Public Sector Project Management Practices & Performance Evaluation performed by Public Works Department (PWD)

Dissertation submitted in the partial fulfillment of the Requirements for the Degree of Masters in Procurement and Supply Management

Submitted to

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CERTIFICATE

This is my pleasure to certify that the dissertation entitled “Public Sector Project Management Practices & Performance Evaluation performed by Public Works Department (PWD)” is the original work of Shakila Islam that is completed under my direct guidance and supervision. So far I know, the dissertation is an individual achievement of the candidate’s own efforts, and it is not a conjoint work.

I also certify that I have gone through the draft and final version of the dissertation and found it satisfactory for submission to the BRAC Institute of Governance and Development, BRAC University in partial fulfillment of the requirements for the degree of Masters in Procurement and Supply Management.

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DECLARATION

I hereby declare that the dissertation entitled “Public Sector Project Management Practices & Performance Evaluation performed by Public Works Department(PWD)” submitted to the BRAC Institute of Governance and Development, BRAC University for the degree of Masters in Procurement and Supply Management is exclusively my own and original work. No part of it in any form, has been submitted to any other University or Institute for any degree, diploma or for other similar purposes.

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Shakila Islam

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Abstract

"Public Procurement Act 2006" and "Public Procurement Rules 2008" are the law for all the public procurement activities performed in Bangladesh. All public procurement works have to follow the "Public Procurement Act-2006" for ensuring efficiency, transparency, accountability in procuring goods, works and services as well as ensuring Value For money."Effective Service Delivery" is the core objective of any public procurement under the govt. project following the public procurement rules-2008.

With the advancement of modern technology, public procurement reform is a must. The traditional undergoing process of project management, performance evaluation, supplier selection criteria etc is not enough to perform successful completion of projects."Ethics" is one of the key issue that can eradicate voidness, fraudulence practices, collusive practices in procurement. The public procurement practices need to be more responsive, inclusive & sustainable. Stakeholders Buy in can be adopted to own the responsibility.

In this dissertation, effort has been made to evaluate the actual projects performance during project implementation period based on "Bill of Quantity" submitted to Tendering Process. The tendency to become "lowest tendered" boost the supplier to submit abnormal price of some items, which hinders the performance appraisal as well as project execution. The transparency and competitiveness are to be ensured in the procurement process. However, still there are improvements required for ensuring compliance and efficiency in the procurement processes of Project performance evaluation.

Chapter One

Introduction

1.1 Background of the study

Project is defined as a temporary endeavor undertaken to create a unique product or service, that means that the project has a definite ending point, and unique means that the product or service differs in some distinguishing way from all similar products or services. Project management is defined as an application of knowledge, skills, tools and techniques to project activities to meet project requirements. It comprises of initiation, planning, executing, monitoring and controlling, closing. But Management of projects and Management by projects are totally two different concepts now days.

Public sector organizations are private sector follow totally different concepts regarding procurements practices. In public sector there is no profit maximizing focus, little potential for income generation and, generally speaking, no bottom line against which performance can be measured .The public sector organizations are run by the revenue come from general people as well as state fund. Managing projects become vital in public sector as huge no of development works are undertaken by govt. towards advanced growth of economy.

In less developed countries the tools & techniques of project management are still not updated. But in the developed countries, these are performed by strategic objectives, processes, systems through optimum use of resources. Thus the outcome becomes more mission focused, effective, and efficient and result oriented on their prospects.

1.2 Statement of the Problem

In Bangladesh, Public sector projects are run by public funds mainly, but sometimes the projects may be aided by foreign aids/grants/loans. There are a lot of developments projects running by time to time but results come very slowly. The projects does not complete in time due to many reasons. As a result the project cost increases, time overruns, client dissatisfaction etc. In this dissertation the causes of project failure/delay, how a successful projects can be performed, how the performance of the projects can be measured are clearly represented based on various factors. Vendor selection is one of the major challenges of public sector projects. Many are biased by

politically & financially and therefore wrong contractors are selected to perform the project, as a result projects remain incomplete. Again dispute arises between the client & the contractors which last long due to legal aspect. So all these are addressed in the research. Some projects data are collected which are the contractors/suppliers evaluation data. Before going for supplier selection the buyer/public sector organization has to analyze the information and data given by the nose of suppliers. Especially in construction projects suppliers quote the rates of the items that will be followed during implementation period. Motive lies there, that is whether they give the correct rate of the particular item or not, whether suppliers give very low rate intentionally or not, whether they are making excess profits or not, whether they will be able to perform the work or not etc. All these issues should be considered before final selection of the supplier for a construction project. Public sector professionals are now trying to deal with this promptly as well as technically.

