IMPLICATION OF PMBOK IN THE CONSTRUCTION INDUSTRY

A Dissertation

By

Sabbir Hossain Bhuiyan

MPSM Batch V

Student ID: 14182005

Submitted

To

BRAC Institute of Governance and Development (BIGD)

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Approved as to Style and Contents

By

Suntu Kumar Ghosh

Supervisor and Assistant Professor

BRAC Business School

Dhaka.

BRAC Institute of Governance and Development (BIGD)

BRAC University, Dhaka, Bangladesh. November 2015

Letter of transmittal

November 2015

Suntu Kumar Ghosh

Assistant Professor,

BRAC Business School,

Dhaka, Bangladesh.

Subject: Submission of Thesis Paper 'Masters in Procurement and Supply Management'.

Dear Sir,

Here is the Thesis Paper entitled **'Implication of PMBOK in the Construction Industry of Bangladesh'**, a report for partial fulfillment of the requirement for the degree of Masters in Procurement and Supply Management. The whole work is prepared on the basis of practical literature review, key informant interviews, primary data and secondary data, various academic books and journals and Internet also. I have followed your guidelines as per your direction. I have tried enough to furnish all the materials. This report is very significant as it is one of the most important requirements of completing the Top up Master's Program as said by CPTU. This report is a brief' summary of work and experience gained during the research period. I have tried my level best to make this report comprehensive.

I will be pleased to answer any query of you thereby.

Sincerely yours

Sabbir Hossain Bhuiyan

Student ID # 14182005

BIGD, BRAC University

Dhaka.

Certification of acceptance

This is to certify that Sabbir Hossain Bhuiyan, MPSM ID # 14182005, has completed his Thesis Paper entitled 'Implication of PMBOK in the construction industry of Bangladesh' under my supervision. He has completed the report as a partial fulfillment of the requirement for the degree of Masters in Procurement and Supply Management (MPSM) in BIGD, BRAC University.

The report has been prepared under my guidelines and is a record of the bona fide work carried out successfully.

Signature:……..

Date : ……..

Suntu Kumar Ghosh

Assistant Professor

BRAC Business School, BRAC University

Dhaka, Bangladesh

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Abstract

The construction industry plays significant role in the economy of Bangladesh. For example, in many developing countries, major construction activities account for about 80% of the total capital assets, 10 % of their GDP, and more than 50% of the wealth invested in fixed assets. The main objective of this research is to identify the governance and management practices of the public sector in a developing country.

Every year Development budget spent through various types of projects one of them construction project. Most of the project in Bangladesh are not completion in expected time, cost and quality. Poor governance and back dated project management practice are responsible for project failure.

The PMBOK Guide contains the globally recognized standard and guide for the project management profession. A standard is a formal document that describes established norms, methods, processes, and practices. The acceptance of project management as a profession indicates that the application of knowledge, processes, skills, tools, and techniques can have a significant impact on project success. PMBOK has ten knowledge areas which have 47 processes that are logically developed and formulated.

I have done some interviews with some contractors and PMP practitioners. In our country almost has 100 PMP practitioners. In this research paper I have done content analysis of PMBOK guidance with general project management.

The possibility of adopting PMBOK framework at public sector of Bangladesh is matter of time. In public sector has some constraints to adopt new guidance and as a developing country we have lots of problem, as well as we did not utilize our resources properly.

PART I: RESEARCH OVERVIEW

CHAPTER 1: INTRODUCTION

Research Background

The construction industry play significant role in the economy of Bangladesh. For example, in many developing countries, major construction activities account for about 80% of the total capital assets, 10 % of their GDP, and more than 50% of the wealth invested in fixed assets. In addition, the industry provides high employment opportunity, despite the construction industry's significant contribution to the economy of developing countries and the critical role it plays in those countries` development, the performance of the industry still remains generally low. As many projects in developing countries encounter considerable time and cost overruns, fail to realize their intended benefit or even totally terminated and abandoned before or after their completion. Moreover, the development of the construction industry in developing countries generally lags far behind from other industries in those countries and their counter parts in developed nations. Generally, the construction industry in developing countries failed to meet expectations of governments, clients and society as a whole.

This research is exploratory and qualitative in nature. It investigates the project management practices in the public sector of a less developed country. The main objective of this research is to identify the governance and management practices of the public sector in a less developed country. In addition, the aim is to explore the issues and difficulties that the public sector organizations encounter during the process of managing a project. This is essential for the reason that identification of the causes for projects failure may help the similar projects in the future. The structure of the research is predominantly qualitative in nature, involving an in-depth exploration of public sector project management practices in a less developed country.

This chapter provides an overview and summarizes the scope of the thesis. It explains the rationale for the research, research objectives, research questions, research methods and scope and limitation of this research.

Rationale for the Research

Adler (1991) observed that most of the models and theories in organizational and managerial behavior were developed from America and other Western research. Similarly, project management theories are also based primarily on North American research and experience (Chapman, 2004). Turner (1993) cited in Muriithi and Crawford (2003) observe that contrary to the common belief that the Western-oriented techniques or project management are just straight

forward procedures that anyone can learn and implement, there are considerable cross-cultural problems in using the approach in non-Western countries. Cultures vary from country to country, and within countries. As a result, values at work and in social settings vary accordingly. Personal choices and work values are culturally dependent (Muriithi and Crawford, 2003). Stuckenbruck and Zomorrodian (1987) perceive that in attempting to address the relevance of project management to less developed countries, two questions in particular are focused on: (1) is project management equally applicable to all developing countries (2) when is it applicable, what form of project management would be recommended. This consideration is for the intention that most projects are established and administered by the government or its affiliates in the less developed countries. Furthermore, they observe that large and medium-sized projects almost always present major problems for the developing countries. Abbasi and Al-Mharmah (2000) argues that existence of several social, cultural, political and financial problems leads to poor management performance in developing countries. Therefore, the strategy for implementing project management in developing countriesmust be consistent with the cultural and characteristics of the particular society and configuration of its economic, political and administrative systems.

In recent years, public sector performance measurement and 'public sector project management' (author's emphasis) has attracted much attention in the literature. However, almost all papers that have been published in academic journals focus on the public sector in European, North American countries, Australia or New Zealand (Bakhshi, 1991).There is little literature available about the project management in the public sector of developing countries.Few authors have (Abbasi & Al-Mharmah, 2000; Kartam et al., 2000; Partington, 1996; Bryde, 2008; Sonuga et al., 2002) identified different barriers which hinders the project success in developing countries. These are:

- Lengthy approval procedures,
- Existing administrative system,
- change orders,
- Lack of ownership
- Lack of authority, and
- Poor estimation of activity cost etc.

However, all of them have emphasized on further research to investigate the limitations and potential for project management system in different environment. This research is carried out with this rationale.

Research Objectives

The main objective of this thesis research is developing construction projects practices under PMBOK guidance. PMBOK has ten knowledge areas and 47 processes which are logically developed and formulated to complete any project spontaneously.

Research Scope

This research on Maturity of PM in the construction industry of developing countries (Bangladesh) is limited in scope to the following:

1. The study is limited to the PM maturity in the construction industry of developing countries, specifically that of Bangladesh.

2. Contractors and Government perspective is considered in the research, hence the PMBOK how to utilize in this construction industry as a standards.

3. The study has covered only Bangladeshi Grade -1 contractors (the highest level) in Bangladesh. Thus, the research result should be taken only as indicative of the PM maturity of Bangladeshi grade-1 contractors.

Research Motivation

I decided to do this thesis research on such a very broad topic (for a master's thesis) purposely and ambitiously, however, mistakenly underestimating the enormity of the effort it takes. The two main reasons that drive me to do so were:

1. My interest to use the opportunity to help me realize my aspirations in my professional development goal. Being a junior and ambitious academic staff, I was looking for a broad research topic that would enable me consolidate my PM knowledge, its practice in the context of the construction industry and developing countries, so that it can help me in the future in research , teaching and consultancy services in the area.

2. My desire to do something that can, somehow, contribute to the development of Project Management.

Research Methodology

The main purpose of this research is to assess whether and to what extent the processes, practicesand tools under each of PMBOK`s Project Management knowledge areas are being applied by Bangladeshi contractors in managing their construction projects. Literature study and the study of several references will be done in order to get the parameters related to project management in construction.

Below represents the methodology will be adopted for the study:

- Literature study is the first step and stage in this study.
- After collecting the literatures for the study and the key knowledge areas in the project management are identified.
- The data were collected from few contractors over interviews.
- Then data have been qualitative analyzed.

PART II: RESEARCH CONTEXTUAL FRAMEWORK

CHAPTER 2: PROJECTS AND THEIR MANAGEMENT

Project and Project Management: Definition

Many authors and references have defined project in different ways emphasizing its different aspects. Summarizing those definitions given, this research defines a project as:

A temporary endeavor (that has definite beginning and end time)undertaken following specific cycle of Initiation, Definition, Planning, Execution and Close to create a unique product, service, or result through novel organization and coordination of human, material and financial resources.[(Project Management Institute (PMI), 2004). (Muriithi & Crawford, 2003), (Stanleigh, 2007)]

A project has a defined scope, is constrained by limited resource, involves many people with different skill and, usually progressively elaborated throughout its life cycle. [(Stanleigh, 2007), (Cleland & Ireland, 2002), (Wheatley)] Similar to the case for project, many and different definitions were given for project management. Summarizing those definitions this research defines Project management as:

The application and integration of modern management and project management knowledge, skills, tools and techniques to the overall planning, directing, coordinating,monitoring and control of all dimensions of a project from its inception to completion, and the motivation of all those involved to produce the product ,service or result of the project on time, within authorized cost, and to the required quality and requirement, and to the satisfaction of participants.[(Chartered Institute of Building, 2002), (Fewings, 2005), (Carmichael, 2004)]

Project management deals mainly with coordinating resources and managing people and change. Generally "Managing a project includes: Identifying requirements, Establishing clear and achievable objectives, Balancing the competing demands for quality, scope, time and cost; Adapting specifications, plans, and approach to the different concerns and expectations of thevarious stakeholders" (Project Management Institute (PMI), 2004). Further, Pareto`s 80-20 rule (the law of the vital few), is highly applicable in managing projects, hence efforts need be focused on few and important orcritical items (Carmichael, 2004).

Ten core knowledge areas of project management are identified in PMBOK. These are: scope, time, cost, risk, quality, human resources, communications, stakeholder, and procurement and

integration management. Each knowledge area in PMBOK is composed of processes that are expected to be addressed to attain the objective of the knowledge areas. A total of 47 projectmanagement processes are identified in PMBOK for the nine knowledge areas. Management of projects is accomplished through the use of the above 47 processes. However, all the 47 process are not meant to be performed uniformly in the management of all projects. The project manager and the project teams need to decide which processes to employ, and the degree of rigor that will be applied to the execution of those processes. (Project Management Institute (PMI), 2013)

In addition to the above ten knowledge areas, there are other industry specific additional knowledge areas that the project manager should consider in managing projects. For example, the construction extension to PMBOK includes four additional knowledge areas of financial, safety, environment and claim management.

Project Management vs. General Management

The fundamental difference between project management and general management stem from the difference in the type of work they manage. Project management deals with management of projects (which are temporary and unique) whereas, general management deal withmanagement ofoperations (which are ongoing and repetitive). Generally project organization changes continually as the project progresses through its various phases and terminate when the mission is accomplished; whereas the ongoing organizations that manage operations sustain at least over a period of time and continue assuming a broader outlook [(Project Management Institute (PMI), 2004),(Hendrickson), (Carmichael, 2004)].

Despite the existence of fundamental difference between project management and general management; both general management and project management share many things in common. Both share the same basic philosophies, both make andimplement decisions, allocate resources, manage organizational interfaces, and provide leadership for the people who are involved in performing the work. Generally, in addition to knowledge of project management, successful management of project demands knowledge of general management and working knowledge of application areas (for example for a construction project knowledge of construction)[(Cleland& Ireland, 2002), (Project Management Institute (PMI), 2004), (Hendrickson)].

Project Management Applications

Generally, Project management is used extensively in some form within manyorganizations. “There has been no identified profession or industry where project management practices will not work” (Cleland& Ireland, 2002).Using project management generally helps: to clarify goals and identify problem areas and risk; to isolates activities and easily monitor outcomes. (Project Management Institute (PMI)). Further, using PM enhancesaccountability as works can be isolated and responsibilities can be assigned; moreover, it helps focus attention on few specific and important tasks. Generally, According to (Cleland & Ireland, 2002) and others, Project management can best be applied when:

- Resources are to be shared among many units.
- Special attention orfocus is tobe given toimportant undertakings (example to focus attention on specific customers in specific market).
- Integration of systems and subsystems is sought within independent units.
- Dealing withad hoc, complex, unfamiliar, unique, or rare; activities, problems and opportunities.
- Dealing with tasks that require pooling of many resources and capacities from diverse sources (example providing emergency response during disasters).
- It is desired to bring a wide range of experience and viewpoints into focus (example in research and product development or solving complex problems).
- Dealing with an undertaking that require massive input of capital, technology, skills, and resources.
- When it is desired to have unified management of a project-based contract in order to avoid the customer work with many different functional units.
- When there is a need to manage change.

CHAPTER 3: CONSTRUCTION PROJECT MANAGEMENT

Nature and Characteristics of Construction Projects

The management of construction project has some differences from the management of other projects. The differences mainly stems from the nature and characteristics of construction projects. The consideration of these differences is important for successful management of construction projects.

Generally construction projects:

Are usually capital intensive, complex; and require significant management skills, involvement and coordination of a wide range of experts in various field. (Chartered Institute of Building, 2002).

Are usually undertaken outside; hence, they are susceptible to many variables such as weather and traffic (Gould & Joyce, 2003).

Must address the geography and conditions of the project site and the relation of the project to the environment. (Project Management Institute (PMI), 2007).

Are subject to a variety of laws and regulations that aim to ensure public safety and minimize environmental impacts. (Bennett, 2003).

Compared to most other industries, construction projects involve relatively intensive labor use, and consume large amount of materials and physical tools. (Jekale, 2004).

