement level, improving quality, using the assigned resources efficiently and effectively and acknowledged by the client. The explanation behind making progress toward sensible project management is that there are many benefits.

A touch of the central benefits that follow from persuading project management may include restricting the scope overlap and scope under lap (Kerzner, 2003). This adds to better control of scope changes. Knowing when objectives can't be met or will be exceeded. Through serious management more work can be accomplished in less time. A product would then be put to market faster than the competitor by utilizing fast tracking. This creates the likelihood of expanded profitability.

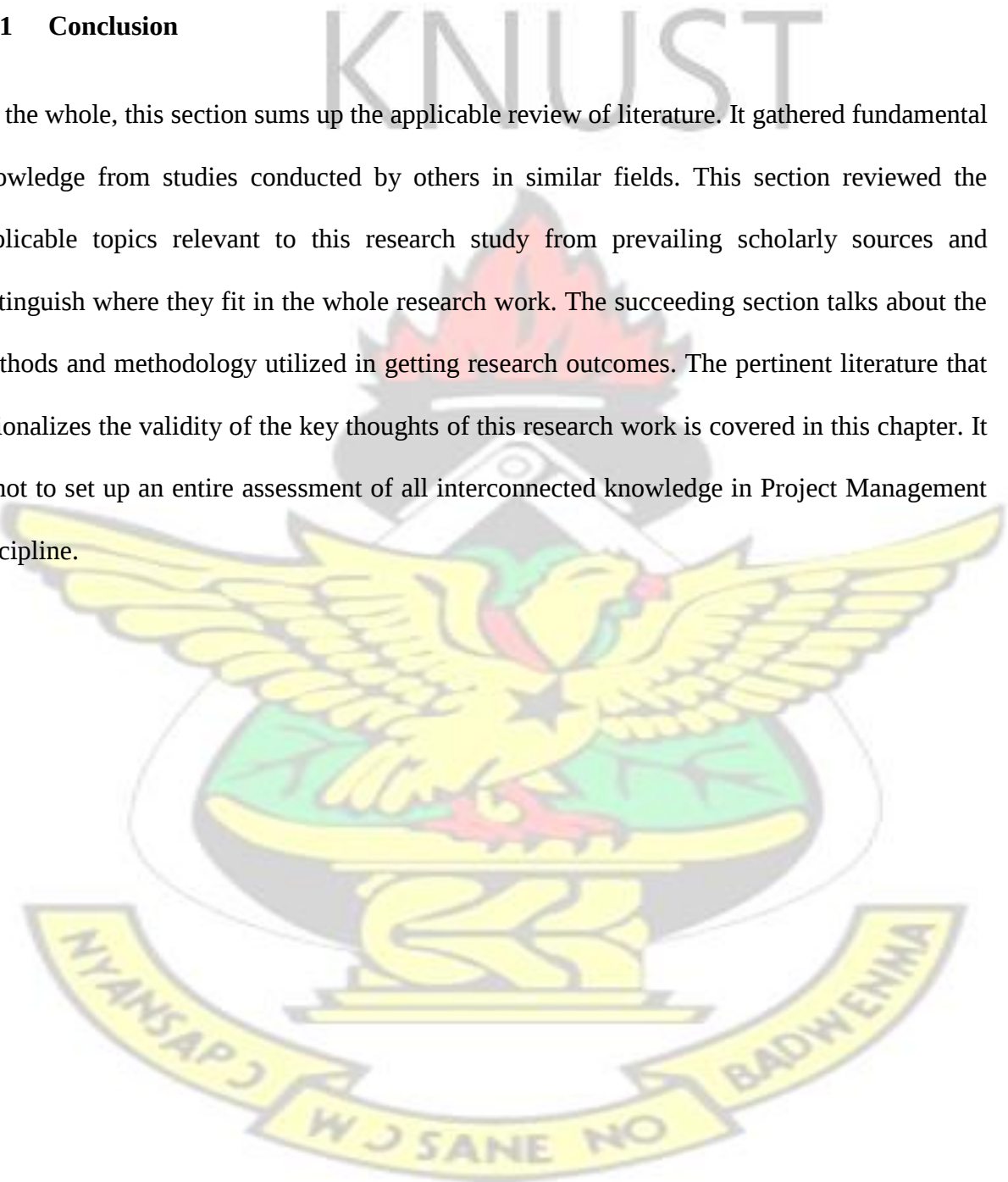
Project management allows the estimation of achievement against plans. On the off chance that there are issues, they can be perceived enough early in order to enable corrective action. Project management is a persuading method for solving strategic crisis. A strategic crisis can be portrayed as a crisis that does not cause any disturbing effects right now, yet rather holds the likelihood of causing severe results in future.

Project management, decisively and practically applied, has great benefits to offer any organization. In this manner, seeing what knowledge is fundamental for a project manager in

the built environment to have and whether it will improve the effectiveness and success of a project is essential. It might add to effective project management and greatly impact organizations.

## **2.11 Conclusion**

On the whole, this section sums up the applicable review of literature. It gathered fundamental knowledge from studies conducted by others in similar fields. This section reviewed the applicable topics relevant to this research study from prevailing scholarly sources and distinguish where they fit in the whole research work. The succeeding section talks about the methods and methodology utilized in getting research outcomes. The pertinent literature that rationalizes the validity of the key thoughts of this research work is covered in this chapter. It is not to set up an entire assessment of all interconnected knowledge in Project Management discipline.



## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter gives an in-depth depiction on how the research was led by demonstrating a framework on the research design, study population, sampling procedures, data gathering and investigation techniques. At the end of the day, it clarifies the research methodology that was utilized for the accomplishment of the objectives of this research work.

#### **3.2 Research Design**

The work that follows after defining the research problem is the task of drawing the research design. The arrangement of the settings for collection and analysis of data in a way that adds relevance to the research purpose is known as the research design, (Kothari, 2004).

The research work deployed a quantitative method in measuring and analysing its variables and data. The quantitative and the qualitative approaches are the commonest research approaches utilized as a part of scholastic investigations. The quantitative method considers numbers, how to discover and research them. The qualitative method, on the other hand, concentrates on words and it is more suitable for a researcher whose goal is to generate a comprehensive understanding of a subject or situation under research. The key difference between the two methods is that, the former stresses results whilst the latter stresses the interpretation of the outcomes (Bryman and Bell, 2007).

In addition, the point of this study is to look at the adoption of Project Management Practice on the management of construction projects in Ghana. Henceforth, in light of the research design and method, it is indisputable that the most appropriate research method for this present research is the quantitative research method. As indicated by Bryman and Bell (2007) the quantitative research method focusses on common science and how things are as opposed to going underneath shallow conduct. Since the researcher simply needs to discover adoption of PMPs on construction projects, it is more expedient to utilize quantitative approach as the most fitting method for the research.