In recent years, 'public sector performance measurement' and 'public sector project management' have attracted much attention. There is little literature available about the project management in the public sector of less developed countries. Few authors have identified different barriers which hinder the project success in less developed countries. These are:

- lengthy project approval procedures,
- existing administrative system,
- change decisions/orders,
- lack of ownership
- Poor monitoring of projects
- Poor performance management
- lack of proper leadership 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.

1.3 Rationale of the proposed research

Bangladesh is a developing country moving forward for more advancement day by day. At present in public sector procurement; PPR-2008 & PPA-2006 are followed strongly at each stage. Until 2003, there was no standard and legal framework for public procurement in Bangladesh. GFR rules were originally issued during the British period and slightly revised in 1951 under the Pakistani rule. After Bangladesh's independence, few changes were made to these rules in 1994 and 1999 respectively (Islam, 2011).

To ensure transparency and accountability in the procurement of goods, works or services using public funds, and ensuring equitable treatment and free and fair competition among all persons wishing to participate in such procurement, the Government of the People's Republic of Bangladesh has enacted Public Procurement Act 2006 (hereinafter called PPA 2006) on 06 July 2006. Under the framework of PPA 2006, the government issued Public Procurement Rules 2008 (hereinafter called PPR 2008) which has come into effective on January 31, 2008. All these were the outcomes of the reform process taken by the government to streamline the public procurement. Earlier in 2003, 'Public procurement Regulations 2003' which was effective till the 'PPR 2008' was issued (Hogue, 2010).

The research will help to identify the gap towards successful project implementation. As the whole world is developing and focusing on advancement, we have to move with advancement. The new idea, new way of performance management can lead to a successful project completed.

1.4 Research Question

This research aims to identify the causes behind project incompleteness/project failure and related factors. Whether the stakeholders are following the public Procurement Rules-2008 in a right way, if not what can be the reasons. Again supplier development and supplier performance evaluation is necessary to get better result for present & for future. Thus the research questions arise:

1) Why the Public construction projects don't go for successful completion on time?
2) How the performance of suppliers in projects can be monitored in a better way especially in public sector?

3) Why Supplier selection is vital in a public procurement project &
4) What are the issues and constraints related with the project management

Processes in less developed country's public sector organizations?

1.5 Objectives of the study

The research objectives below are translated from the above research questions:

1. To identify the root causes of project failure & the keys to success.
2. To analyze the supplier performance during project implementation using different sets of Key Performance Indicators (KPI) on projects.
3. To evaluate supplier selection criteria and the results of selecting wrong supplier.
4. To investigate the issues related to the project management process in public sector of less developed country.

1.6 Scope and Limitations of the Research

The limitations of this study have come from both its scope and its methodology. Case study has been taken from completed projects of Public Works Department. The projects was selected on random basis according to total cost of the project, project importance etc. Again Data was collected from the various divisions' office and from head quarters of PWD.As a lot of projects are going on, so collecting data from various divisions were quite difficult .Again time limitation was another factor. Above all collecting Bill Of quantities of supplier is very confidential but for this research purpose, the data's are given only.

1.7 Organization of the Study

The organization of this study is summarized below:

i. Chapter 1 discusses about the background, rationale, and objectives of this study. It highlights the problem statement why the writer opts for this study. It also describes the limitations of this study as desk review.

ii. Chapter 2 describes the literature review of this study. The chapter in a nutshell tries to give a good picture of how public development projects are being practiced, what are the benefits and challenges of project management practices, what are the scopes for improvement of the practice and so on.

iii. Chapter 3 describes the approach and methodology, data collection process and analysis of the multiple case data.

iv. Chapter 4 is a chapter outlining the case study analysis, data analysis, forming observations on what categories, types of observations, segregation of observations from various angles to establish hypothesis. It also focuses the comparative analysis of cases to form opinion.

v. Chapter 5 provides conclusion and recommendations of this study based on the information leading to conclusion.

vi. This study also contains bibliography and annexes to support reference of the study material.