The Construction Industry in the Developing Countries

Construction is an industry that has a great impact on the economy of all countries. Almost, it is very difficult to think of any development activity that does not involve construction. All infrastructure facilities needed for development such as road, telecom, electricity, power projects, and socioeconomic facilities such as school, hospitals, factories etc.; and the very neighborhood we live in are all products of the construction industry. The role the construction industry plays in developing countries is quite significant.For example, in many developing countries, major construction activitiesaccount for about 80% of the total capital asset, 10% of their GDP and; more than 50 % of the wealth invested in fixed assets. (Jekale, 2004). Despite the industry`s significant contribution, its development and efficiency is relatively low compared to other industries. “High project performance and project success are not commonplace in the

construction industry, especially those in developing countries" (Long etal, 2004). Moreover, in many countries, the productivity of the construction industry is one of the lowest and; its degree of high technology utilization is not comparable with that of other industries. Further, the overall management in the industry is at a low level. "The Construction industry`s large scale scope and its use of huge capital is in sharp contrast with the low benefit (profit) and inferior management" (Guangshe etal, 2008).The nature and characteristics of the Construction industry and construction projects in developing countries, is different from that of the developed countries in many aspects. According to (Jekale, 2004), the Construction industry in many developing countries is characterized by "too fragmented and compartmentalized; Public sector dominated market; considerable governmentinterventions;considerable foreign finance (dependency for public construction), and low developmentof indigenous technology". Moreover, the construction industry in developing countries depends on imported input such as construction materials, machinery, and skilled manpower. In addition,the industry is dominated by foreign construction firms; which execute almost exclusively all the major construction works (Adams, 1997).This is also the case in Bangladesh. Almost all major power projects and most of large road projects are constructed foreign contractors.

Construction Project Management

The management of construction projects has much in common with the management of similar types of projects in otherindustries (Hendrickson). "Much of the content of PMBOK Guide is also directly applicable to construction projects." (Project Management Institute (PMI), 2007). Even though, management of construction project is similar to management of other kind of project in manyrespects, it has also some peculiarities that differentiate itfrom managing other kind of projects such as software development. For example, unlike the management of manyother projects, the project managers in construction project are often changed from one phase to another or some may specialize in only one phase of the construction project. (Project Management Institute (PMI), 2007).

In acknowledgment of the difference, PMI has published a supplemental guide for managing construction project (The construction extension - Guide to Project Management body of Knowledge-3rd edition). In this guide, four additional knowledge areas of Project Safety Management, Project Environmental Management, Project Financial Management, and Project Claim Management are included.

According to (Chartered Instituteof Building, 2002), the major task of project management in construction is primarily to coordinate professionals in the project team to enable them to make

their best possible contribution to the project efficiently. In addition to knowledge of project management and general Management, managing construction projects requires an understanding of the design and construction process (Hendrickson). The ability to communicate and the ability to manage team are also very important for successful management of construction projects (Chen, Partington, & Qiang, 2009). Hendrickson has summarized the functions of project management in construction as:

1. Specifying project objectives and plans including defining the scope, preparing the budget and schedule, setting performance requirements, and selecting project participants.

2. Maximization of efficient resource utilization through procurement of labor, materials and equipment according to the prescribed schedule and plan.

3. Implementation of various operations through proper coordination and control of planning, design, estimating, contracting and construction in the entire process.

4. Development of effective communications and mechanisms for resolving conflicts among the various participants.

Development of International Standards / Guide

The role of standards for project management profession has been an important issue for many years (Duncan, 1995). A variety of benefits have been identified which accrue from standardization. General benefits which apply to both technological and professional standardization include encouragement of technological innovation, guaranteeing marketplace, competition and convenience (JEDEC cited in Crawford and Pollack, 2008). In 1981, PMI Board of Directors authorized the development of a Body of Knowledge (BOK), containing standards and guidelines of practice that can be widely used throughout the profession. This initiative resulted in 1996 by the publication of: A Guide to the Project Management Body of Knowledge commonly referred to as a PMBOK. On the other hand the IPMA developed the ICB: IPMA (IPMA Competency Baseline). Work on the ICB was initiated in 1993 and first version, in English, French and German, was presented in June 1998 (Crawford, 2004) The next section will discuss the various standards that are related to project management. These are as follows:

- Project Management Body of Knowledge (PMBOK) by PMI
- Association for Project Management (APM) BOK by UK APM
- Project IN Controlled Environments (PRINCE2) by Office of Government Commerce UK

- Project and Program Management for Enterprise Innovation (P2M) by Engineering Advancement Association of Japan (ENAA)

Project Management Institute BOK

The PMI has developed arguably the most significant Project Management standard, PMBOK Guide (PMI, 2004), currently in its fourth edition. The PMBOK Guide is approved as an American National Standard by American National Standard Institute (ANSI) and is recognized by the Institute of Electrical and Electronics Engineers (IEEE) as an IEEE standard (IEEE, 2009). The PMI (2004) describes that much of the knowledge of tools and techniques for managing projects are unique to project management. However, understanding and applying the knowledge, skills, tools and techniques which are recognized as best practices are not sufficient alone for effective project management. PMI emphasizes that in addition to the knowledge of tools and techniques, there are various other areas that are also vital in the application of project management. These are:

- Application Area Knowledge, standards and regulations
- Understanding the project environment
- General management knowledge and skills; and
- Interpersonal skills

The PMBOK guide divides the project into the five phases and describes it as a project management process groups. It also advocates that for the project to be successful the project team must select the appropriate processes within the process group to meet the project objectives. These process groups are defined as:

- Initiating Process Group
- Planning Process Group
- Executing Process Group
- Monitoring and Controlling Process Group
- Closing Process Group

Association for Project Management BOK

The IPMA has evolved since 1965 then into a network, or federation, comprising 30 national project management associations representing approximately 20,000 members primarily in Europe but also in Africa and Asia. The largest member of the IPMA is the UK Association for Project management. In UK, the Association for project management (APM) was formed in 1972 and currently has more than 13,500 individual and 300 corporate members (APM, 2006). APM has developed an independent knowledge standard, the APM Body of Knowledge currently in its fifth edition. This document takes a significantly different perspective on project management than that presented by the PMBOK Guide in terms of both what is considered to be relevance and how this information is conveyed (Crawford and Pollack, 2008).

The APM describes that project management is the discipline of managing projects successfully. Project management can and should be applied throughout the project lifecycle, from the earliest stages of concept definition into operations and maintenance. It comprises the management of all that is involved in achieving the project objectives safely and within agreed time, cost, technical, quality and other performance criteria. Project management provides the single point of integrative responsibility needed to ensure that everything on the project is managed effectively to ensure a successful project deliverable.

The APM BOK the book is divided into four major categories:

- Project management
- Organizational Issues
- Tools and Techniques
- General Management

These four categories are then subdivided into 40 elements/process of project management. Willis (1995) argues that any document of this nature that covers such a wide range of subjects will inevitable contains few anomalies but what's important is that all project management associated aspects are covered in this BOK.

PRoject IN Controlled Environments 2 (PRINCE2)

PRINCE stands for Projects IN Controlled Environments and is a management approach owned and promoted by the Office of Government Commerce (OGC, part of UK treasury). PRINCE was initially published in 1989 and has derived its roots from an earlier method called Project Resource Organization Management and Planning Technique PROMPT (a project management method created by Simpact Systems Ltd in 1975). In 1996 a consortium of some 150 European organizations contributed and published a version 2 of PRINCE (PRINCE2, 2009). PRINCE2

was originally aimed at the public sector; however, it is now being adopted faster in the private sector and is growing in importance internationally (Fox et al., 2007). PRINCE2 is described as a structured method for effective project management (Wideman, 2002). The project management process in PRINCE2 is divided into four stages.

These stages are:

- Pre-project stage,
- Initiation Stage,
- Continuation Stage, and
- Closing Stage (Portman, 2009)

In addition to these seven processes and three main sections, there are different themes in PRINCE2. These themes are used as a tool by project managers for the execution of the processes. They are also used to organize and directs the project.

These themes are:

- Business Case (Why)
- Organization (who)
- Planning (where, how, when and how much)
- Controls
- Configuration management
- Risk management (what if)
- Quality
- Change management

Project and Program Management for Enterprise Innovation (P2M)

The Japan Project Management Forum (JPMF) is a division of the Engineering Advancement Association (ENNA), which was founded in 1978 as a non-profit organization based on corporate rather than individual membership. ENNA addresses the needs of industry and corporations. Its membership includes 250 engineering and project based companies. In the 90s, Japanese companies experienced a deflationary depression called the 'lost ten years.' To survive and to regain their global competitiveness, they looked for solution in the 'kaikaku' (reforms) of business management, organization and technology. All these companies applied a new project management paradigm and related framework called 'Kaikaku Project Management'. Based on

this paradigm, a Japanese new framework for Project and Programme Management called P2M: Project and Program Management for Enterprise Innovation was developed in 2000-2001 (Bredillet, 2008). ENNA has published P2M: A Guide of Project and Program Management for Enterprise Innovation in 2002, the guide is also available in English translation (Crawford and Pollack, 2008).

Bredillet (2008) states that P2M proposes a framework based on a Mission Driven Approach and an insightful thinking. This enables solving complex ambiguous problems in uncertainty. Furthermore, the P2M approach integrates multi/interdisciplinary knowledge and methodologies. The approach of P2M is to recognized three kinds of projects consisting of concept development (Scheme model), implementation (System model), and operation (Service model) and to generate diversified, creative and synergistic business models. This could also be called as a domain of P2M.

The scheme model means a conception plan to develop a mission into multiples scenarios, with a scheme report concerning the feasibility as a deliverable. The key attributes of the scheme model are the definition of feasibility, internal structure and external relationship, and flexible adaptation to the owner request to changes (Ohara, 2005). The system model is based on the systems approach. This method principally pursues optimization with project engineering techniques, of which typical cases are program design and EPC (Engineering, Procurement, and Construction) for projects. This method focuses on control with the phase approach that divides work process by the time axis and by the work breakdown concept (ibid) the service model draws on a completed systems functions to crate potential value. The service model takes the form of a project in which goods are produced and services are provided by using a completed system through a program or project (ibid).

CHAPTER 4: COMPARISON OF VARIOUS PROLECT MANAGEMENT BODIES OF KNOWLEDGE

Comparison of PMI BOK with PRINCE2

The first difference between PMBOK and PRINCE2 is that PMBOK consists of twelve chapters describing function based knowledge areas. These knowledge areas are further illustrated with their respective project management processes in the form of inputs, tools and techniques and outputs. Whereas PRINCE2 is a project life cycle based methodology which has six out of eight major processes running from "starting up a project" to "closing a project". The remaining two, "planning" and "directing a project" are continuous process supporting the other six. Each of these has their respective sub-processes totaling 45 in all (Wideman, 2002).

In PRINCE2 the project life cycle does not starts with the feasibility study instead it considered it as inputs to the project life cycle, perhaps as separate projects in their own right. Whereas the PMBOK recognizes that the project needs assessment or feasibility study may be the first phase of the project. In PRINCE2 parallel levels of management are defined (which includes project directors or executives, project managers and team level management personal) whereas, the PMBOK recognizes the project manager as an individual responsible for managing the project. Therefore it can be inferred that in PMBOK the project manager is the person who is firmly in charge of the project (Wideman, 2002).

Comparison of PMI BOK with APM BOK

The difference between the APM and PMI BOKs in essence is whether the project management core is essentially about process or performance (Morris et al., 2000). The PMI BOK has been developed by practical professionals whereas the APM BOK on the other hand has been more directly informed by researcher (Morris et al. 2006). The PMI BOK generally covers project management processes and practices. So one can conclude that the PMI BOK is solely involved to get the project accomplish on time, in budget and within the defined scope. It does not address the technical, commercial or environmental issue although it does refer to them in the starting chapters. On the other hand the APM BOK does address these broader topics.

The APM BOK talks about strategy and context of project management in organizational level and then specifically divides the management of projects into five broad areas. Whereas the PMI BOK discuss about the nine knowledge areas of project management and five process groups to manage a project. Although there is no mentioning of program and portfolio management in PMI BOK however PMI does recognize this and produces the standard of program and portfolio management in the form of separate publication and standards. The PMI recommends reading these standards with PMBOK to realize projects as a strategy at organizational level.

Comparison of PMBOK with P2M

The P2M moves beyond the classical process and competence bodies of knowledge (BOKs) and standards proposed by the well-established professional bodies. Industries and professional bodies strive to create an integrated framework, which translate strategic aims into operational processes thereby improving performance and creating value. P2M is an attempt to realize those efforts. As a comparison of P2M with PMBOK, P2M is broader in scope and is an effort to develop thoughts on understanding project management as an entrepreneurial activity. It's more inclined towards the standards which attempts to link organization strategy with portfolio, program and project management. Whereas, PMBOK is specifically focus on the implementation of a successful project.

The above body of knowledge's (PMBOK, APM BOK, P2M) are not inconsistent but the conceptual breadth – the scope – of each of them increase as one goes from PMI's PMBOK, to APM BOK and then to the Japanese BOK, P2M. The latter two, the APM BOK and P2M are much broader in conceptual breadth and scope than the PMBOK (Morris et al., 2006). But still the PMI BOK is considered as a de facto international standard for project management knowledge mainly because of the international audience it has gathered (Crawford and Pollack, 2008).

A Case for Globally Accepted Standard of Project Management

The development of standards in project management began with recognition of shared interests, resulting in fairly informal community gatherings. Through regular meetings and recognition of shared experience, practitioners began to think of themselves as a community and a profession. This led to attempts to define and delineate that profession in order to make it visible and

acceptable to those outside the community (Crawford 2004). Over the last decade different standards or BOKs has been introduced in the profession of project management. Duncan (1998) classifies these standards into three categories of project related, organization related and people related. The project related standard are focused on the knowledge and practices of management of projects with the view point of an individual project. The organization related projects are focused on the knowledge and practices of management of projects with the view point of an enterprise. And, the people related standards are focused on the development, assessment and certification of people

These standards were helpful in developing the profession yet they were evolving from within a national boundary and have the perception of being influenced by national culture and practices (Crawford and Pollack, 2008; Morris et al., 2006). Though in the early ages of the profession these national bodies were dominant in building the profession but now the profession has global audiences and this led to the call for a globally applicable standard of project management.