### **3.2.1 Type of Study**

The key reason for this research is to find the amount of PMPs that are adopted on construction projects, studying the Kpone Thermal Power Project. Since the goal is to establish the adoption of PMPs on construction projects, the researcher will conveniently use the pragmatic approach to research in order to get the most expected results in the short duration of research.

### **3.3 Sampling Procedures**

#### **3.3.1 Study Population**

Using Kpone Thermal Power Project as a case study for this study, the researcher intends to include in his study population; all the top and middle level staff of Zakhem Construction Ghana Limited (ZCGL) as the EPC Contractor so as to have a more profound look into the PM practices on government projects in Ghana. The top and middle level staff comprises of management, engineers and supervisors who were selected to respond to questionnaires. The total number of top and middle level staff of the EPC contractor is 30 persons.

### **3.3.2 Sample size**

The method of picking a sample size requires that the researcher choose a worthy scope of unpredictability, given the cost and time confinements of the study (Rea and Parker, 1997). For the essential overview for this research work, the census sampling method was used in administering the questionnaire. For that reason, all 30 staff of the EPC contractor on the KTPP project responded to the questionnaire distributed.

### **3.4 Data Collection**

There were no past instruments found during the literature review to be custom fitted to this particular study because of the uniqueness of this research study. Subsequently, a study instrument was developed with the purpose to pull out information required for analysing the data.

Data for examination was gathered utilizing questionnaires, which was administered to a total of 30 top and middle management level staffs on the project.

#### **3.4.1 Survey Instrument**

The questionnaire was developed based on the Project Management processes defined in PMBOK Guide under different Project Management process groups and knowledge areas. The questionnaire was structured in the close-ended format. The questionnaire was structured in three (3) sections in direct correlations to the objectives of the research as specified in chapter one.

### 3.5 Data Analysis

#### 3.5.1 Variables (PMPs for assessment/analysis)

The reference used for comparison is the Project Management Institute (PMI) standard practice owing to its global recognition and increasing acceptability in organizations internationally. The top most widely accepted project management standard, PMBOK guide fifth Edition, groups the project management processes into five Project Management process groups and 10 Project Management Knowledge Areas. These PM processes, practices and knowledge areas shall be used as variables during data analysis.

#### 3.5.2 Model Specification for Data Analysis

From the Likert Scales that were used in the questionnaire, Mean Score was worked out for every variable. The following formulae was used to calculate the Mean Scores:

$$MS = \frac{\sum X}{N}$$

Where N is the total number of respondents and X is the ranking given to every variable by respondents.

The apparatus utilized for arranging the data, performing data cleaning and analysis is Microsoft Excel. The data was assessed to ascertain any recognizable input mistakes, and to clear up obvious differences within the data set.

#### 3.5.3 Reliability and Validity Test

Reliability and validity are two issues that any researcher should be worried about while planning a survey, analysing outcomes and judging the value of the survey. According to Saunders et al (2010), validity has to do with whether the results are actually about what they

appear to be about. Reliability correspondingly refers to how much discoveries of research work are reliable over time, and the correct picture of the total population under study.

The survey instrument used determines the quality of the research work, and this is driven by the experience and insight of the researcher and his supervisor. There is the likelihood of assessment errors if questions were not properly framed or presented to the respondents. This is taken into consideration during the development of the survey questions (Huck and Cormier, 1996). Validity is concerned about whether an instrument really measures that which it is meant to measure or whether its scores have significance for a participant, Posner (1995) explained. As to whether the study questions describe points that are being measured and is right, which was taken into consideration in setting up the questionnaires is what Content validity determines.

The data after collection and collation was sent to the supervisor for perusal, moderation and approval before they were analysed. The reliability of the structured data helped the researcher to get the right response the same way it was used under the same conditions with the same subjects.

The selected construction project (KTPP), is considered very important to infrastructural development and economy of Ghana due to the recent power crisis confronting the country. Owing to its importance to the economy, performance is expected from the general public.

### **3.6 Conclusion**

This chapter took a look at the research design and methodology to follow in executing this research work. The chapter has comprehensively explained the rudiments to follow methodically to realise the goals of the study. Serving as a pivot to the research work, the chapter links all chapters since research methodology is employed in writing them up.

## CHAPTER FOUR

### DATA ANALYSIS AND DISCUSSION OF RESULTS

#### 4.1 Introduction

This section of the research work deals with the assessment of results collated from the survey conducted. The discussions are built on the outcomes of questionnaires administered on the case study project (KTPP). The results of the survey are presented in the frequency distribution tables and duly discussed.

#### 4.2 Information on Respondents

A total number of 30 out of 30 middle management staff of the EPC contractor on the KTPP responded to the survey representing a response rate of one hundred percent (100%).

Characteristics of the respondents are discussed in section A.

##### *Section A: Characteristics of Respondents*

**Table 4.1 showing the Qualification of Respondents**

| Qualification   | No. of Respondents |
|-----------------|--------------------|
| Diploma         | 5                  |
| HND             | 2                  |
| Degree          | 23                 |
| Master's Degree | -                  |

Source: Research Survey, 2017

**Table 4.2 showing the Years of Experience of Respondents**

| Years              | No. of Respondents |
|--------------------|--------------------|
| Below 5 years      | 5                  |
| 6 to 10 years      | 6                  |
| 11 to 20 years     | 13                 |
| 21 to 30 years     | 4                  |
| 31 years and above | 2                  |

Source: Research Survey, 2017

Particulars of the respondents included their qualification and working experience. The information in Table 4.1 discloses that respondents with Bachelor's degree ranked uppermost with 76.7% trailed by holders of HND/Diplomat with 23.3%. It indicates that the greater number of the respondents are well-informed and well qualified enough to comprehend the model of project management and project achievement. Also, it can be seen in table 4.2 that 63.33% of the respondents have worked in their positions on projects for long years (11 years and above) which implies that respondents have been exposed to project management over a long period and are qualified to response to questions on project management in order to arrive at well-informed conclusions.