Chapter Two

Literature Review

2.1 Project Management

Project is defined as a temporary endeavor undertaken to create a unique product or service, temporary means that the project has a definite ending point, and unique means that the product or service differs in some distinguishing way from all similar products or services. Project management is defined as an application of knowledge, skills, tools and techniques to project activities to meet project requirements. Initiation, Planning, Executing, Monitoring and Controlling these all are included in project management processes. Initially the focus was just to implement the projects, later a variety of analysis were emerged with these such as setting mission, vision, strategic objectives, performance & quality measurement, appraisal, feedback, leadership, negotiation and collaboration with partners, partnering contract, knowledge management etc.

2.1.1 Lowest Bid Source Selection

Prior to the 1990s, the United States Government selected contractors based solely on lowest bid price (Gransberg & Ellicott, 1996). In Lowest bid selection process was the main competing criteria of bidder selection than quality. And it continues with time later in many countries like us.”Price” includes only performed work price rather than other unseen management costs. According to many in the field, awarding a contract solely on lowest price poses a high risk to the client because there is an increased possibility of financial collapse of contractor, bad performance, and delay in completion, time and cost overruns and so on. In Bangladesh the main criteria of bid selection is “Lowest price”. It can be suitable to some extent, but in case of large development works it can’t be the “Right Price”. Right Price includes purchasing cost, handling cost, packaging & transporting cost, management cost, and cost of each stage in full supply chain. So definitely it will be a bit higher than regular purchasing cost. But the probability of successful completion of projects increases greatly. For instance, in 1992 the US Army Corp of Engineers Europe District (EUD) analyzed four problem contracts that were all awarded based on lowest bid price (Grasberg & Ellicott, 1996). All four projects were behind schedule, project

completion times were between 14 months to two years after the originally scheduled completion date; all were above the US Congress authorized program amount, each experiencing between a 10% up to a 30% cost growth; quality deteriorated during construction; and all the low bids were submitted by marginal firms with long histories of financial problems, lack of experienced and skilled management, and reputations for buying-in to contracts. Buying-in is defined by the Federal Acquisition Regulation (FAR) as submitting an offer below anticipated costs, expecting to increase the contract amount after award (Department of Defense, 2005).Another firm lacked experience and suffered from employment of unskilled managers and workers. EUD's experience indicated that minimum levels of contractor performance rarely met customer expectations. Increases in quality were generally worth a corresponding increase in cost (Gransberg & Ellicott, 1996).

In another research it is found that low-bid contractor selection is one of the sources for construction failure in the developing County (Feldman, 2006). The low-bid contractor selection resulted in construction delays and cost overruns, defective workmanship and poor construction worker health and safety. Low-bid contracting is kind of “false economy” because of inferior performance leading to variations in cost, quantity and quality. It makes flawed assumptions, encourages cost-cutting and underperformance, and does nothing to screen out inefficient contractors. (Feldman, 2006).

Lowest bid selection process causes underperformance in projects because they bid price as low as possible just to win the contract forgotten about the real market scenario, prices. When they win the contract after that while performing works they fall into financial problems, left work works behind because of non capacity, fund crisis, high rate, quantity varies as a result works does not complete in time, schedule overturns. It also posses huge risk on connected stakeholders of the project.

Low-bidding is now a global issue. This type of practice promotes the submission of intentional suicidal bids in order to capture work opportunities, especially for new entrant construction firms (Cheung, Wong, Fung, & Coffey, 2006). Such suicidal bids can result towards poor quality construction. For example, In Hong Kong, nose of multi storied building are collapsed due to defective construction works by the construction company. It is not evident that low bid source

selection is the main cause of this failure but it can be the root cause. It's obvious that bidders should have been selected based on their technical skills and financial solvency.