This call was answered in the formation of a working group on Global Performance Based Standard for Project Management Personnel (GPBSPMP) in 2002. After two years and six working session a draft standard was released for public review by GPBSPMP. A high number of reviews were received on this draft and after three years of diligent work a Global Project Management Framework (GAPPS) has been released and is currently being piloted by a major global corporation. This standard can be seen as an attempt to further the profession, by providing opportunities for countries without existing standards to have a basis of criterion of their own and by creating a global basis for professional reciprocity (Crawford and Pollack, 2008).

Other Approaches to Project Management

All of the above approaches to project management are based on the process based methodologies. A part from these process based methodologies other paradigms for managing projects has also surfaced the research literature. Some of these approaches are as follows:

- Critical Chain Project Management
- Complex Project Management
- Structured System Analysis and Design Method (SSADM)

CHAPTER 5: PROJECT MANAGEMENT IN THE DEVELOPING COUNTRIES

Introduction

Every project is implemented and managed locally, even if this is being done in accordance with some widely accepted standard. The nature of the project, its location, owner, purpose and objectives can have significant impact on the management methods to be used (Chmieliauskas). Thus, it is important to study project management practices in the context of developing countries to better understand and able to manage projects successfully in those countries. However, research works on project management in those countries has not yet received enough attention and still they are at infant stage (Jekale, 2004). In addition, the available information in the area is few and lack detail. Moreover, many of the available literatures focus on the so called "development projects" financed either by governments and/or donors. Hence, it is very difficult to find literature on the management of projects in the private sector or about project management by the private sector on the management of those development projects. Further, almost all materials in the area are written from the perspective of the client or financer, thus it is difficult to get literatures written on project management from the perspective of contractors. This seems also the case for project management in developed countries. Thus, the review presented in subsequent paragraphs is only an attempt to summarize the fragmented descriptions. Project management methods have been extensively usedby many public and private entities to solve their problems, manage scarce resources and, achieve important objectives (Andersen, 2008). For developing countries, the potential benefit of project management is extremely high and the proper application of it may even be critical; as in those countries; resources are extremely scarce and, achievement of project objective, in most cases, is extremely important. The work of (Voropajev, 1998) alsoindicated that PM is much more important in developing economy (transitional economy) than it is in developed economies (as risk and change are extremely high in the developing countries). As the majority of projects in the developing countries are development related, failure of a project usually have a far reaching effect beyond financial losses; It may result in a "death", or delay of many children`s hope to go to school or the hope to save many from poverty and frequent drought. Likewise, successes in projects in developing countries may mean a considerable contribution in improvement of the life of millions.

Nature of Projects and the Project Environment in Developing Countries

The nature of projects and the environment in which they are implemented in developing countries is different from that of the developed countries where PM is originated and developed

[(Cusworth & Franks, 1993), (Voropajev, 1998), (Jekale, 2004)]. Most Projects in both developed and developing countries are complex and operate in a dynamic environment. However, projects in developing countries are highly uncertain, and operate in a highly unstable, unpredictable and poorly resourced environment. This poses a challenge on project manager in developing countries which is not seen by their counter parts in the developed nations. [(Cusworth &Franks, 1993), (Jekale, 2004)].

According to (Voropajev, 1998)Project management functions(processes)that are sensitive to changes such as management of risk, procurement, contracts, scope, configuration, communications, andinformation are more important in managing projects in developing countries than in developed countries‟ context. The Project management functions less exposed to change such as management of quality, time, cost, human resources become more important in the developed economies than developing countries‟ context. Further, according to [(Muriithi & Crawford, 2003), (Cusworth & Franks, 1993)] management of externality of projects and the political and risk management skill become very important in the context of the developing countries. Table presents a summary of the major difference in the nature of project and the project environment in developing and developed countries.

Projects and the Project Environment in Developing and Developed countries

Developing countries	Developed countries
Most projects are public owned*	Most are private*
Infrastructure projects dominate**	More or less mix of projects*
Private projects are short time*	Medium time*
Highly sensitive to the environment**	Moderately sensitive to the environment
Complex ,uncertain ,unstable and unpredictable environment**	Complex , dynamic ,relatively stable and to some extent predictable environment***
Extreme scarcity of resources***	Resource available at cost (constrained)
Underdeveloped private sector and forces of market*	Developed private sector and forces of market*
Significant involvement of government in business*	Market economy*

* (Voropajev, 1998) ** (Jekale, 2004) *** (Cusworth & Franks, 1993)

Challenges of Project Management in Developing Countries

A number of factors have been identified for the poor performance of projects in developing countries. Generally factor such as government policies, insufficient funds, withdrawal by donors, shortage of foreign exchange, inappropriate contract conditions, political priorities, poverty, socio-cultural conditions, corruption, low institutional and human capacity, and occurrence of unexpected events such as war, drought are considered to be the major factors behind the poor performance of projects in developing countries [(Idoko, 2008), (Jekale, 2004), (Andersen, 2008)]. Subsequent paragraphs provide detail discussion of the challenges. Projects in developing countries are highly influenced by their external environment. [(Kuruoglu & E.Ergen), (Jekale, 2004)]. Moreover, the project environment in many developing countries is unstable and characterized by rapid change of markets, shift of funding sources, frequent change of government policies and the business environment [(Kuruoglu & E.Ergen)]. In addition, projects in those countries are affected by prevalence of corruption, war, drought and governments political priorities [(Alutu & Udhawuve, 2009), (Jekale, 2004)]. For example in Nigeria, the cost of construction materials was reported to have shown a 400% increase over a period of two years because of change in government policies (devaluation of its currency and inflation). Likewise, in Bangladesh inflation has increased in double digit and cost of construction has almost doubled in the last three years.

According to (Cusworth & Franks,1993) "Most of the special problems of project management in developing countries is related to the environment, which can generally be attributed to the turbulence (the tendency of unpredictability) and rapid change in the project environment; and severe scarcity of resources in those countries". These prevailing external factors are making the planning and generally management of project extremely challenging for the poorly trained highly constrained project managers in those countries. The above generalizations are in contrast with those in the developed countries.According to the Standish Group 2004 Report: the main reason for project failure (in developed countries) is not the absence of general resources or financial resources,but the lack of Project management capability (Malan etal, 2007). Further, in the developed countries external conditions such as market & politics are less important for the success of projects (Torp, Austeng, & Jekale).

Lack of institutional capacity and trained personnel is also another main reason why projects fail in developing countries (Voropajev, 1998). Further, thelack of awareness about the benefit and application of Project Management in many developing countries‟ organizations combined with the presence of few trained project managers and wrong perception that sees project managers as an unnecessary expense has contributed to the low level of development of project management in those countries. [(Andersen, 2008), (Idoko, 2008)].The presence of only three PMI chapters in Africa countries attest to the value and attention given to project management in developing countries. Further, according to (Nguyen, 2007), many of the efforts to transfer Project management knowledge and technology to the developing countries were not successful mainly due to: lack of support of senior management and a perception that project management methodology is not applicable in developing countries.

In addition to lack of institutional capacity and trained PM professionals, the nature of project management in itself is a challenge for many project managers in developing countries. According to (Pant, Allinson, & Hayes, 1996), the principles of PM are contrary to what the managers in developing countries are accustomed to do and trained for. (Muriithi & Crawford, 2003) Concluded the same based on similar study done on PM in Developing countries. Conventional project structure breeches classical principles (of management-which is practiced in many developing countries); such as division of labor, organizational hierarchy and unity of command (which are adhered to in developing countries). It demands certain qualities from its members including objectivity, flexibility, and preparedness to take risks, ability to make decisions independently, low preference for conformity, low power orientation and low rule orientation (rare attributes in Developing Countries (see (Muriithi & Crawford, 2003)). Individuals employed in project organizations are expected to be able to work well in teams, to have the ability to lead and to maintain close ties with other organizational members (almost none existent in developing countries). On the evidence of this, it may be difficult for (project managers in Developing countries) to fulfill requirements of project management. (Pant, Allinson, & Hayes, 1996)

Another important reason for failure of projects in developing countries is the way projects are set up and implemented in those countries (Sonuga, Aliboh, & Oloke, 2002). This is mainly applicable to the so called "development projects." In such projects, it is common to see lack of involvement and consultation of users and the tendency of some donors to finance only what they wanted or perceived to be important for the recipient rather than based on need of the users (Andersen, 2008). Sometimes public projects in developing countries (both government and donor financed) fail due to lack of comprehensive planning and study.Such projects fail to consider the capacity and nature of the local support organization, economic, technological, and physical environments in the planning. Because of this, many of such projects left non-operational simply because there were no parallel work done to train staff or plan how to pay for the staff that runs them and provide the necessary support(such as spare parts, maintenance crew etc) to run them.

Most of the reasons for failure of projects and their poor management in developing countries can be associated with the failure to consider the specific context of developing countries and critically adopt the PM methodologies to the context of developing countries.[(Muriithi & Crawford, 2003), (Abbasi & Al-Mharmah, 2000), (Jekale, 2004), (Voropajev, 1998), (Pant, Allinson, & Hayes, 1996)…]. This is because the inherent assumption about people, culture, the environment and economic condition that PM methodologies (which are developed in the developed nations) consider, vary significantly in the developing countries[(Muriithi & Crawford, 2003), (Jekale, 2004)]. Unfortunately, the literature review has revealed that only few studies are done considering the above, except very few such as [(Muriithi & Crawford, 2003), (Cusworth & Franks, 1993)] the majorities of them offer little insight on how to adopt the project management methodologies, toolsand techniques to the cultural and economic condition of the developing countries context.

Some researchers such as [(Muriithi & Crawford, 2003), (Cusworth & Franks, 1993)] have tried to use Hofstede`s four dimensions framework in their study of PM in developing countries to explain application of project management in the context of developing countries. They showed how cultural variation in the developing world affects application of PM and the need to critically adopt PM to the context of the developing countries.

Hofstede`s four dimensions framework for cultural study are:

- Power distance: the tendency to accept unequal distribution of power in a society.
- Uncertainty avoidance: the extent to which ambiguity is perceived as threatening and risk-taking behavior is avoided.
- Masculinity/femininity: the extent to which masculine traits such as achievement, courage and competition are valued over feminine values and behavior such as caring and sympathy.
- Individualism/collectivism: the extent to which people define themselves as individual entities or in terms of groups as the primary source of solution to their problems.

According to (Muriithi & Crawford, 2003), the above tendencies are reflected in organizations in the way people behave in their work and structure their work. For example, tall organizational structure, unwillingness of middle managers to make decision without reference to superiors, rare open criticism and willingness to disagree with supervisors are indicative of high power distance. Low risk taking, emotional resistance to change, a preference for clearly laid out rules and heavy involvement of managers in details is indicative of high uncertainty avoidance. Many Asian cultures score high on Power distance and Uncertainty avoidance and Medium on Masculinity and low on Individualism [(Muriithi & Crawford, 2003) citing Kiggundu MN 1989 & Blunt P, Jones ML]. The implications of these findings to project management were discussed in detail by (Muriithi & Crawford, 2003). The high power distance in developing countries, implicate the importance of high level of commitment, follow up and fast decision making by top management in such countries. This is because middle managers do not feel empowered to make decision and defer always to the top. Further, it emphasizes the importance of having a clearly defined rules, structure, processes, methodologies, roles, responsibilities and authority. This provides clarity and minimizes uncertainty and the need to take risk by the middle managers, thus creating a better atmosphere that encourages the middle managers to make decision and take responsibility. The above discussion shows the importance and benefit of achieving at least level -2 (formally performed level15) of PM maturity (which requires use of structured approach based on some guide –as practitioners will have something to guide and usually do not need to make decision). In addition, the higher power distance and uncertainty avoidance shows the need to build a culture that foster project management before trying to attain maturity above Managed Level process Maturity. Those levels are defined at higher level of generalization as guidelines and users need to tailor them to their specific needs, thus requiring higher input and frequent

decision making at lower level. Further, the higher power distance implicates the need to have a method that solicits the input of subordinates in a manner that make them feel secure.

In summary, success and implementation of projects in developing countries is influenced much more by the external environment than the internal environment. Thus project management in those countries should focus more on the management of the externalities of the project environment [(Muriithi &Crawford, 2003), (Jekale, 2004)]. According to (Muriithi & Crawford, 2003)], project Managers should be skilled in politics and interpersonal relationship skills, and use it to the advantage of the project.

This has been found to be the crucial factor behind the success of Kenyan managers. In addition, continuous planning, risk management, resource planning and management should be given special consideration in the management of projects in developing countries. Further, the PM should work to continuously involve top management to get easily the necessary resources and facilitations, which otherwise would be very difficult [(Muriithi & Crawford, 2003)and others].

In addition, procurement and contract administration should be given special attention as it has significant impact on the cost and time of projects and is an area that is highly susceptible to risk and corruption. Further, the integrating function of project management is difficult in developing countries because top management is slow to delegate and the external environment is overpowering [(Muriithi & Crawford, 2003)]. Hence, PM`s should work on relationship with the top management to get fast decision and the necessary power to get the support of others.