### 4.3 Results

#### *Section B: Adoption of Project Management Practices on KTPP*

**Table 4.3 showing the Adoption of PMPs on KTPP**

Key: 1 = Never, 2 = Rarely, 3 = Sometime, 4 = Mostly, 5 = Always.

| No | Processes                                                                                                                                                                 | Rating |   |    |    |   | Total | ΣX  | Mean | % Adoption |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---|----|----|---|-------|-----|------|------------|
|    |                                                                                                                                                                           | 1      | 2 | 3  | 4  | 5 |       |     |      |            |
| A  | Initiating Process Group                                                                                                                                                  |        |   |    |    |   |       |     |      |            |
| 1  | An documentation that formally approves a project and depicts beginning requirements that fulfil stakeholder requirements and Expectations, Project Charters, are created | 4      | 5 | 11 | 8  | 2 | 30    | 89  | 2.97 | 70.00      |
| 2  | Stakeholder Management Strategy & Stakeholder Register is prepared                                                                                                        | 0      | 5 | 10 | 11 | 4 | 30    | 104 | 3.47 | 83.33      |
| B  | Planning Process Group                                                                                                                                                    |        |   |    |    |   |       |     |      |            |

|    |                                                                                                                                                                                                |   |   |    |    |    |    |     |      |        |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|----|----|----|----|-----|------|--------|
| 3  | The Plan which records the exercises to get ready, characterize, incorporate, and coordinate every single Secondary plan, Project Management Plans are prepared                                | 0 | 0 | 13 | 17 | 0  | 30 | 107 | 3.57 | 100.00 |
| 4  | Schedule Base lines, Schedule data & Project schedule, are created                                                                                                                             | 0 | 0 | 0  | 20 | 10 | 30 | 130 | 4.33 | 100.00 |
| 5  | Project Funding requirements, Cost Estimates, Cost Performance Baseline and are produced                                                                                                       | 0 | 3 | 4  | 7  | 16 | 30 | 126 | 4.20 | 90.00  |
| 6  | Quality Standards and requirements are recognized and compliance strategies are documented                                                                                                     | 0 | 0 | 9  | 17 | 4  | 30 | 115 | 3.83 | 100.00 |
| 7  | Quality Matrices, Process Improvement Plans, Quality Checklists Quality Management Plan and are Prepared                                                                                       | 0 | 4 | 10 | 12 | 4  | 30 | 106 | 3.53 | 86.67  |
| 8  | That which ascertains & documents the project required skills, responsibilities, roles, reporting interactions, staff management plan and the Human Resource Plan are developed                | 3 | 3 | 3  | 15 | 6  | 30 | 108 | 3.60 | 80.00  |
| 9  | Communications Management Plans (which defines communication approach and documents stakeholder information needs) are developed.                                                              | 3 | 3 | 2  | 21 | 1  | 30 | 104 | 3.47 | 80.00  |
| 10 | A strategy is demarcated for risk management, risks are recognized, qualitative & quantitative risk examination is done & activities to reduce threats and boost opportunities are established | 3 | 0 | 8  | 10 | 9  | 30 | 112 | 3.73 | 90.00  |

|          |                                                                                                                                                                                                                                                                                |   |    |    |    |    |    |     |      |        |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----|----|----|----|----|-----|------|--------|
| 11       | Risk register, risk related contract choices, risk management plans and are readied.                                                                                                                                                                                           | 3 | 0  | 6  | 10 | 11 | 30 | 116 | 3.87 | 90.00  |
| 12       | Procurement Management Plans (a document that describes how project team will acquire goods and services from outside the performing organization and how procurement processes will be managed from developing procurement documents through contract closure) are developed. | 0 | 0  | 8  | 15 | 7  | 30 | 119 | 3.97 | 100.00 |
| <b>C</b> | <b>Execution Process Group</b>                                                                                                                                                                                                                                                 |   |    |    |    |    |    |     |      |        |
| 13       | Exercises are executed per stipulated in the project management plan to accomplish project objectives                                                                                                                                                                          | 0 | 0  | 3  | 27 | 0  | 30 | 117 | 3.90 | 100.00 |
| 14       | Quality control measurements and Quality requirements are audited                                                                                                                                                                                                              | 0 | 9  | 3  | 18 | 0  | 30 | 99  | 3.30 | 70.00  |
| 15       | Groups are procured and created to enhance their skills, relations and group condition                                                                                                                                                                                         | 0 | 12 | 3  | 15 | 0  | 30 | 93  | 3.10 | 60.00  |
| 16       | Project team's performance is taken after, reaction is given, issues are settled and changes are figured out how to improve group execution.                                                                                                                                   | 3 | 5  | 4  | 18 | 0  | 30 | 97  | 3.23 | 73.33  |
| 17       | Project relevant data is made accessible to Participants as planned.                                                                                                                                                                                                           | 3 | 6  | 1  | 20 | 0  | 30 | 98  | 3.27 | 70.00  |
| 18       | Members are imparted and worked with to address and address their needs and issues.                                                                                                                                                                                            | 3 | 1  | 11 | 11 | 4  | 30 | 102 | 3.40 | 86.67  |

|          |                                                                                                                                                                                                                        |   |   |    |    |    |    |     |      |        |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|----|----|----|----|-----|------|--------|
| 19       | Conduct Procurements (a process of documenting procurement requirements, requesting and obtaining Seller responses, selecting a seller and awarding a contract) are followed as defined in the Project management plan | 0 | 5 | 1  | 15 | 9  | 30 | 118 | 3.93 | 83.33  |
| <b>D</b> | <b>Monitoring &amp; Control Process Group</b>                                                                                                                                                                          |   |   |    |    |    |    |     |      |        |
| 20       | Progress is taken after, checked on and controlled.                                                                                                                                                                    | 0 | 0 | 3  | 18 | 9  | 30 | 126 | 4.20 | 100.00 |
| 21       | Change Requirements are studied, accepted and managed.                                                                                                                                                                 | 0 | 0 | 1  | 12 | 17 | 30 | 136 | 4.53 | 100.00 |
| 22       | Finished project deliverables acceptance is formalized.                                                                                                                                                                | 0 | 0 | 0  | 13 | 17 | 30 | 137 | 4.57 | 100.00 |
| 23       | Scope is administered/refreshed and adjustments to scope baselines are overseen.                                                                                                                                       | 0 | 0 | 4  | 7  | 19 | 30 | 135 | 4.50 | 100.00 |
| 24       | Changes to schedule baselines are overseen and progress is observed/refreshed.                                                                                                                                         | 0 | 0 | 4  | 11 | 15 | 30 | 131 | 4.37 | 100.00 |
| 25       | Project money related plan is checked/refreshed and deviations to cost baselines are overseen.                                                                                                                         | 0 | 0 | 4  | 16 | 10 | 30 | 126 | 4.20 | 100.00 |
| 26       | Quality tasks are checked and outcomes are logged to survey execution and to appraise essential modifications.                                                                                                         | 0 | 5 | 10 | 11 | 4  | 30 | 104 | 3.47 | 83.33  |
| 27       | Execution Data like status reports, advance estimations and conjectures are gathered and spread.                                                                                                                       | 0 | 0 | 3  | 6  | 21 | 30 | 138 | 4.60 | 100.00 |
| 28       | Distinguished risks are followed, leftover risks are checked, new threats are recognized, threat process viability is assessed and Threat reaction plans are implemented.                                              | 3 | 0 | 12 | 10 | 5  | 30 | 104 | 3.47 | 90.00  |
| 29       | Procurement relations with the sellers are managed, performance is monitored and changes are reviewed, approved and managed.                                                                                           | 0 | 0 | 3  | 18 | 9  | 30 | 126 | 4.20 | 100.00 |

| E  | Closing Process Group                                                                                            |   |   |   |    |   |    |     |      |        |
|----|------------------------------------------------------------------------------------------------------------------|---|---|---|----|---|----|-----|------|--------|
| 30 | Undertakings over all management procedure bunches are wrapped up to authoritatively close the project or stage. | 0 | 0 | 3 | 21 | 6 | 30 | 123 | 4.10 | 100.00 |