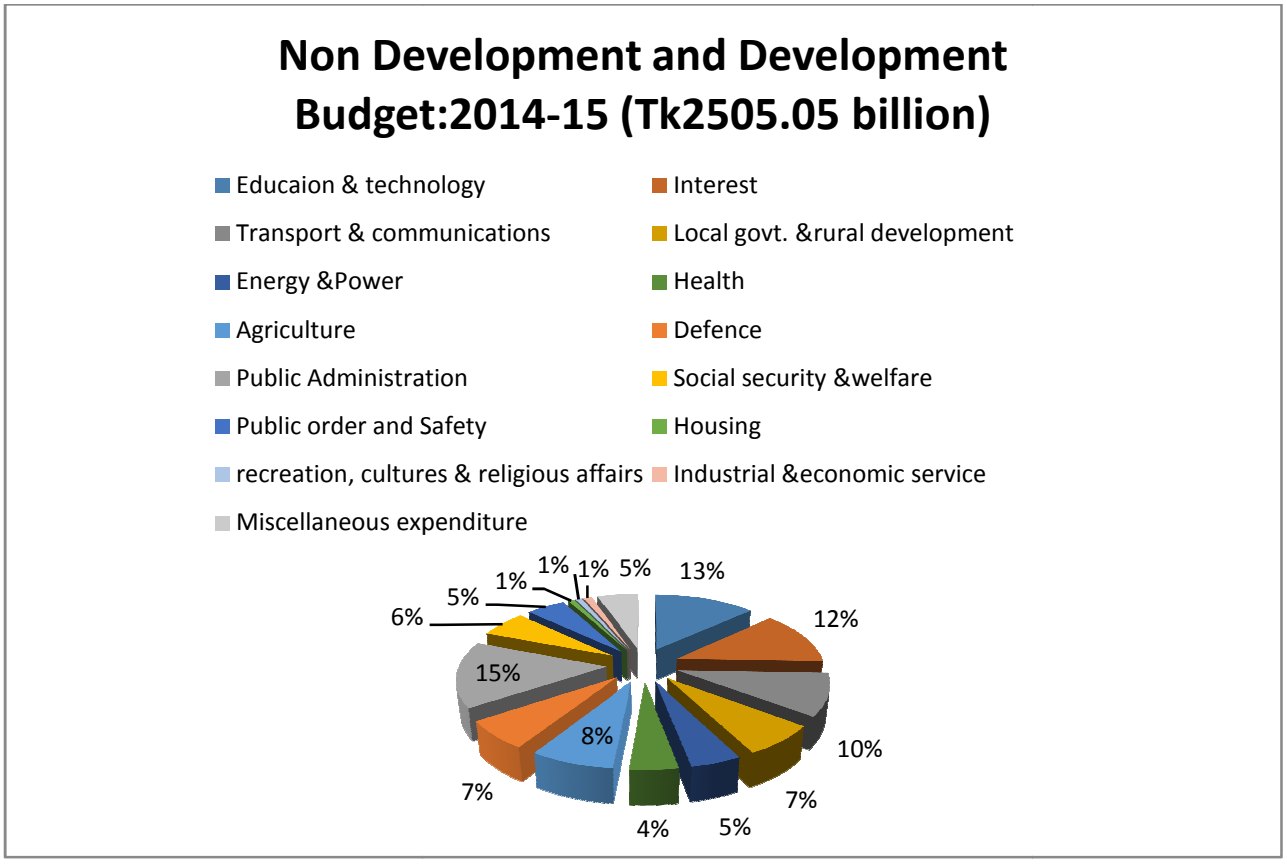
As discussed in the above paragraphs the environment in developing countries does not foster the application of project management. Thus, in the past, the efforts to promote development of PM in developing countries mainly dealt with how the environment in those countries should be changed to make it conducive and more favorable to PM (Cusworth & Franks, 1993). Now the tendency has shifted to the importance of critical works to adapt PM to the developing counties‟ environment rather than the other way around. The later one was advocated by many of the recent researchers in the area such as [(Jekale, 2004), (Voropajev, 1998), (Muriithi & Crawford, 2003), etc]. However, any sound approach for the development of PM in developing countries should combine both approaches; as some times it may be easier and more valuable to change the PM environment to adapt it to the need of PM rather than to adapt PM to the environment. Hence, there should be a planned effort to bring both, changes in the project environment to make it more favorable to the need of PM, as well as, critical adaptation of PM concepts and tools to the developing countries‟ project environment.

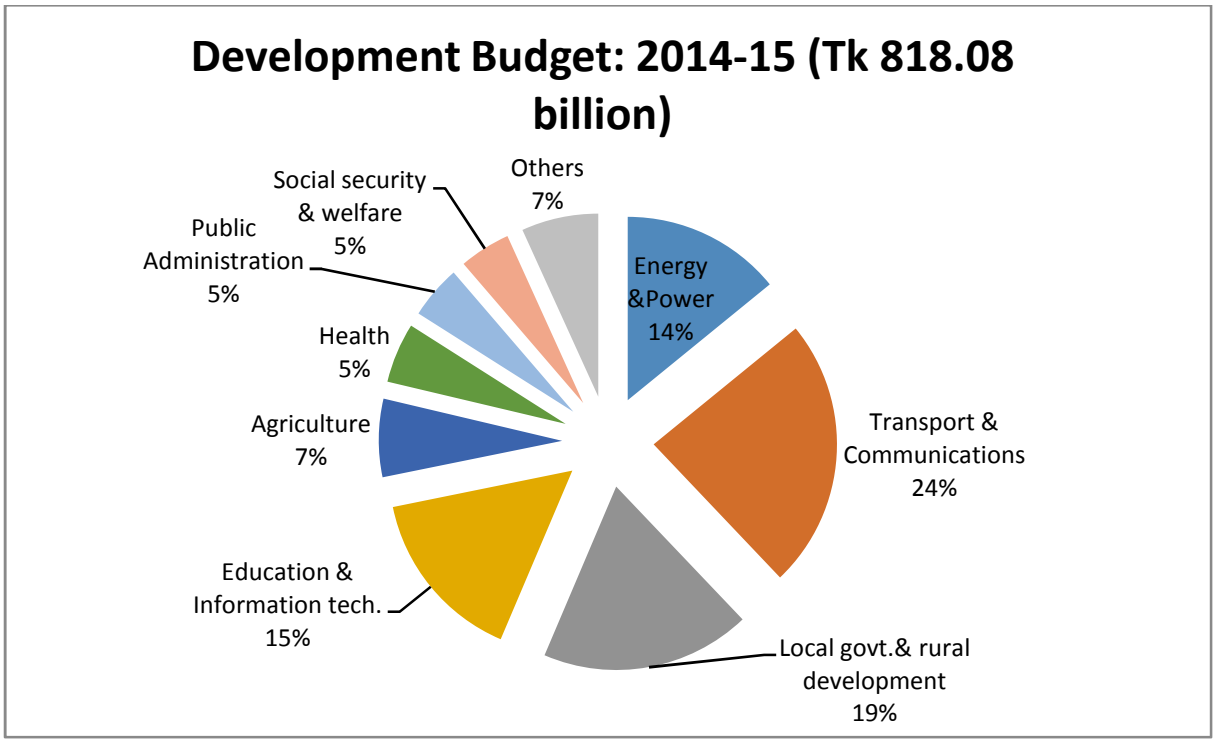
CHAPTER 6: CONSTRUCTION PROJECT MANAGEMENT IN BANGLADESH

Introduction

"A detailed literature on the management practices of construction projects in Bangladesh is difficult to find. As a result research works in such an industry is difficult or mystified" .Despite this, this research has tried to summarize existing literature on the area, most of which are result of Master`s thesis done at BRAC University(Bangladesh) and many other universities.

Like any developing country the construction industry plays major role and contributes highly to the development of the economy of the country. Next to agriculture, the industry provides one of the largest employment opportunities.Developing countries like Bangladesh, spend substantial amount of their budgets in infrastructure development that involve significant construction works in projects such as construction of roads, buildings, water works, telecom civil works, etc. This is also the case in Bangladesh. For example, the Bangladeshi government has spent about 35% of its total budget in fiscal year 2014/2015for development expenditure. All development expenditure should be spent through projects.





From project expenses in other sectors, the construction part accounts for the major part as most socio economic projects such as school and healthcare involve significant construction component. Even though significantly large amount of money is being poured in to infrastructure development, the infrastructure of the country is still considered to be very poor.These all mean, enormous volume of infrastructure (construction) works is coming to the industry. Nevertheless, the construction industry of the country looks unprepared for these huge volumes of works to come. The industry is still in the infancy stage, growing unfortunately, slowly both technically and financially. Like the industry in other developing countries, the construction industry in Bangladesh is plagued by many problems.The description of the current state of the industry given in various studies is summarized here under:

Generally the current state of the industry is characterized by:

- An inadequate capital base.
- Old and limited numbers of equipment and low levels of availability and utilization.
- Low level of management, especially project management knowledge and practice (Low level of Contract administration, Project planning and Project monitoring capabilities).
- Deficiencies in technical, financial management and entrepreneurial skills.
- Small-scale local contractors which lack experience in construction management.
- Limited experience and participation of the private sector in large construction project or the provision of related consulting services.
- Outdated technology (insufficient and ineffective labor-based construction technology).

- Inadequate and inappropriate project organization structures, which lead to problems of authority, responsibility, communication and coordination, etc.

Generally speaking, according to there is not enough construction and management capacity in the country. The practitioners (in Bangladesh) are less experienced in project management. The management of construction project is highly influenced by the utilization of scarce financial and physical resource with controlling activities limited to cost and time monitoring dimensions only. Contractors cannot properly administer contract, most of them are not properly trained to prepare cost and schedule reports, quality records, safety reports, change order records, claims records, progress reports, payment requisition, etc. Most local contractors evendon`t have claim management knowledge or are not interested to pursue legitimate claim for fear of damaging working relationships and their reputation in the industry as they will be dealing usually with few public institutions.

Many studies in the area have indicated the need to improve the capacity of contractors in areas such as financial management, project estimating and costing, total quality management, change management,claim management, business planning , personnel and general management skill, etc. which almost all can be included under the 12 PMI`s knowledge areas of construction project management. This shows that improving the project management capacity of contractors can significantly improve the current status of the construction industry in the country. The need for the improvement and development initiative has already been acknowledged by the government of Bangladesh,and University Capacity Building Program (UCBP) has been initiated with the assistance of the German government to support the capacity of local contractors by providing managerial and entrepreneurial training and coaching that prepare contractors for ISO 9001certification. Contractors under the program were given training in areas such as modern contract and project management, modern financial and construction equipment management systems, general management and leadership, marketing, project and quality management.

Government's delay in price adjustment leaves local firms in trouble

The Financial Express, 17 August 2012

More than 90 per cent construction companies are facing trouble in implementing public sector projects due to the government's dilly-dallying in adjustment of the skyrocketing prices of construction materials for the last two years. A small percentage of the construction companies could complete their projects while most of them failed to do so in the face of fund shortage.

Engineer Shafiqul Alam Bhuiyan, President of Bangladesh Association of Construction Industry (BACI), said the government's dual policy would erode the local companies' strength and the

foreigners would take the lead. He said due to the discrimination foreigners are getting preference and the locals are not getting the minimum help like price adjustment that can spur the industry.

Project Builders Limited Managing Director Engineer Aminul Islam said the last caretaker government though initially had shown their interest in solving the price adjustment problem, they ultimately did nothing to this effect. He said if the local contractors are supported, it would accelerate implementation of the ADP projects.

In that case, the local companies will gain strength and the quality of work will also increase, he added. According to statistics, more than 10,000 contractors are currently engaged in infrastructure development in the country. He said despite an 8 per cent growth in the construction sector, the ADP implementation still suffers every year. Foreign-aided projects under the ADP are implemented by both local and foreign companies.

At present, more than 30 foreign firms are working in Bangladesh to implement such projects, a source with the Public Works Department said, adding that they are eating up a good portion of the local companies' pie.

According to another source with the government's Public Procurement Regulation (PPR) Department, the competition between the local and foreign firms is becoming uneven, as the government charges zero duty on import of civil engineering equipment and also allows them to take it back on completion of projects.

But the government charges a higher duty on import of civil engineering equipment by the local firms and most of the equipment remains idle after completion of a project. BACI president Shafiqul Alam said local companies are capable of implementing the projects which are currently awarded to the foreign companies. "Local companies can participate in the international bidding for big projects, if the government relaxes rules under the PPR guidelines", he said. The government can relax the rules in the areas of deposit, bank guarantee, turnover and working capital for the local companies. A project director under the Planning Commission said the local contractors should be supported by the government to make them capable of handling the development projects. He said the quality of work of the local companies is better than some foreign companies and if the locals are supported by the government, the foreign companies are no more required.

PART 3: RESEARCH ANALYSIS

CHAPTER 7: RESEARCH RESULT AND DISCUSSION

Introduction

The research questionnaire was initially delivered to 20 contractors of which 14 are local contractors and six international contractors (4Chinese and 2 Indian contractors doing business in Bangladesh). To among contractors ten questions asked for their work and business as well as project management. Some contractors are ISO certified, ETI base code etc. maintained and some are not maintained. In Bangladesh they were not get any guidance of PMBOK in government projects but some donor funded projects have been managed as per PMBOK guidance. Many of them contractorswere unaware of some project management processes from 47 processes. In Bangladesh most of the construction projects did not completion at proper time because of many reasons but actually it was lack of proper plan. For examplethe long-awaited Joydebpur Mymensingh Highway construction work has missed its deadline again. According to a report prepared by the Roads and Highway Department (RDH),

The infrastructure project began in July 2010 under the supervision of the RHD with acquisition of some 8.66 hectares of land. Due to extension of the project deadline twice, the cost was re-estimated too. Finally, the cost is estimated at Tk1,815.12 crore, he said. The project work comprises four packages. Construction of the first package is 12.25km from Joydebpur intersection-Rajendrapur intersection while the second package is 17.6km road from Rajendrapur intersection to Nayanpur.Bangladesh Army's Special Works Organization (west) is implementing rest two packages. Though the projects began in July 2010, the army was entrusted with the duty in 2012.According to the report, the army has been working smoothly, but the third package that involves 29.6km Nayanpur-Raimoni, 60% work has been finished while 80% in the fourth package of 27.32km stretch between Raimoni and Mymensingh.

These contractors gave me information about construction industry and shared their experience.

Contractor`s Category	Numbers of Contractors in the Category
Based on Ownership types	
Public Construction Company	3
Private Construction Company	17

Not Identified	0
Based on Contractor`s major work	
General Contractors(roads and building construction)	7
Building contractors	6
Roads contractors	7

In my interview to the contractors known that in Bangladesh construction industries has not practice yet PMBOK guidance properly. As a result government in Bangladesh may not use or expense our development budget fully every year.

About PMBOK

The PMBOK Guide contains the globally recognized standard and guide for the project management profession. A standard is a formal document that describes established norms, methods, processes, and practices. As with other professions, the knowledge contained in this standard has evolved from the recognized good practices of project management practitioners who have contributed to the development of this standard.

The acceptance of project management as a profession indicates that the application of knowledge, processes, skills, tools, and techniques can have a significant impact on project success. The PMBOKGuide identifies that subset of the project management body of knowledge that is generally recognized as good practice. “Generally recognized” means the knowledge and practices described are applicable to most projects most of the time, and there is consensus about their value and usefulness. “Good practice” means there is general agreement that the application of the knowledge, skills, tools, and techniques can enhance the chances of success over many projects. “Good practice” does not mean that the knowledge described should always be applied uniformly to all projects; the organization and/or project management team is responsible for determining what is appropriate for any given project.

According to the PMBOK

A project is a temporary endeavor undertaken to create a unique product, service, or result. The temporary nature of projects indicates that a project has a definite beginning and end. The end is reached when the project's objectives have been achieved or when the project is terminated because its objectives will not or cannot be met, or when the need for the project no longer exists. A project may also be terminated if the client (customer, sponsor, or champion) wishes to terminate the project. Temporary does not necessarily mean the duration of the project is short. It refers to the project's engagement and its longevity. Temporary does not typically apply to the product, service, or result created by the project; most projects are undertaken to create a lasting outcome. For example, a project to build a national monument will create a result expected to last for centuries. Projects can also have social, economic, and environmental impacts that far outlive the projects themselves.

Examples of projects include, but are not limited to:

- Developing a new product, service, or result;
- Effecting a change in the structure, processes, staffing, or style of an organization;
- Developing or acquiring a new or modified information system (hardware or software);
- Conducting a research effort whose outcome will be aptly recorded;
- Constructing a building, industrial plant, or infrastructure; or
- Implementing, improving, or enhancing existing business processes and procedures.

Organizational Structures

Every organization has a specific structure to run any business even in every project has to be a structure to complete any project with ensures five R. here mentioned table of organizational structure and project characteristics.

Organization structure	Functional		Matrix		Projectized
Project Characteristics		Weak Matrix	Balanced Matrix	Strong Matrix	
Project manager`s Authority	Little or none	Low	Low to moderate	Moderate to high	High to almost total
Resource Availability	Little or none	low	Low to moderate	Moderate to high	High to almost total
Who manages the project budget	Functional manager	Functional manager	Mixed	Project manager	Project manager
Project manager`s role	Part-time	Part-time	Full-time	Full-time	Full-time
Project management administrative staff	Part-time	Part-time	Part-time	Full-time	Full-time

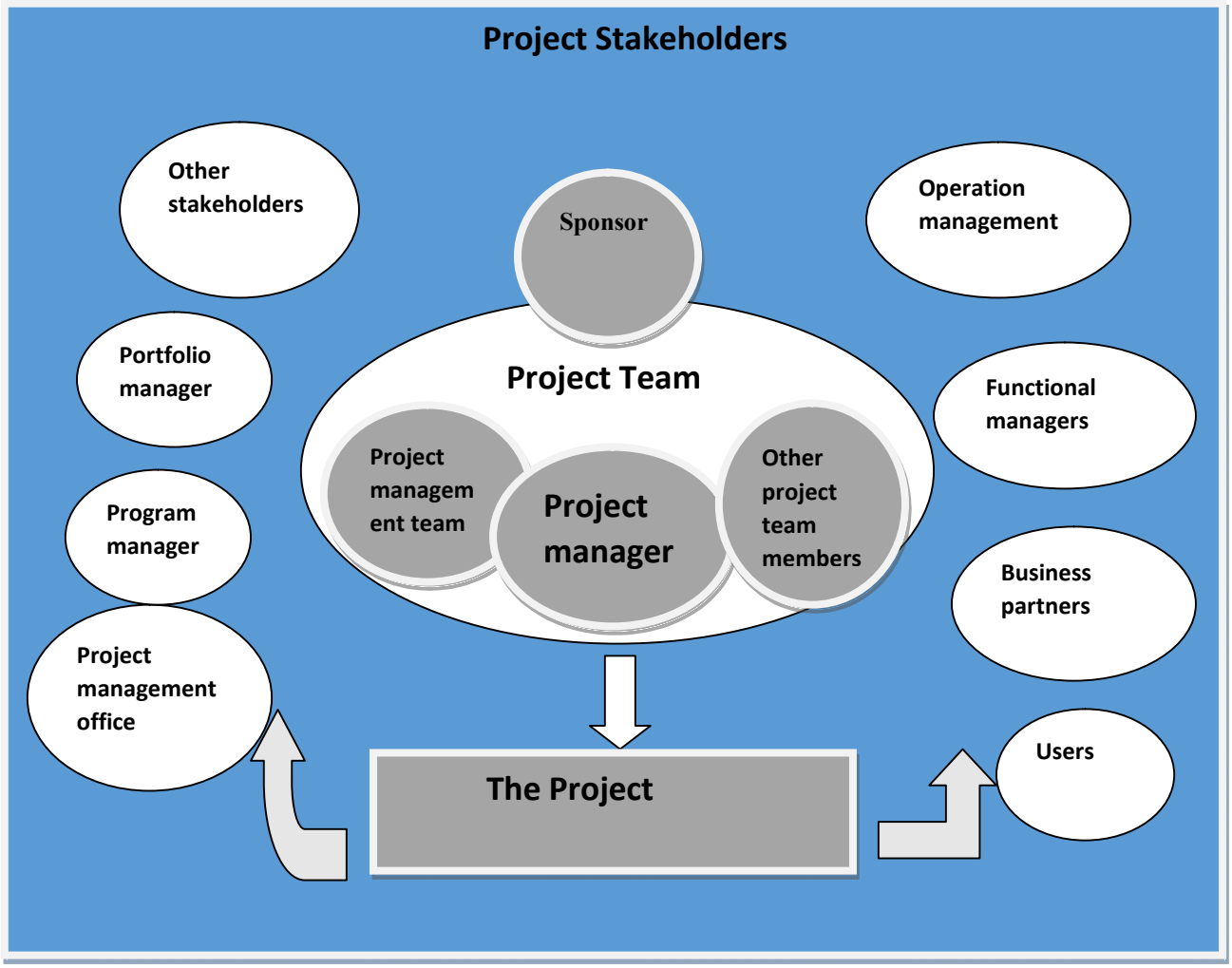
In projectized organization team members are often colocated and resources are involved in project work. Project managers have great deal of independence and authority. To completion of any project in right time, right quality, right price, right quantity and right place using projectized structure.

Project stakeholders

Stakeholders include all members of the project team as well as all interested entitles that are internal or external to the organization. The project team identifies internal and external, positive and negative, and performing and advising stakeholders in order to determine the project requirements and the expectations of all parties involved. In past government project did not priorities stakeholders at all but now a days in every project has various types of stakeholders which are influence any project directly and indirectly.

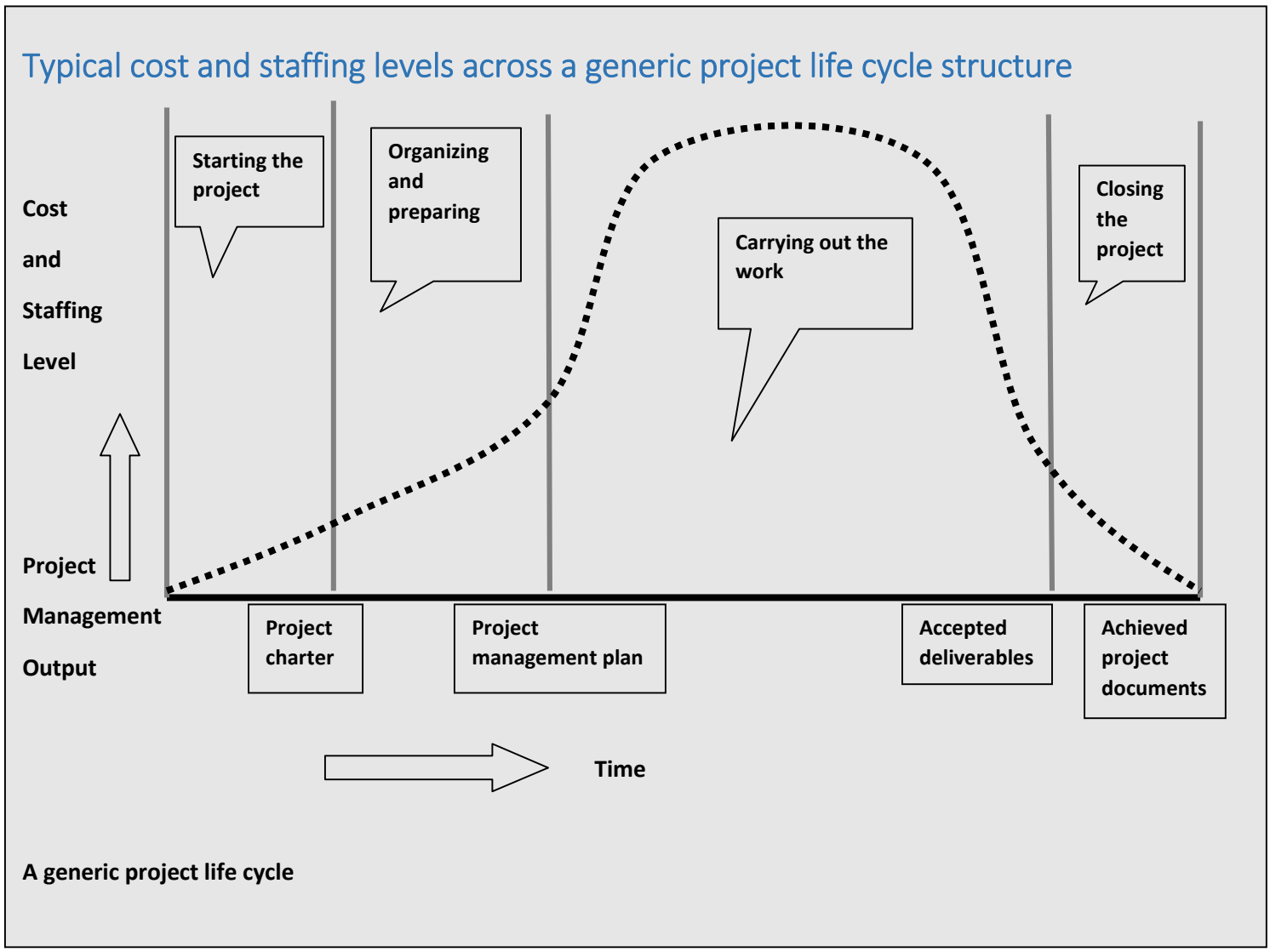
Stakeholder identification is a continuous process throughout the entire project life cycle. Identifying stakeholders, understanding their relative degree of influence on a project, and balancing their demands, needs, and expectations are critical to the success of the project. Failure to do so can lead to delays, cost increases, unexpected issues, and other negative consequences including project cancellation. An example is late recognition that the legal department is a significant stakeholder, which results in delays and increased expenses due to legal requirements

that are required to be met before the project can be completed or the product scope is delivered. Here illustrates the relationship between the project, project team and various stakeholders.



Project Life cycle

Projects vary in size and complexity. All projects can be mapped to the following generic life cycle structure.This generic life cycle structure is often referred to when communicating with upper management or other entities less familiar with the details of the project. It should not be confused with the Project Management Process Groups, because the processes in a Process Group consist of activities that may be performed and recur within each phase of a project as well as for the project as a whole. The project life cycle is independent from the life cycle of the product produced by or modified by the project. However, the project should take the current life-cycle phase of the product into consideration. This high-level view can provide a common frame of reference for comparing projects- even if they are dissimilar in nature.



A generic project life cycle

Project Management Processes

Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements. This application of knowledge requires the effective management of the project management processes.

The PMBOK guide describes the nature of project management processes in terms of the integration between the processes, their interactions, and the purposes they serve. Project management processes are grouped into five categories known as Project Management Process Groups (or Process Groups):

- **Initiating Process Group**- Those processes performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase.
- **Planning Process Group**- Those processes required to establish the scope of the project, refine the objectives, and define the course of action required to attain the objectives that the project was undertaken to achieve.
- **Executing Process Group**- Those processes performed to complete the work defined in the project management plan to satisfy the project specifications.
- **Monitoring and controlling Process Group**- Those processes required to track, review, and regulate the progress and performance of the project; identify any areas in which changes to the plan are required; and initiate the corresponding changes.
- **Closing Process Group**- Those processes performed to finalize all activities across all Process Groups to formally close the project or phase.

Role of the Knowledge Areas

The 47 project management processes identified in the PMBOK guide are grouped into ten separate Knowledge Areas. A Knowledge Area represents a complete set of concepts, terms, and activities that make up a professional field, project management field, or area of specialization. These ten Knowledge Areas are used on most projects most of the time. Project teams should utilize these ten Knowledge Areas and other Knowledge Areas, as appropriate, for their specific project. The Knowledge Areas are: Project Integration Management, Project Scope Management, Project Time Management, Project Quality Management, Project Human Resource Management,

Project Communications Management, Project Risk Management, Project Procurement Management and Project Stakeholder Management.

Here reflects the mapping of the 47 project management processes within the 5 Project Management Process Groups and the 10 Knowledge Areas.

Project Management Process Groups and Knowledge Areas Mapping

Knowledge Areas	Project Management Process Groups				
	Initiating	**Planning**	**Executing**	**M & C**	**Closing**
Project Integration Management	1. Develop Project Charter	1. Develop Project Management Plan	1. Direct & Manage Project Work	1. M&C Project work 2. Perform Integrated Change Control	1. Close project or Phase
Project Scope management		1. Plan Scope Management 2. Collect Requirements 3. Define Scope 4. Create WBS		1. Validate Scope 2. Control Scope	
Project Time Management		1. Plan Schedule Management 2. Define Activities 3. Sequence Activities 4. Estimate Activity Resources 5. Estimate Activity Durations 6. Develop Schedule		1. Control Schedule	
Project Cost Management		1. Plan Cost Management 2. Estimate Costs 3. Determine Budget		1. Control Costs	
Project Quality Management		1. Plan Quality management	1. Perform Quality Assurance	1. Control Quality	
Project Human Resources		1. Plan Human Resource	1. Acquire Project		

Management		Management	Team 2. Develop Project Team 3. Manage Project Team		
Project Communication Management		1. Plan Communications Management	1. Manage Communications	1. Control Communications	
Project Risk Management		1. Plan Risk Management 2. Identify Risks 3. Perform Qualitative Risk analysis 4. Perform Quantitative Risk analysis 5. Plan Risk Responses		1. Control Risks	
Project Procurement Management		1. Plan Procurement Management	1. Conduct Procurements	1. Control Procurements	1. Close Procurements
Project Stakeholder Management	Identify Stakeholders	Plan Stakeholder Management	Manage Stakeholder Engagement	Control Stakeholder Engagement	
	2	**24**	**8**	**11**	**2**

Mega Projects, Mega failures

PADMA BRIDGE, Initial expectation: Completion by Dec 2013, Status: Uncertain. DEEP-SEA PORT, Initial expectation: End of first phase by 2015 Status: Chinese proposal submitted. METRO RAIL, Initial expectation: End of first phase by 2015 Status: Indecision over route causes two-year delay. ELEVATED EXPRESSWAY, Initial expectation: Completion by Jan 2014 Status: No progress for lack of funds, failure to acquire land. BANGABANDHU AIRPORT, Initial Expectation: To start during AL government tenure Status: Abandoned following public protest. NUCLEAR POWER PLANT, Initial expectation: Completion by 2016-17 Status: A loan deal likely during PM's Russia visit this month.