Source: Research Survey, 2017 **Section C: The Causes of not adopting Project Management Practices on KTPP?**

**Table 4.4 showing the causes of not adopting PMPs on KTPP**

Key: 1=Strongly Disagree, 2=Disagree, 3=Uncertain, 4=Agree, 5=Strongly Agree

| No | Processes                                                                                              | Rating |    |   |    |    | Total | ΣX  | Mean | % Agreed |
|----|--------------------------------------------------------------------------------------------------------|--------|----|---|----|----|-------|-----|------|----------|
|    |                                                                                                        | 1      | 2  | 3 | 4  | 5  |       |     |      |          |
| 1  | Large numbers of professional staff required                                                           | 0      | 17 | 2 | 10 | 1  | 30    | 85  | 2.83 | 36.67    |
| 2  | Complex process, procedures, and Rigorous                                                              |        |    |   |    | 1  | 30    | 86  | 2.87 | 36.67    |
| 3  | Project Management Processes are highly bureaucratic                                                   | 5      | 5  | 8 | 12 | 0  | 30    | 87  | 2.90 | 40.00    |
| 4  | Misunderstanding of PM system                                                                          | 7      | 9  | 0 | 10 | 4  | 30    | 85  | 2.83 | 46.67    |
| 5  | Lack of Project Management knowledge and skills                                                        | 0      | 15 | 0 | 10 | 5  | 30    | 95  | 3.17 | 50.00    |
| 6  | Leadership and organizational culture                                                                  | 0      | 0  | 6 | 12 | 12 | 30    | 126 | 4.20 | 80.00    |
| 7  | Lukewarm attitude towards change by construction professionals                                         | 0      | 10 | 7 | 8  | 5  | 30    | 98  | 3.27 | 43.33    |
| 8  | Misunderstanding among construction professionals on PM concepts                                       | 0      | 14 | 6 | 5  | 5  | 30    | 91  | 3.03 | 33.33    |
| 9  | Reliance on Traditional Management Practices                                                           | 0      | 8  | 2 | 5  | 15 | 30    | 117 | 3.90 | 66.67    |
| 10 | Ignorance of the benefits of Project Management Practices over other traditional management principles | 0      | 5  | 0 | 16 | 9  | 30    | 119 | 3.97 | 83.33    |

|    |                                                                             |   |    |   |    |   |    |     |      |       |
|----|-----------------------------------------------------------------------------|---|----|---|----|---|----|-----|------|-------|
| 11 | Inadequate legislative framework and enabling environment                   | 3 | 8  | 1 | 9  | 9 | 30 | 103 | 3.43 | 60.00 |
| 12 | Non-availability of PM training facilities for construction professionals   | 0 | 13 | 4 | 8  | 5 | 30 | 95  | 3.17 | 43.33 |
| 13 | Construction professionals' inability to acquire basic knowledge in PM      | 0 | 12 | 5 | 8  | 5 | 30 | 96  | 3.20 | 43.33 |
| 14 | Inadequate knowledge of PM Practices by government agencies /public service | 0 | 5  | 5 | 15 | 5 | 30 | 110 | 3.67 | 66.67 |
| 15 | Inadequate investment in training                                           | 4 | 5  | 6 | 10 | 5 | 30 | 97  | 3.23 | 50.00 |
| 16 | Lack of IT knowledge                                                        | 6 | 11 | 2 | 6  | 5 | 30 | 83  | 2.77 | 36.67 |

Source: Research Survey, 2017

#### Section D: The effects of the non-adoption of Project Management Practices on KTPP

**Table 4.5 showing the effects of not adopting PMPs on KTPP**

Key: 1=Strongly Disagree, 2=Disagree, 3=Uncertain, 4=Agree, 5=Strongly Agree

| No | Processes                                     | Rating |    |   |    |    | Total | $\Sigma X$ | Mean | % Agreed |
|----|-----------------------------------------------|--------|----|---|----|----|-------|------------|------|----------|
|    |                                               | 1      | 2  | 3 | 4  | 5  |       |            |      |          |
| 1  | Budget over-runs                              | 0      | 3  | 0 | 15 | 12 | 30    | 126        | 4.20 | 90.00    |
| 2  | Implementation delays                         | 0      | 0  | 0 | 15 | 15 | 30    | 135        | 4.50 | 100.00   |
| 3  | Poor definition of construction project scope | 0      | 21 | 0 | 9  | 0  | 30    | 78         | 2.60 | 30.00    |
| 4  | Scope Creep                                   | 0      | 21 | 0 | 9  | 0  | 30    | 78         | 2.60 | 30.00    |

|    |                                                   |   |    |   |    |   |    |     |      |        |
|----|---------------------------------------------------|---|----|---|----|---|----|-----|------|--------|
| 5  | Poor Communication management                     | 0 | 9  | 5 | 8  | 8 | 30 | 105 | 3.50 | 53.33  |
| 6  | Inadequate control around scope change management | 0 | 20 | 5 | 5  | 0 | 30 | 75  | 2.50 | 16.67  |
| 7  | Lack of clearly defined role for Project Managers | 0 | 19 | 0 | 6  | 5 | 30 | 87  | 2.90 | 36.67  |
| 8  | Poor quality of work                              | 0 | 9  | 1 | 15 | 5 | 30 | 106 | 3.53 | 66.67  |
| 9  | Poor manpower quality                             | 0 | 12 | 2 | 11 | 5 | 30 | 99  | 3.30 | 53.33  |
| 10 | Stakeholder Agitations                            | 0 | 10 | 8 | 7  | 5 | 30 | 97  | 3.23 | 40.00  |
| 11 | Poor Procurement Management Processes             | 0 | 18 | 0 | 8  | 4 | 30 | 88  | 2.93 | 40.00  |
| 12 | Unfinished Project                                | 0 | 0  | 1 | 0  | 0 | 1  | 3   | 3.00 | 0.00   |
| 13 | Skill capacity is barely built among teams        | 0 | 0  | 0 | 1  | 0 | 1  | 4   | 4.00 | 100.00 |