Four decades after its independence, Bangladesh had a government that rolled out plans for a series of mega projects aimed at revolutionizing communications, port and energy sectors and drastically turning the country's economy.

Unfortunately, the Awami League government's very weak governance, indecisions, inability to execute plans, alleged indulgence of some in corruption, fund shortages, and donors' conditions affected progress of most of these projects.

The government made some headway with the mega projects in the power sector but communication and port sectors saw disappointing progress. Most of the projects in question made some advancement but cannot be completed within the tenure of the present government.

With the change of the government, these projects might either face death or get wrongfully credited as the brainchild of the next government, as seen in the past.

These mega projects include: the deep sea port, the Padma bridge, the metro rail project, nuclear power project, Dhaka Elevated Expressway, capital dredging of 53 river routes, a new international airport named after Bangabandhu, massive projects in power sector that include a lot of coal fired power plants, building a Liquefied Petroleum Gas (LPG) terminal to import gas, digitizing land management, building new rail lines, equipping the rail sector, and several dual-carriageway highways to increase connectivity.

It was assessed that building the Padma bridge would have alone increased the country's GDP by 1 percent and the deep sea port by another 2 percent. Implementing the other mega projects would similarly contribute to the nation's GDP growth.

Of these, the government made some achievements in the power sector by adding more than 3,500 megawatts of electricity to the national grid while aiming to generate a total of 16,000MW by 2016-17. Despite some major successes in the sector, a number of its mega projects, including a 1,320MW coal-fired plant, could not begin.

The government also made good progress in the rail sector. But its effect would be visible in 2013 with the launching of several new important rail lines and introduction of a good number of locomotives and other equipment. However the rail still reels from severe manpower shortage, which the government is unlikely to overcome soon.

Padma Bridge

The $2.9 billion Padma Bridge is the biggest failure of the government as it could not start its construction. The World Bank had cancelled its loan for the project alleging conspiracy of corruption, reportedly by a host of people including ex-communication minister Syed Abul Hossain. The bank later conditionally revived the loan. The government apparently had not fulfilled the conditions so far, which include filing a case against all the corruption suspects. The Anti-Corruption Commission had filed a case in this regard but without accusing Abul.

The government had earlier planned to finish construction within its tenure but now it is saying that at least the foundation stone of the bridge would be laid.

Metro Rail

Japan was ready to fund the $2.7 billion metro rail project as soft loan since 2010 but the government failed to approve a route for a long time. This failure stemmed from the objection of the Air Force against the route that goes by the side of the abandoned Tejgaon Airport. This forced the government to go for a revised route. Japan finally approved the loan with the revised route. The metro rail construction is expected to start this year.

Deep Sea Port

Experts say there is no alternative to a deep sea port as the capacity of the Chittagong Port would be exhausted by 2015. As per a Japanese study in 2009, the country could build this Tk 40,000 crore port in Sonadia Island in three phases. The first phase was supposed to start at the end of 2011 and be completed by 2015 at a cost of Tk 13,000 crore. The second and third phases would be implemented for another Tk 27,000 crore over the next four decades.

The study estimated that the port would boost the country's GDP growth by 2 percent, as it would generate huge employment, increase export and import and raise the country's capacity to handle cargo.

After this study, China formally proposed financing and constructing the port and it remains open to partnership with other countries including India, Germany and the USA. But the government remains silent about the matter.

Nuclear Power

In 2009, the government committed to build the $2 billion Rooppoor nuclear power plant and sought cooperation from Russia. It had initially aimed to commission the plant by 2017-18 but the pace of the project remains very slow.

As of today, Bangladesh could bag a Russian offer of half a billion dollars with 4.5 percent interest rate. The total cost of this 1,000MW plant is estimated to be more than Tk 12,000 crore. The government is hopeful that an agreement would be signed in 2013.

New Airport

To make aviation a serious international business, the government planned to make a massive international airport in 2009. At first it chose Trishal of Mymensingh as the site. Then some civil aviation and defense experts suggested a site in Arial Beel in Munshiganj, which is a major food basket of the country. This triggered widespread protest and the government withdrew and selected four other sites. But eventually the government killed the project fearing backlash and lack of funds.

Elevated Expressway

This 21km project was awarded to an Italian-Thai joint venture in 2010. The construction of the Tk 8,703 crore expressways was scheduled to start in July, 2011, with 42 months' time to complete. But the joint venture failed to secure the initial investment and the project remains hanging. New problems emerged over partial land acquisition as well.

The government has revised the expressway design, reducing its length by four kilometers, to avoid conflict with Gulistan-Jatrabari flyover and land acquisition complexities. It is still not clear when this project would take off.

Roads

The government made paltry progress in doubling the capacity of the most important Dhaka-Chittagong highway, although this was the government's top priority project initiated in 2009. Extortionists and gangsters, who allegedly are sometimes backed by lawmakers, stopped its progress. As of now, only a quarter of this project has been completed. It was supposed to be finished by 2012. In the expansion of Dhaka-Mymensingh highway, less than 15 percent of the job has been completed.

Coal City & Coal Development

In early 2009, the government toyed with the idea of developing a coal city near Barapukuria that would provide homes and jobs to people affected by coal mining and become the centre of mining related higher education. The government started a hydrological study to tap coal

resources in a big way to reduce the country's dependency on imported fuel as well as overcoming gas shortage.

However, as some pressure groups resist the idea, the government abandoned the plan for coal city and tapping into new coal mines which have enough coal to cost-effectively address the country's energy crisis in the mid-term level.

Instead the government went for power projects that produce several thousand megawatts but depend on imported coal. The government also remains compelled to generate a portion of the country's total electricity using imported fuel, forcing power tariff to increase repeatedly and imposing heavy subsidy burden.

Losing Opportunities

After observed all the things I can say that we are losing opportunities lack of proper project management plan and governance. In PMBOK guidance has 47 processes while 24 processes are project management plan. So, PMBOK emphases on project management plan as well as other processes. Lack of plan management it impacts on other management like, time management, cost management, quality management, risk management, procurement management and stakeholder management. As a result we are losing our economy growth as well as GDP per Capita Growth. We are lagging behind from global economy and technology also. We have lack of PM knowledge and skilled personnel.

CHAPTER 8: DISCUSSION OF TEN KNOWLEDGE AREAS

Project Integration Management

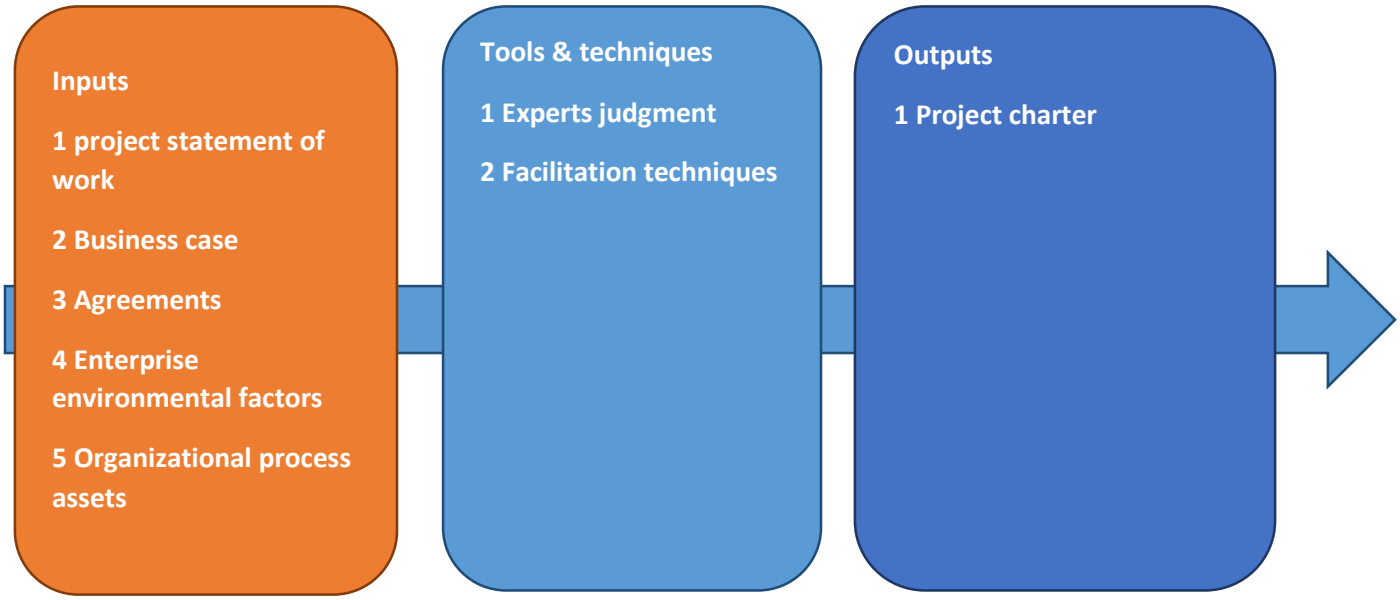
Project Integration Management includes the processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the Project Management Process Groups. In the project management context, integration includes characteristics of unification, consolidation, communication, and integrative actions that are crucial to controlled project execution through completion, successfully managing stakeholder expectations, and meeting requirements. Project Integration Management includes making choices about resource allocation, making trade-offs among competing objectives and alternatives, and managing the interdependencies among the project management Knowledge Areas. The project management processes are usually presented as discrete processes with defined interfaces while, in practice, they overlap and interact in ways that cannot be completely detailed in the PMBOK Guide.

Provides an overview of the Project Integration Management processes, which are as follows:

- **Develop Project charter**—the process of developing a document that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities.
- **Develop Project Management Plan** —the process of defining, preparing, and coordinating all subsidiary plans and integrating them into a comprehensive project management plan. The project's integrated baselines and subsidiary plans may be included within the project management plan.
- **Direct and Manage Project Work** —the process of leading and performing the work defined in the project management plan and implementing approved changes to achieve the project's objectives.
- **Monitor and control Project Work**—the process of tracking, reviewing, and reporting project progress against the performance objectives defined in the project management plan.
- **Perform Integrated change control**—The process of reviewing all change requests; approving changes and managing changes to deliverables, organizational process assets, project documents, and the project management plan; and communicating their disposition.
- **Close Project or Phase** —the process of finalizing all activities across all of the Project Management Process Groups to formally complete the phase or project.

Develop Project Charter

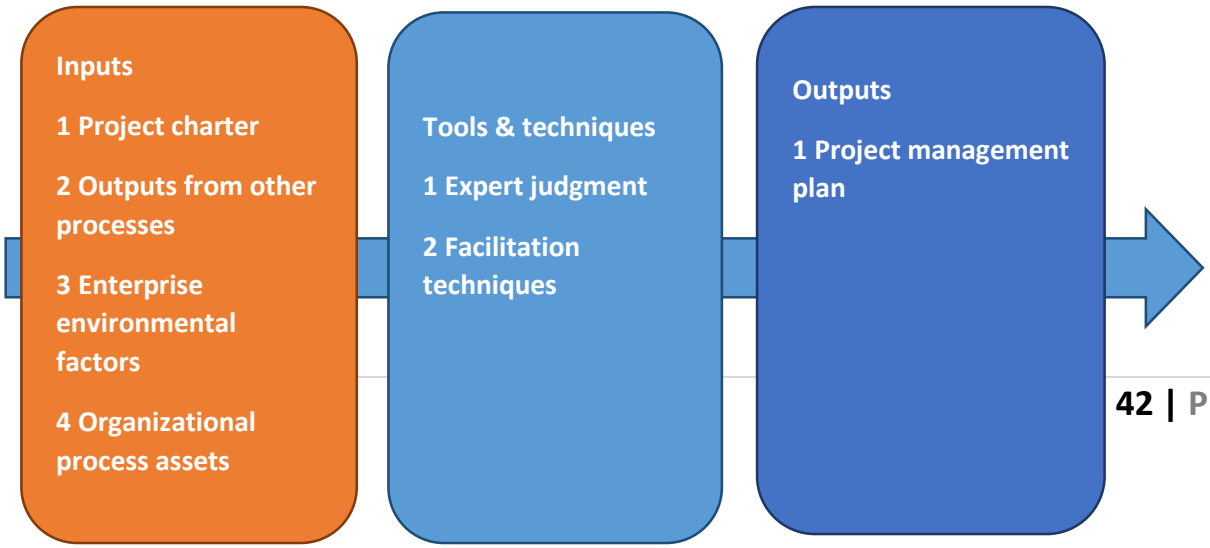
Develop Project Charter is the process of developing a document that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities. The key benefit of this process is a well-defined project start and project boundaries, creation of a formal record of the project, and a direct way for senior management to formally accept and commit to the project. The inputs, tools and techniques, and outputs for this process are shown.



Develop Project charter: Inputs, tools and techniques, and outputs

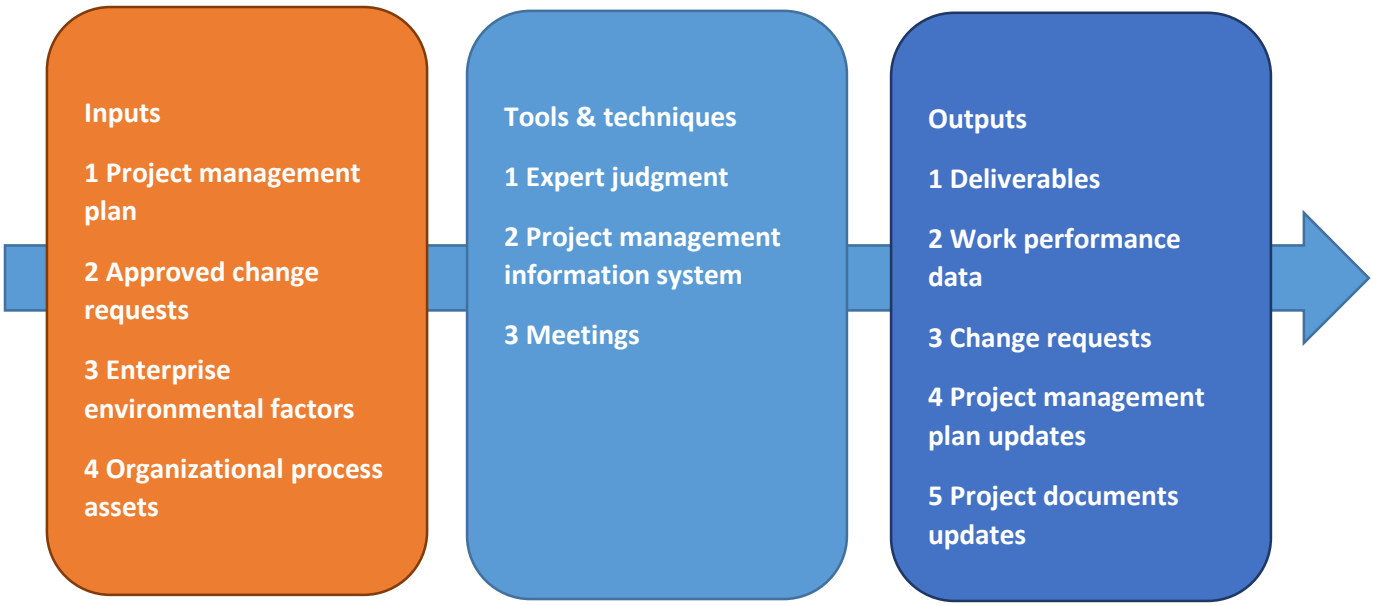
Develop Project Management Plan

Develop Project Management Plan is the process of defining, preparing, and coordinating all subsidiary plans and integrating them into a comprehensive project management plan. The key benefit of this process is a central document that defines the basis of all project work. The inputs, tools and techniques, and outputs for this process are depicted in Figure



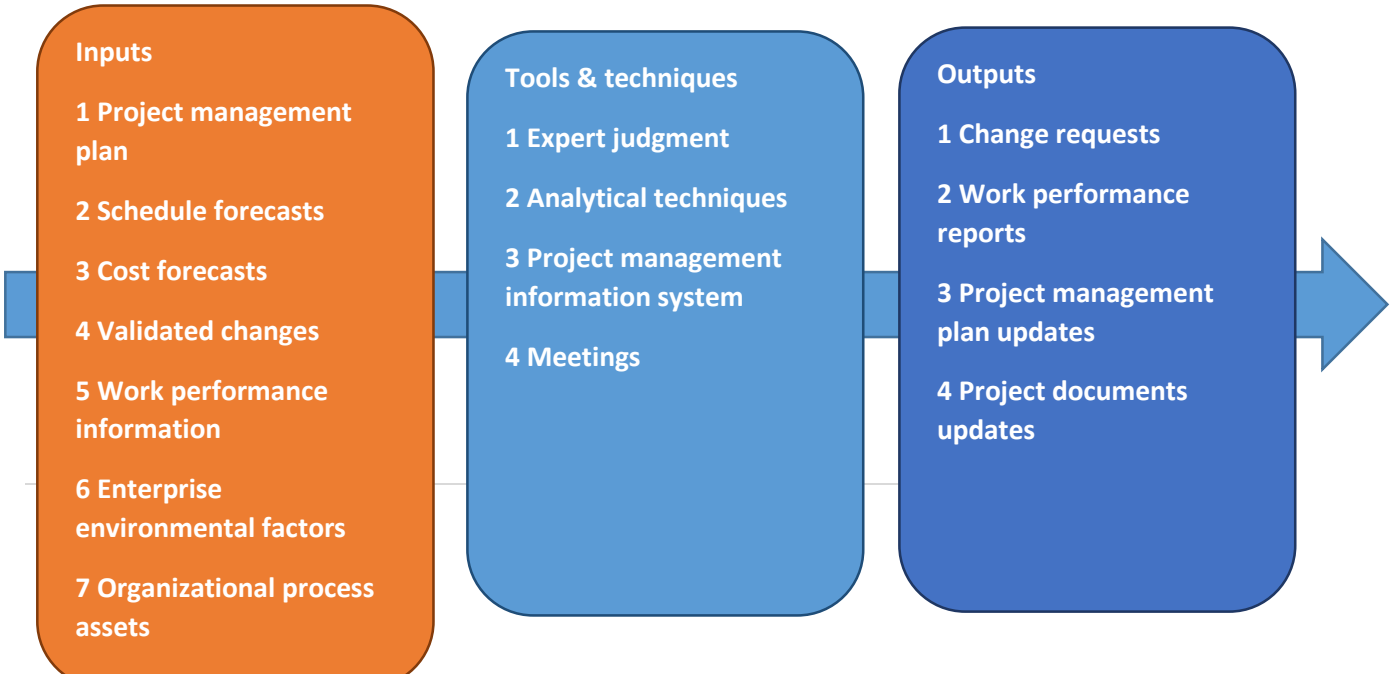
Direct and Manage Project Work

Direct and Manage Project Work is the process of leading and performing the work defined in the project management plan and implementing approved changes to achieve the project's objectives. The key benefit of this process is that it provides overall management of the project work. The inputs, tools and techniques, and outputs of this process are depicted in Figure.



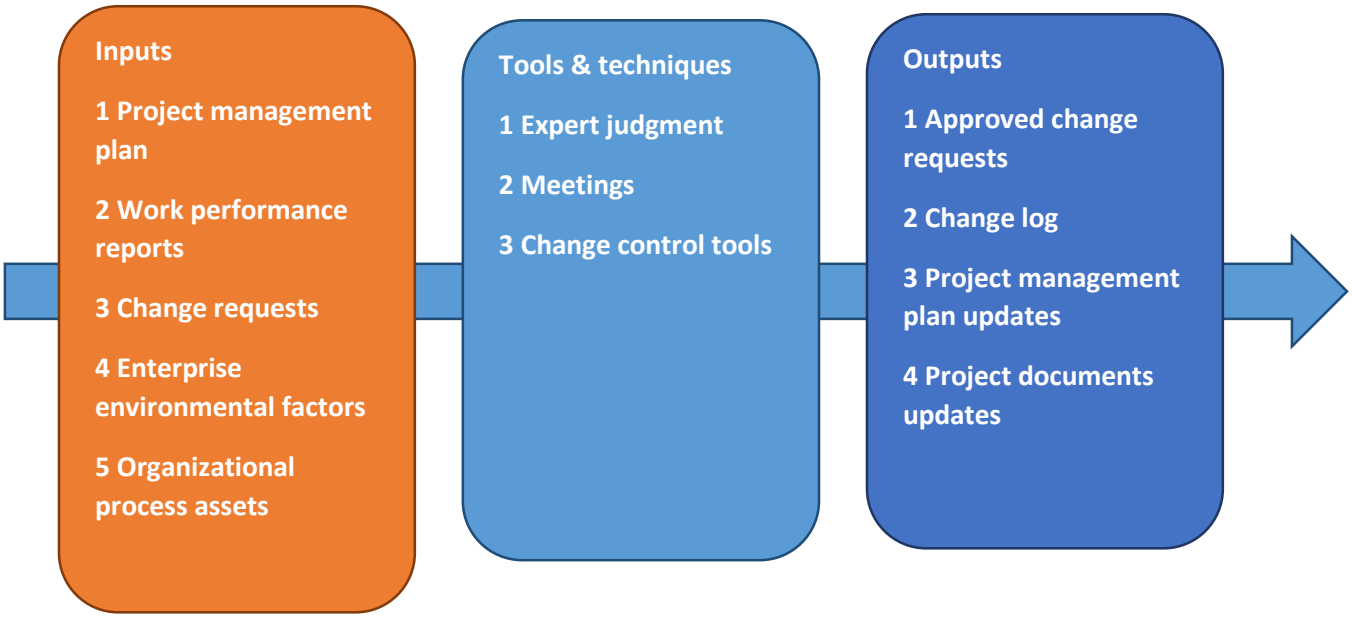
Monitor and Control Project Work

Monitor and Control Project Work is the process of tracking, reviewing, and reporting the progress to meet the performance objectives defined in the project management plan. The key benefit of this process is that it allows stakeholders to understand the current state of the project, the steps taken, and budget, schedule, and scope forecasts. The inputs, tools and techniques, and outputs for this process are depicted in Figure.



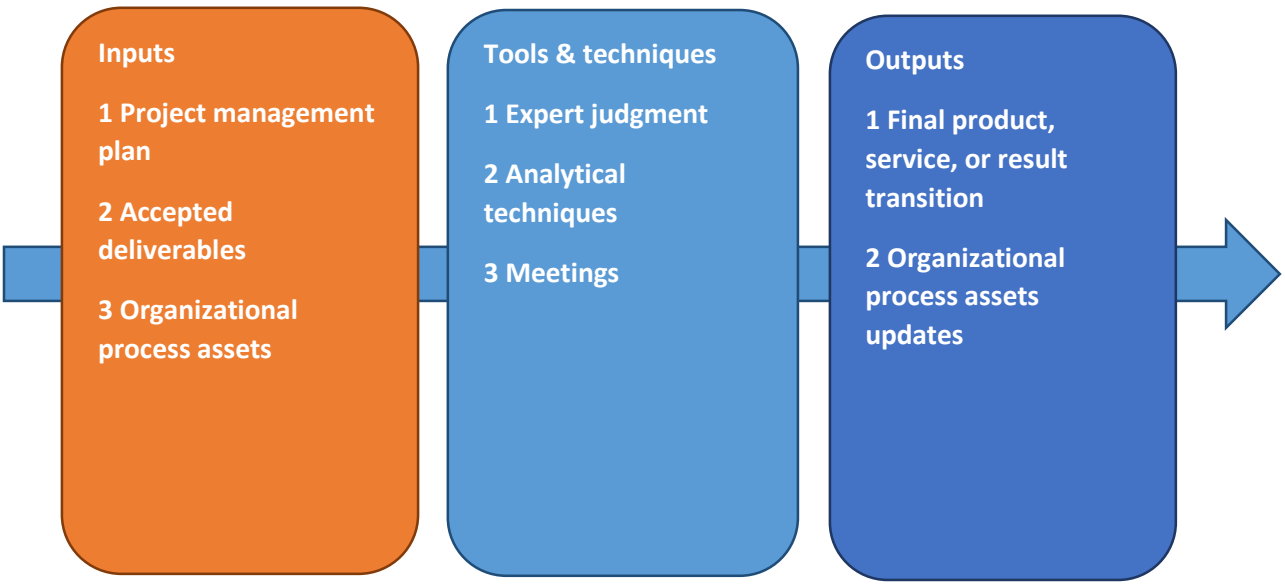
Perform Integrated Change Control

Perform Integrated Change Control is the process of reviewing all change requests; approving changes and managing changes to deliverables, organizational process assets, project documents, and the project management plan; and communicating their disposition. It reviews all requests for changes or modifications to project documents, deliverables, baselines, or the project management plan and approves or rejects the changes. The key benefit of this process is that it allows for documented changes within the project to be considered in an integrated fashion while reducing project risk, which often arises from changes made without consideration to the overall project objectives or plans.



Close Project or Phase

Close Project or Phase is the process of finalizing all activities across all of the Project Management Process Groups to formally complete the project or phase. The key benefit of this process is that it provides lessons learned, the formal ending of project work, and the release of organization resources to pursue new endeavors.



Project Scope Management

Project Scope Management includes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully. Managing the project scope is primarily concerned with defining and controlling what is and is not included in the project. Provides an overview of the Project Scope Management processes, which include the following:

- **Plan Scope Management** — the process of creating a scope management plan that documents how the project scope will be defined, validated, and controlled.
- **Collect requirements** — the process of determining, documenting, and managing stakeholder needs and requirements to meet project objectives.
- **Define Scope** — the process of developing a detailed description of the project and product.
- **Create WBS**— the process of subdividing project deliverables and project work into smaller, more manageable components.
- **Validate Scope**— the process of formalizing acceptance of the completed project deliverables.
- **Control Scope** — the process of monitoring the status of the project and product scope and managing changes to the scope baseline.

Project Time Management

Project Time Management includes the processes required to manage the timely completion of the project. Provides an overview of the Project Time Management processes, which are as follows:

- **Plan Schedule Management** — the process of establishing the policies, procedures, and documentation for planning, developing, managing, executing, and controlling the project schedule.
- **Define Activities** — the process of identifying and documenting the specific actions to be performed to produce the project deliverables.
- **Sequence Activities** — the process of identifying and documenting relationships among the project activities.
- **Estimate Activity resources** — the process of estimating the type and quantities of material, human resources, equipment, or supplies required to perform each activity.

- **Estimate Activity durations**— the process of estimating the number of work periods needed to complete individual activities with estimated resources.
- **Develop Schedule** — the process of analyzing activity sequences, durations, resource requirements, and schedule constraints to create the project schedule model.
- **Control Schedule**— the process of monitoring the status of project activities to update project progress and manage changes to the schedule baseline to achieve the plan.

Project Cost Management

Project Cost Management includes the processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling costs so that the project can be completed within the approved budget. Provides an overview of the following Project Cost Management processes:

- **Plan cost Management** — the process that establishes the policies, procedures, and documentation for planning, managing, expending, and controlling project costs.
- **Estimate costs** — the process of developing an approximation of the monetary resources needed to complete project activities.
- **Determine Budget** — the process of aggregating the estimated costs of individual activities or work packages to establish an authorized cost baseline.
- **Control costs** — the process of monitoring the status of the project to update the project costs and managing changes to the cost baseline.

Project Quality Management

Project Quality Management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken. Project Quality Management uses policies and procedures to implement, within the project's context, the organization's quality management system and, as appropriate, it supports continuous process improvement activities as undertaken on behalf of the performing organization. Project Quality Management works to ensure that the project requirements, including product requirements, are met and validated. Provides an overview of the Project Quality Management processes, which include:

- **Plan Quality Management**— the process of identifying quality requirements and/or standards for the project and its deliverables and documenting how the project will demonstrate compliance with quality requirements.