Source: Research Survey, 2017

**Table 4.6 showing the measure of comparison of PMPs with reference to PM knowledge areas**

| Element | Process Groups | Mean | Project Management Area | Average Mean |
|---------|----------------|------|-------------------------|--------------|
|---------|----------------|------|-------------------------|--------------|

|                                                                                                                                                                                                |                      |      |                           |      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------|---------------------------|------|
| A strategy is demarcated for risk management, risks are recognized, qualitative & quantitative risk examination is done & activities to reduce threats and boost opportunities are established | Planning             | 3.73 | Risk Management           | 3.69 |
| Risk register, risk related contract decisions, risk management plans & are prepared.                                                                                                          | Planning             | 3.87 |                           |      |
| Distinguished risks are followed, leftover risks are checked, new risks are recognized, risk process viability is assessed and Risk reaction plans are implemented.                            | Monitoring & Control | 3.47 |                           |      |
| That which ascertains & documents the project required skills, responsibilities, roles, reporting interactions, staff management plan and the Human Resource Plan are developed                | Planning             | 3.6  | Human Resource Management | 3.35 |
| Groups are procured and created to enhance their skills, relations and group condition                                                                                                         | Execution            | 3.23 |                           |      |
| Project team's performance is taken after, reaction is given, issues are settled and changes are figured out how to improve group execution.                                                   | Execution            | 3.23 |                           |      |

|                                                                                                                                  |           |      |                          |      |
|----------------------------------------------------------------------------------------------------------------------------------|-----------|------|--------------------------|------|
| Participant Management Strategy & Stakeholder Register is prepared                                                               | Process   | 3.47 | Communication Management | 3.64 |
| Communications Management Plans (which defines communication approach and documents stakeholder information needs) are prepared. | Planning  | 3.47 |                          |      |
| Project relevant data is made accessible to Participants as planned.                                                             | Execution | 3.27 |                          |      |
| Members are worked with and imparted to address their needs and issues.                                                          | Execution | 3.40 |                          |      |

|                                                                                                                                                                           |                      |      |                        |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------|------------------------|------|
| Execution Data like status reports, advance estimations and conjectures are gathered and spread.                                                                          | Monitoring & Control | 4.6  |                        |      |
| An documentation that formally approves a project and depicts beginning requirements that fulfil stakeholder requirements and Expectations, Project Charters, are created | Initiation           | 2.97 | Integration Management | 3.98 |
| The Plan which records the exercises to get ready, characterize, incorporate, and coordinate every single Secondary plan, Project Management Plans are prepared           | Planning             | 3.57 |                        |      |
| Exercises are executed as stipulated according to the project management plan in order to achieve project objectives                                                      | Execution            | 3.90 |                        |      |
| Progress is taken after, checked on and controlled.                                                                                                                       | Monitoring & Control | 4.2  |                        |      |
| Change Requirements are studied, accepted and managed.                                                                                                                    | Monitoring & Control | 4.53 |                        |      |
| Finished project deliverables acceptance is formalized.                                                                                                                   | Monitoring & Control | 4.57 |                        |      |
| Undertakings over all management procedure bunches are wrapped up to authoritatively close the project or stage.                                                          | Closing              | 4.10 |                        |      |
| Quality Standards and requirements are recognized and compliance schemes are documented                                                                                   | Planning             | 3.83 | Quality Management     | 3.53 |
| Quality Matrices, Process Improvement Plans, Quality Checklists Quality Management Plan and are Prepared                                                                  | Planning             | 3.53 |                        |      |
| Quality control measurements and Quality requirements are audited                                                                                                         | Execution            | 3.30 |                        |      |

|                                                                                                                                                                                                                                                                                |                      |      |                        |       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------|------------------------|-------|
| Quality tasks are checked and outcomes are documented to survey execution and to laud essential changes.                                                                                                                                                                       | Monitoring & Control | 3.47 |                        |       |
| Scope is administered/refreshed and adjustments to baselines of scope are overseen.                                                                                                                                                                                            | Monitoring & Control | 4.50 | Scope Management       | 4.41  |
| Schedule data, Schedule Base lines & Project schedule are created                                                                                                                                                                                                              | Planning             | 4.33 |                        |       |
| Project schedule, Schedule data & Schedule Base lines are created                                                                                                                                                                                                              | Planning             | 4.33 | Time Management        | 4.35  |
| Progress is administered/refreshed and adjustments to schedule baselines are overseen.                                                                                                                                                                                         | Monitoring & Control | 4.37 |                        |       |
| Project Funding requirements, Cost Estimates, Cost Performance Baseline and are produced                                                                                                                                                                                       | Planning             | 4.20 | Cost Management        | 4.240 |
| Project budget is administered/refreshed and adjustments to cost baselines are overseen.                                                                                                                                                                                       | Monitoring & Control | 4.20 |                        |       |
| Procurement Management Plans (a document that describes how project team will acquire goods and services from outside the performing organization and how procurement processes will be managed from developing procurement documents through contract closure) are developed. | Planning             | 3.97 | Procurement Management | 4.03  |
| Conduct Procurements (a process of documenting procurement requirements, requesting and obtaining Seller responses,                                                                                                                                                            | Execution            | 3.93 |                        |       |
| selecting a seller and awarding a contract) are followed as defined in the Project management plan.                                                                                                                                                                            |                      |      |                        |       |
| Procurement relations with the sellers are managed, performance is monitored and changes are reviewed, approved and managed.                                                                                                                                                   | Monitoring & Control | 4.20 |                        |       |

Source: Research Survey, 2017

#### 4.4 Discussion of Results

From the 5 point Likert Scale (rating) for each of the tables, Mean Scores were calculated for each of the variables. Mean Scores were calculated using the expression:  $M = \frac{\sum X}{N}$ , Where N is the total number of respondents, and X is the ranking given to every variable by respondents. From the Likert Scales, rankings were likewise recoded into binomial structure so that ‘never’ and ‘rarely’ are measured as degrees of non-adoption while ‘sometime’, ‘mostly’ and ‘always’ are measured as degrees of adoption. A percentage of adoption of each of the PM practices are derived from the binomial analysis. The mapping of the overall response on the adoption of PMPs on KTPP with reference to exact Project Management processes is offered in Table 4.1. Additionally, to determine the relative position of each Project Management knowledge area, an average of Mean Scores for each of the Project Management Processes relative to each knowledge area was computed. Outcomes are offered in Table 4.6.

Again for the possible causes and effects of not adopting PM Practices, binomials were used to recode the scores from Likert scale (rating) so that ‘strongly disagree’ and ‘disagree’ are measured as degrees of disagreement while ‘agree’ and ‘strongly agree’ are measured as degrees of agreement. Again using the Binomial analysis, a percentage of agreement for the causes and effects to the non-adoption of each of the PM practices is derived. Mapping of overall response with reference to possible causes and effects of the non-adoption of PM practices is presented in Tables 4.4 and 4.5 respectively.