- **Perform Quality Assurance** — the process of auditing the quality requirements and the results from quality control measurements to ensure that appropriate quality standards and operational definitions are used.
- **Control Quality**— the process of monitoring and recording results of executing the quality activities to assess performance and recommend necessary changes.

Project Human Resource Management

Project Human Resource Management includes the processes that organize, manage, and lead the project team. The project team is comprised of the people with assigned roles and responsibilities for completing the project. Project team members may have varied skill sets, may be assigned full or part-time, and may be added or removed from the team as the project progresses. Project team members may also be referred to as the project's staff. Although specific roles and responsibilities for the project team members are assigned, the involvement of all team members in project planning and decision making is beneficial. Participation of team members during planning adds their expertise to the process and strengthens their commitment to the project. Provides an overview of the Project Human Resource Management processes, which are as follows:

- **Plan Human resource Management** — the process of identifying and documenting project roles, responsibilities, required skills, reporting relationships, and creating a staffing management plan.
- **Acquire Project team** — the process of confirming human resource availability and obtaining the team necessary to complete project activities.
- **Develop Project team** — the process of improving competencies, team member interaction, and overall team environment to enhance project performance.
- **Manage Project team** — the process of tracking team member performance, providing feedback, resolving issues, and managing changes to optimize project performance.

Project Communications Management

Project Communications Management includes the processes that are required to ensure timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and the ultimate disposition of project information. Project managers spend most of their time communicating with team members and other project stakeholders, whether they are internal (at all organizational levels) or external to the organization. Effective communication creates a bridge between diverse stakeholders who may have different cultural and organizational backgrounds, different levels of expertise, and different perspectives and interests, which impact or have an influence upon the project execution or outcome. Provides an overview of the Project Communications Management processes, which are as follows:

- Plan communications Management —the process of developing an appropriate approach and plan for project communications based on stakeholder's information needs and requirements, and available organizational assets.
- Manage communications—the process of creating, collecting, distributing, storing, retrieving and the ultimate disposition of project information in accordance with the communications management plan.
- Control communications—the process of monitoring and controlling communications throughout the entire project life cycle to ensure the information needs of the project stakeholders are met.

Project Risk Management

Project Risk Management includes the processes of conducting risk management planning, identification, analysis, response planning, and controlling risk on a project. The objectives of project risk management are to increase the likelihood and impact of positive events, and decrease the likelihood and impact of negative events in the project. Provides an overview of the Project Risk Management processes, which are as follows:

- Plan risk Management —the process of defining how to conduct risk management activities for a project.
- Identify risks —the process of determining which risks may affect the project and documenting their characteristics.
- Perform Qualitative risk Analysis —the process of prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and impact.
- Perform Quantitative risk Analysis —the process of numerically analyzing the effect of identified risks on overall project objectives.
- Plan risk responses —the process of developing options and actions to enhance opportunities and to reduce threats to project objectives.
- Control risks —the process of implementing risk response plans, tracking identified risks, monitoring residual risks, identifying new risks, and evaluating risk process effectiveness throughout the project.

Project Procurement Management

Project Procurement Management includes the processes necessary to purchase or acquire products, services, or results needed from outside the project team. The organization can be either the buyer or seller of the products, services, or results of a project. Project Procurement Management includes the contract management and change control processes required to develop and administer contracts or purchase orders issued by authorized project team members.

Project Procurement Management also includes controlling any contract issued by an outside organization (the buyer) that is acquiring deliverables from the project from the performing organization (the seller), and administering contractual obligations placed on the project team by the contract. Provides an overview of the Project Procurement Management processes which include the following:

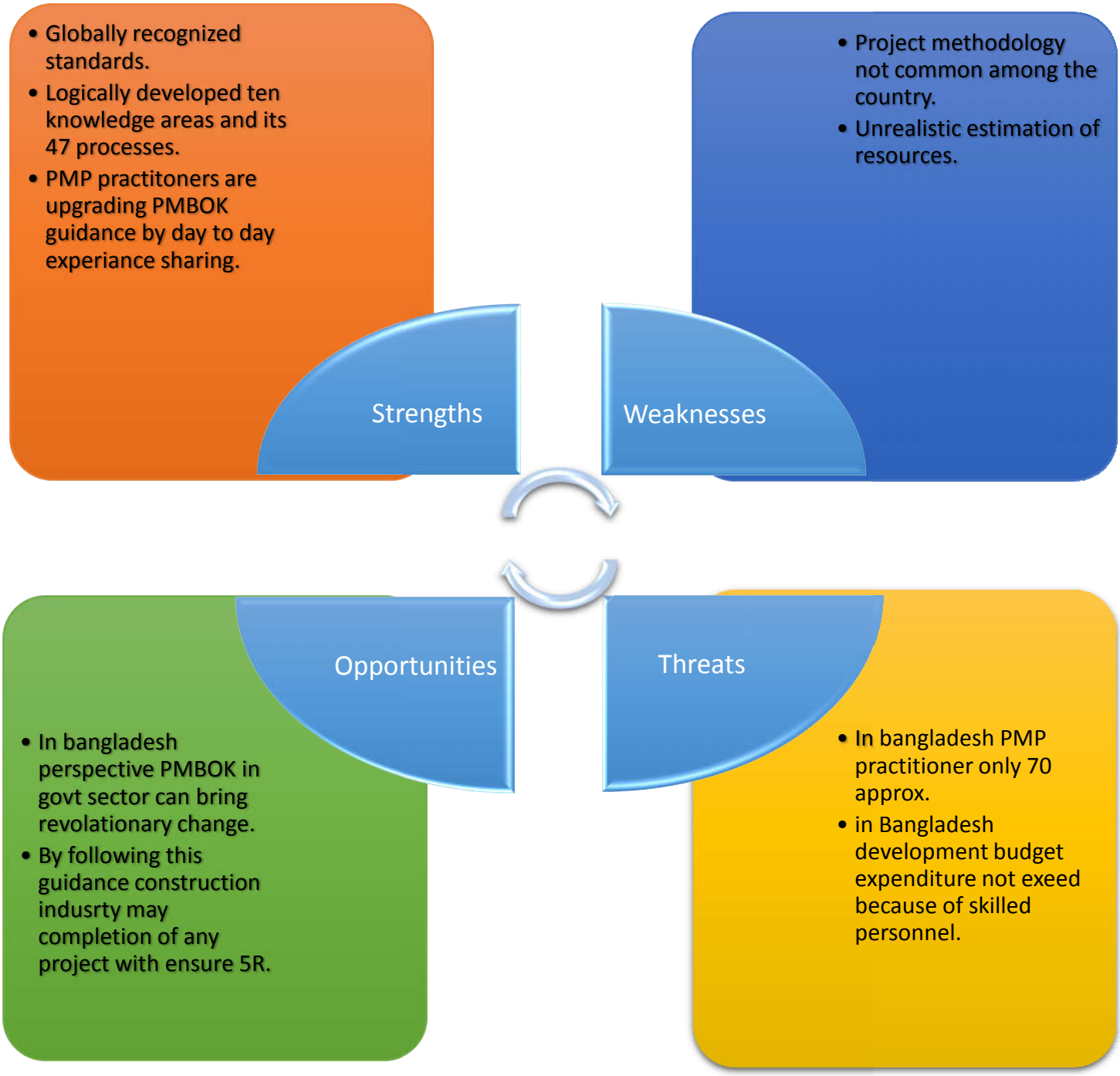
- **Plan Procurement Management** — the process of documenting project procurement decisions, specifying the approach, and identifying potential sellers.
- **Conduct Procurements**— the process of obtaining seller responses, selecting a seller, and awarding a contract.
- **Control Procurements**— the process of managing procurement relationships, monitoring contract performance, and making changes and corrections as appropriate.
- **Close Procurements** — the process of completing each project procurement.

Project Stakeholder Management

Project Stakeholder Management includes the processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution. Stakeholder management also focuses on continuous communication with stakeholders to understand their needs and expectations, addressing issues as they occur, managing conflicting interests and fostering appropriate stakeholder engagement in project decisions and activities. Stakeholder satisfaction should be managed as a key project objective. Provides an overview of the Project Stakeholder Management processes that include the following:

- **Identify Stakeholders** — the process of identifying the people, groups, or organizations that could impact or be impacted by a decision, activity, or outcome of the project; and analyzing and documenting relevant information regarding their interests, involvement, interdependencies, influence, and potential impact on project success.
- **Plan Stakeholder Management**— the process of developing appropriate management strategies to effectively engage stakeholders throughout the project life cycle, based on the analysis of their needs, interests, and potential impact on project success.
- **Manage Stakeholder Engagement**— the process of communicating and working with stakeholders to meet their needs/expectations, address issues as they occur, and foster appropriate stakeholder engagement in project activities throughout the project life cycle.
- **Control Stakeholder Engagement**—the process of monitoring overall project stakeholder relationships and adjusting strategies and plans for engaging stakeholders.

SWOT Analysis of PMBOK



CHAPTER 9: RESEARCH RECOMMENDATIONS

The following recommendations are proposed as a result of this research. The recommendations are specific to the sector and also general for the public sector Projects.

Planning Sector Recommendations (Short term strategies)

- Adopting PMBOK framework and practice in construction industry
- Proper Cost Estimation should be done in the project charter.
- Activity Duration and estimation should be provided by planning commission.

Service Sector Recommendations (Short term strategies)

- Identification of Stakeholders in the planning stage (i.e. Coordination between different public sector organizations)
- A detail methodology should be devised before the start of the project
- Project Manager should be empowered
- Project manager should not be transferred once the project is started
- Computerized the monitoring process
- A lessons learned report should be developed

Consultant & Contractor Sector Recommendations (Short term strategies)

- Introduce risk management
- An establishment of a dedicated Project Management Office (PMO)

Long Term Strategies

- Facilitate the skilled manpower
- Enhance the leadership capability of the project managers by education and training
- Delays because of political pressures should be reduced.
- Pre-defined standard operating procedures should be developed for the acquisition of land and for the coordinating among different government sector organizations.
- Start of a Government Initiative to increase awareness of new project management techniques

Contribution to the Knowledge

This research has given a detailed insight on how the projects are managed in:

- a less developed country
- Public Sector of a less developed country, taking Bangladesh as an example

As a result of this research four different types of constraints are identified which are associated with projects in the less developed countries (LDCs). Any policy and planning organization should consider these constraints before the start of the project and deal each of them on individual basis. These constraints are categorized as PM constraints (i.e. the constraints related with the project management process), cultural constraints (i.e. the constraints ingrained in the professional field because of the norms), LDC constraint (i.e. the constraints because the country is less developed) and the public sector organizational constraints. This categorization is helpful because in a project constraints like the PM Constraint or sector organizational constraints can be taken care but the cultural constraints and the LDC constraints cannot be fixed on a single project.

So the best way is to have knowledge about them to integrate them in your planning process.

- This research may claim to be the first doctoral study of its type in LDCs context.
- This research has resulted in the enhancement of knowledge of project management techniques in a less developed country and may contribute or help the donor agencies to understand the management practices in less developed countries.
- This research may also be helpful in developing the PM standards for public sector in the less developed countries.

Limitation of the Research

The limitations associated with this research are listed below:

- This Research is limited to a single country
- Comparison of the project management practices in a less developed country is done with the PMI best practices instead of the public sector in a developed country
- The research is focused only on the public sector projects

Future Directions

Undertaking this research has opened many venues for further research initiatives which are presented below:

- This research may have opened the doors for researchers to explore the project management practices in the public sector of any other less developing country to validate the research

- Researchers can also investigate the project management practices in the private sector of a less developed country to have an overall picture of the management practices in less developed country.

- Researchers can also research on short term and long term strategies for the public sector organizations to reach the higher maturity level in project management.

Concluding Remarks

This master`s thesis research has tried to assess the extent of use of project management processes and practices in the construction industry of Bangladesh. Further, the research has provided bench mark data on the current status of PM practice in the industry for use in continuous assessment of future improvement efforts. Nevertheless, this thesis research is meant only a starting work towards a long journey to the development of PM practice in the country as a whole and the construction industry specifically. The main goal was to do a starting work and open the door for further refinement and investigation and demonstrate the application of the concepts raised. The research presumed that future works will address the rest and the details.

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Appendix

Questionnaire sent to Contractors

Direction: Please provide the requested information on the space provided

Name of the person filling the questionnaire (optional) _____

1. Position/role in the company (Required) _____

2. Have you received any Project Management related training? A. Yes B. No

   If yes what was the highest level of training you received?

   A. Masters level B. Bachelors C. Certificate D. Short-term training

E. As a course in a related program of study F. Other (please specify)

3. Have you worked as Project Manager?

   A. Yes B. No If yes for how long? ……..

4. Your organization is …

   A. Local private company B. Local Public/government Company

   C. Foreign company D. Joint venture of local and foreign company

   E. Local Endowment F. Other (please specify)

5. Name of your organization (Optional) _____

6. What is the category of your organization?

   A. General contractor (GC) B. Building contractor (BC)

   C. Road contractor (RC) D. Specialized Contractor (SC)

   E. Other (please specify)

7. What is the grade of your organization? ……..

   A.Grade-1 B.Grade-2

   C. Grade-3 D. Other (please specify)

8. Approximately, for how long has your organization been in the construction business? .....

9. What is the major type of construction your organization usually performs?

A. Building (residential, office, commercial) B. Road

C. Civil Engineering works (water supply, hydropower etc) D. Other (please specify)

10. Has your company participated on Capacity Building Program (UCBP)?

A. Yes B .No C. I do not know

11. Your company is

A. ISO certified or compliant B. In a process to get the certification neither

C. ISO certified nor in a process to be certified D. Other (please specify)

Common Acronyms

GDP	Gross Domestic Product
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
PMP	Project Management Professional
LDC	Less Developed Country
PM	Project Management
APM	Association for Project Management
PRINCE2	PRoject IN Controlled Environments 2
P2M	Project and Program Management for Enterprise Innovation
SWOT	Strengths, Weaknesses, Opportunities, and Threats
ISO	The International Organization for Standardization
ETI	Ethical Trading Initiative
RC	Road Contractor
GC	General Contractor
GPBSPMP	Global Performance Based Standard for Project Management Personnel
BACI	Bangladesh Association of Construction Industry
PPR	Public Procurement Regulation
ADP	Annual Development Program
RDH	Roads and Highway Department
PMO	Project Management Office