Productively, the outcomes from the data examination as found in table 4.3 shows as far as the implementation of Project Management practices on KTPP; Project Management Plan, Quality Management Plan, Procurement Management Plan, Project schedule Baseline are prepared. There is also the identification and compliance to quality requirements and Criteria; Works are also done as defined in the project management plan; Progress is followed, audited and

controlled; Modification requirements are investigated and project deliverable acceptance are formalized; Project Progress, Scope, and Budget are reviewed, observed, and adjustments to baselines are overseen; Performance data like progress measurements, status reports and forecasts are collected and distributed steadily according to project regulations; Procurement relations with sellers are managed; Performance monitoring and changes are reviewed, approved and managed. Additionally, project activities through every management process groups are finalized to officially complete the phase or project.

However, the result in table 4.3 show laxity of the project in the preparation of Project Charter; Stakeholder Register; Cost Estimates and Performance Baseline; Quality Management Plan; Quality requirements and quality control estimations; Risk Management strategy; Human Resource Plan; Risk related contract decisions; Communications Management Plans; Risk Management Plans; and Risk Register. Additionally, shortcoming is identified in the tracking of team members' performance, acquiring and improvement of Project groups, provision of response; determination of issues; and management of changes; the monitoring of quality exercises and recording of results to assess performance and proposal of necessary changes; Engagement with Stakeholders to address and meet their requirements and circulation of fundamental data to stakeholders. Deficiency is also observed in the application of Risk response plans; the tracking of known risks; monitoring of remaining risks; and identification of new risks and assessment of the efficiency of the risk process.

The analysis of research results discovered that Quality Management & Human Resource Management are main frail areas where the project is deficient in the implementation of standard Project Management practices. Risk Management, Integration Management & Communication Management areas revealed enhanced performances, nevertheless, they require some improvement. From the outcomes of this study, Project Procurement

Management, Scope Management, Time Management, and Cost Management are areas where the project appear to implement standard PM practices. Because the project is public infrastructure development project, it is quite understandable that procurement, cost, scope and time management has been highlighted since this project is realised through more significant assessment of procurement, cost, scope and time.

Conclusively, the analysis of results depict that most PM practices are adopted on the KTPP project as policy measure and not because of gains derived from PM Practices. Those practices which involve strategy rules are being implemented while those practices which are not expressed in the approach rules for implementation are for the most part left to the decision of Project Manager for implementation.

The data analysis likewise uncovered in table 4.4 that: the ignorance of the advantages of Project Management Practices over other customary management standards; Leadership and Organizational Culture; Reliance on Traditional Management Practices; Inadequate knowledge of Project Management Processes by state offices/open administration; Construction experts' inability to increase fundamental knowledge in PM; Insufficient authoritative framework and empowering condition; Lack of Project Management knowledge and skills and Inadequate interest in preparing; are for the most part, key reasons for the non-adoption of PM practices on the KTPP.

Further, the analysis of data as shown in table 4.5 identified: Implementation delays, Budget over-runs, Poor quality of work, Poor Communication management and Poor manpower quality as major effects of not adopting PM practices on the KTPP.

# KNUST

The logo of Kwame Nkrumah University of Science and Technology (KNUST) is centered in the background. It features a yellow eagle with its wings spread, perched on a green shield. Above the eagle is a black mortar and pestle with a red flame rising from it. Below the eagle is a yellow banner with the university's name in Ghanaian and English. The text 'CHAPTER FIVE' is overlaid on the eagle's chest.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

This section concludes the study on the adoption of PM practices in Ghana's construction industry, using KTPP as a case study. It summarizes the entire study, presenting key findings and relevant recommendations that will invaluablely contribute to understanding and the adoption of PM practices on construction projects in Ghana. It will also provide some ideas for further studies within the area of Project Management.

#### 5.2 Summary and Conclusion

The finding of the research is summarized as follows:

The standard project management practices which are adopted on the KTPP are found in the following PM knowledge areas: Project Procurement Management, Project Scope Management, Project Time Management, and Project Cost Management.

Shortcoming of adoption of PM Practices are identified under the following knowledge areas: Project Quality Management, Project Human Resource Management, Project Integration Management, Project Risk Management, and Project Communication Management.

The study likewise uncovered the key causes for not adopting PM Practices on KTPP as follows:

- Unawareness of the advantages of PM Practices over other customary management standards
- Leadership and Organizational Culture of organizations
- Dependence on Traditional Management Practices
- Inadequate knowledge of PM Processes by state agencies /public service
- Construction professionals' failure to gain basic knowledge in PM
- Insufficient statutory framework and enabling environment
- Lack of Project Management knowledge and skills and
- Inadequate investment in training

The research further revealed the major effects of not adopting PM Practices on KTPP as follows;

- Implementation delays
- Budget over-runs
- Poor quality of work
- Poor Communication management and

- Poor manpower quality

In conclusion, the research has emphasized the need for the awareness of the adoption of PM practices in both public and private projects in Ghana. A steady, unequivocal and all-inclusive work is imperative in order to meet the essence, need and advantages of Project Management practices. Project Management practices should be considered as a crucial administrative condition for survival and growth of the construction industry and to accomplish planned objectives. It is also required that employees are made to obtain competencies and skills that enable them to use PM tools and techniques.

General change is required of the present practice particularly in the key areas of deficiency identified in this study. An organizational and continuous effort is likewise important for development. In conclusion government organizations ought not to take PM practices as essentially a policy compliance undertaking instead a value addition to the success of the organization.

The essential, baseline practices that steer business results for any organization, together with those organizations in the construction industry are contained in the PMBOK Guide. Project managers and project groups can help the probabilities of success over a wide variety of projects by the use of these management techniques.

Construction professionals should be educated on the consequences of not adopting PM practices in the planning and execution of projects as well as the consequences of engaging the services of unskilled professionals in the execution of construction projects.

The research reflects a major viewpoint of the adoption of PM Practices in the construction of the Kpone Thermal Power Project and generalizing of results to the whole construction industry in Ghana is a matter of further scrutiny and research.

### 5.3 Policy Contribution Recommended for Further Studies The

following are the recommendations from the entire study:

- It is suggested that a future study is carried out to investigate the effect of the adoption of PM practices on projects.
- It is also suggested that a future study is carried out to investigate more than one project in order make a cross comparative analysis and conclusion. Also, future research works in this vein should compare and contrast the adoption of PM practices between public and private sector projects.
- It is also recommended that public sector projects should consider PM practices not only as mere compliance activities but instead a value accumulation to the project performance.

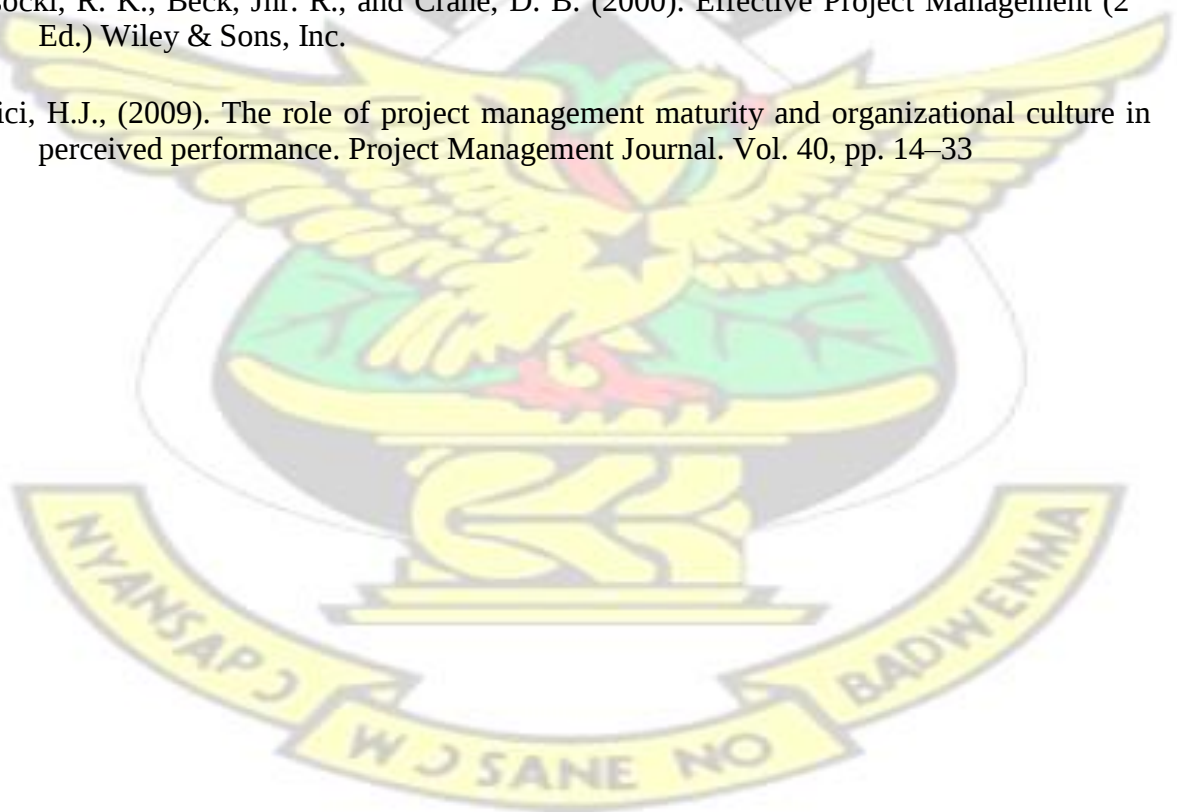
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# KNUST

## **APPENDICES**

### **Appendix 1:**

#### **Survey**

#### **Instrument**

#### **KWAME**

#### **NKRUMAH**

#### **UNIVERSITY**

#### **OF SCIENCE**

#### **AND**

#### **TECHNOLOG**

#### **Y**

(INSTITUTE OF DISTANCE LEARNING)

### **Research Questionnaire**

**Research Topic:** Adoption of Project Management Practices: a case study of Kpone Thermal Power Project

I am Ben Kenneth Ntumy, a student of the Institute of Distance Learning - KNUST, undertaking this research study as a partial fulfilment of the requirement for the degree of Master of Science (Project Management). The information provided for this exercise is purely for academic work and would be treated with confidentiality. It would be appreciated if you could fill in your responses.

Thank you.

### **Section A: What project management practices are adopted on KTPP?**

1. Qualification of respondent: (a) Diploma (b) HND (c) Degree (d) Master's Degree
2. Job Title of respondent: \_\_\_\_\_
3. Years of Experience in Practice: \_\_\_\_\_
4. Management staff of: (a) Zakhem (b) VRA (c) Consultant (d) Subcontractor
5. Below is a list of PM processes and practices, kindly use the numbers 1-5 provided in the key below to show whether they are adopted on the KTPP or not.

**1 = Never, 2 = Rarely, 3 = Sometime, 4 = Mostly, 5 = Always.**

| No.                                       | Processes                                                                                                                                                                    | Never (1) | Rarely (2) | Sometimes (3) | Mostly (4) | Always (5) |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------|---------------|------------|------------|
| <b>A Project Initiating Process Group</b> |                                                                                                                                                                              |           |            |               |            |            |
| 1                                         | Project Charters (document that formally authorizes a project and describes initial requirements that satisfy stakeholder need & Expectations) are developed.                |           |            |               |            |            |
| 2                                         | Stakeholder Register & Stakeholder Management Strategy is prepared.                                                                                                          |           |            |               |            |            |
| <b>B Project Planning Process Group</b>   |                                                                                                                                                                              |           |            |               |            |            |
| 3                                         | Project Management Plans (which documents the actions to define, prepare, integrate, and coordinate all Subsidiary plans) are prepared.                                      |           |            |               |            |            |
| 4                                         | Project schedule, Schedule Base lines & Schedule data is generated.                                                                                                          |           |            |               |            |            |
| 5                                         | Cost Estimates, Cost Performance Baseline and Project Funding requirements are generated.                                                                                    |           |            |               |            |            |
| 6                                         | Quality requirements and Standards are identified and compliance strategies are documented.                                                                                  |           |            |               |            |            |
| 7                                         | Quality Management Plan, Quality Matrices, Quality Checklists and Process Improvement Plans are Prepared.                                                                    |           |            |               |            |            |
| 8                                         | Human Resource Plan are (which identifies & documents the project roles, responsibilities, required skills, reporting relationships and staff management plan) are developed |           |            |               |            |            |

|          |                                                                                                                                                                                                                                                                                |  |  |  |  |  |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| 9        | Communications Management Plans (which documents stakeholder information needs and defines communication approach) are developed.                                                                                                                                              |  |  |  |  |  |
| 10       | Risk Management strategy is defined, risks are identified, qualitative & quantitative risk analysis is performed and actions to enhance opportunities and reduce threats are developed.                                                                                        |  |  |  |  |  |
| 11       | Risk Management Plans, Risk Register & Risk related contract decisions are prepared.                                                                                                                                                                                           |  |  |  |  |  |
| 12       | Procurement Management Plans (a document that describes how project team will acquire goods and services from outside the performing organization and how procurement processes will be managed from developing procurement documents through contract closure) are developed. |  |  |  |  |  |
| <b>C</b> | <b>Project Execution Process Group</b>                                                                                                                                                                                                                                         |  |  |  |  |  |

|    |                                                                                                                                       |  |  |  |  |  |
|----|---------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| 13 | Work is performed as defined in the Project management plan to achieve project objectives                                             |  |  |  |  |  |
| 14 | Quality requirements and quality control measurements are audited                                                                     |  |  |  |  |  |
| 15 | Project Teams are acquired and developed to enhance their competencies, interactions and team environment                             |  |  |  |  |  |
| 16 | Team member's performance is tracked, feedback is provided, issues are resolved and changes are managed to optimize team performance. |  |  |  |  |  |
| 17 | Project relevant information is made available to Stakeholders as planned.                                                            |  |  |  |  |  |
| 18 | Stake holders are communicated and worked with to meet and address their needs & issues.                                              |  |  |  |  |  |

|          |                                                                                                                                                                                                                         |  |  |  |  |  |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| 19       | Conduct Procurements (a process of documenting procurement requirements, requesting and obtaining Seller responses, selecting a seller and awarding a contract) are followed as defined in the Project management plan. |  |  |  |  |  |
| <b>D</b> | <b>Project Monitoring &amp; Control Process Group</b>                                                                                                                                                                   |  |  |  |  |  |
| 20       | Progress is tracked, reviewed and regulated.                                                                                                                                                                            |  |  |  |  |  |
| 21       | Change Requests are reviewed, approved and managed.                                                                                                                                                                     |  |  |  |  |  |
| 22       | Completed project deliverables acceptance is formalized.                                                                                                                                                                |  |  |  |  |  |
| 23       | Project Scope is monitored/ updated and changes to scope baselines are managed.                                                                                                                                         |  |  |  |  |  |
| 24       | Project Progress is monitored/ updated and changes to schedule baselines are managed.                                                                                                                                   |  |  |  |  |  |
| 25       | Project budget is monitored/ updated and changes to cost baselines are managed.                                                                                                                                         |  |  |  |  |  |
| 26       | Quality activities are monitored and results are recorded to assess performance and to recommend necessary changes.                                                                                                     |  |  |  |  |  |
| 27       | Performance Information like status reports, progress measurements and forecasts are collected and distributed.                                                                                                         |  |  |  |  |  |
| 28       | Risk response plans are implemented, identified risks are tracked, residual risks are monitored, new risks are identified and risk process effectiveness is evaluated.                                                  |  |  |  |  |  |
| 29       | Procurement relations with the sellers are managed, performance is monitored and changes are reviewed, approved and managed.                                                                                            |  |  |  |  |  |
| <b>E</b> | <b>Project Closing Process Group</b>                                                                                                                                                                                    |  |  |  |  |  |
| 30       | Activities across all management process groups are finalized to formally complete the project or phase.                                                                                                                |  |  |  |  |  |

**Section B: What are the possible causes of those project management practices that were not adopted on KTPP?**

6. Below is a list of possible causes of not adopting PM practices, kindly use the numbers 1-5 provided in the key below to rank the possible causes.

| No | Causes                                                                                                 | Strongly Disagree (1) | Disagree (2) | Uncertain (3) | Agree (4) | Strongly Agree (5) |
|----|--------------------------------------------------------------------------------------------------------|-----------------------|--------------|---------------|-----------|--------------------|
| 1  | Large numbers of professional staff required                                                           |                       |              |               |           |                    |
| 2  | Complex process, procedures, and Rigorous reporting requirements                                       |                       |              |               |           |                    |
| 3  | Project Management Processes are highly bureaucratic                                                   |                       |              |               |           |                    |
| 4  | Misunderstanding of PM system                                                                          |                       |              |               |           |                    |
| 5  | Lack of Project Management knowledge and skills                                                        |                       |              |               |           |                    |
| 6  | Leadership and organizational culture                                                                  |                       |              |               |           |                    |
| 7  | Lukewarm attitude towards change by construction professionals                                         |                       |              |               |           |                    |
| 8  | Misunderstanding among construction professionals on PM concepts                                       |                       |              |               |           |                    |
| 9  | Reliance on Traditional Management Practices                                                           |                       |              |               |           |                    |
| 10 | Ignorance of the benefits of Project Management Practices over other traditional management principles |                       |              |               |           |                    |
| 11 | Inadequate legislative framework and enabling environment                                              |                       |              |               |           |                    |
| 12 | Non-availability of PM training facilities for construction professionals                              |                       |              |               |           |                    |

|    |                                                                             |  |  |  |  |  |
|----|-----------------------------------------------------------------------------|--|--|--|--|--|
| 13 | Construction professionals' inability to acquire basic knowledge in PM      |  |  |  |  |  |
| 14 | Inadequate knowledge of PM Practices by government agencies /public service |  |  |  |  |  |
| 15 | Inadequate investment in training                                           |  |  |  |  |  |
| 16 | Lack of IT knowledge                                                        |  |  |  |  |  |

**Section C: What are the possible effects of those project management practices that were not adopted on KTPP?**

7. Below is a list of possible effects of not adopting PM practices, kindly use the numbers 15 provided in the key below to rank the possible effects.

| No | Effects                                           | Strongly Disagree (1) | Disagree (2) | Uncertain (3) | Agree (4) | Strongly Agree (5) |
|----|---------------------------------------------------|-----------------------|--------------|---------------|-----------|--------------------|
| 1  | Budget over-runs                                  |                       |              |               |           |                    |
| 2  | Implementation delays                             |                       |              |               |           |                    |
| 3  | Poor definition of construction project scope     |                       |              |               |           |                    |
| 4  | Scope Creep                                       |                       |              |               |           |                    |
| 5  | Poor Communication management                     |                       |              |               |           |                    |
| 6  | Inadequate control around scope change management |                       |              |               |           |                    |
| 7  | Lack of clearly defined role for Project Managers |                       |              |               |           |                    |
| 8  | Poor quality of work                              |                       |              |               |           |                    |
| 9  | Poor manpower quality                             |                       |              |               |           |                    |
| 10 | Stakeholder Agitations                            |                       |              |               |           |                    |
| 11 | Poor Procurement Management Processes             |                       |              |               |           |                    |

**Please provide any other Effects that are not listed above and their ranking**

|    |  |  |  |  |  |  |
|----|--|--|--|--|--|--|
| 1  |  |  |  |  |  |  |
| 2  |  |  |  |  |  |  |
| 3  |  |  |  |  |  |  |
| 4  |  |  |  |  |  |  |
| 5  |  |  |  |  |  |  |
| 6  |  |  |  |  |  |  |
| 7  |  |  |  |  |  |  |
| 8  |  |  |  |  |  |  |
| 9  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |

8. Any other comments: \_\_\_\_\_

**Thank you**