2.1.2 Law

The analyses of contractor performance conducted by the EUD, Marcos Feldman, and Cheung et al. defined that lowest bid methods do not meet traditional project success requirements i.e cost, schedule, and quality (Ling & Liu, 2004). In response to demands from the activist procurement policy office and a new Pentagon acquisition reform operation, Congress passed the 1994 Federal Acquisition Streamlining Act (FASA) and the 1996 Clinger-Cohen Act. The intent of these acts was to streamline acquisition processes and reduce administrative burdens suffered by contracting authority offices (Burman, 2000). The acts transitioned the government from lowest bid procurement to best value source selection. In Bangladesh Public Procurement Act 2006 & Public Procurement Rules, 2008 forms a guideline to perform Procurement process including bid selection & all relevant matters.

2.1.3. Best Value Source Selection

Best value contracting is a method of awarding construction contracts in which bidders compete on the basis of technical and managerial merit and performance records, technical innovation, financial health, or other factors, in addition to price (Feldman, 2006). Special attention is paid towards a contractor‘s past performance. The methods for rating contractors past performance however, are very subjective (Wright, 1999). When selection process is not rigorous or is highly subjective, and when decision makers couldn't decide about right contractors, it became complicated what to do. Rather than selecting the best contractor for the best value, the public sector organization for hiring an unqualified contractor resulting in an over-budget, over-schedule executed project.

2.2 Managing Knowledge in Project Management

2.2.1 Overview of Knowledge

Knowledge is implied in every stages of our life. At present many organizations have realized that there is no alternative to gain success without knowledge. All is to grab the exact knowledge for the exact purpose. To remain competitive, innovation is required along with it. It is considered as a critical resource for sustaining competitive advantage. Managing knowledge in

organizations is a challenging task because it is hard to identify, and even more difficult to value and deploy relevant knowledge to gain a competitive advantage in the market place.

2.2.2 Importance of Knowledge Management (KM)

For gaining competitive advantage managing knowledge is crucial as things are rapidly changing so it becomes difficult to create consistent practice of knowledge. At the same time social impacts are to be considered. Knowledge sharing is a better way to change and transfer culture.

Knowledge is of two types; tacit & explicit. Tacit knowledge is difficult to exploit though it is clearly stated. Explicit knowledge is easy to gather & understand. The diffusion of knowledge therefore involves developing some level of shared meaning that allows one group to understand and apply another's insights to their own context. It creates collaboration through joint work, sharing. this process is also called "community Model"

The importance of developing shared meaning and understandings, however, highlights the problems of inter-project knowledge matters and learning. Project managers are less involved in formal project progress meetings, although they were more involved in pre and post-contract meetings, including value engineering workshops. Through meeting their technical expertise develops. Intranet facility can help more interaction among each other. But between these two face to face contact is more preferable to transfer knowledge.

2.2.3 KM in Public Sector

KM is kind of information management and the primary focus of KM is to utilize information technology, tools, best practice & culture to share knowledge within organization, connect those who need knowledge. Intranet has already started with people directly using internet as it provides easy access to information and officials. In public sector in Bangladesh, Video conferencing is popularly used in all organization. Research studies show that it is difficult to assess return on investment of knowledge management systems (KMS). In addition, it is considered that enablers and barriers, and understanding of their interrelations provide detailed understanding of building a successful KM initiative.

2.2.4 Enablers & Barriers of K.M

KM is considered as a complex process that is supported by enablers such as strategy, leadership, culture, measurement, and technology. Culture promotes collaboration and sharing of knowledge; technology speeds up the knowledge transfer but creates information overload; infrastructure includes organization structure, technology, processes, and people networks to ensure knowledge flow.

Table 1: Main enablers of Knowledge Management

KM enabler dimension	**KM enabler**
organizational properties	- communication - knowledge exchange - flexibility
IT	- KMS quality - KMS functionality
managerial support	- top management support - KM incentive - KM team process

IT enables the acquisition of greater amounts of information, data related to organizational processes. Thus, IT provides an opportunity for creating and expanding knowledge. However, most of the IT tools of KM are developed for explicit knowledge.

- Strategic alignment and focus
- System and data integration
- Security and privacy policies
- Culture and people engagement
- Technology enablement

Needless to say, social context is influenced by organization culture. Some enablers like collaboration, trust, learning, centralization, and IT and support are found. Of these, trust is part of an organization's culture and is translated into activities such as increased collaboration and communication. In the absence of trust, knowledge sharing will not take place Thus, trust fits into the roles of inhibitor and enabler.

These can be the following in the most cases:

-Organizational structure (Acts as barrier)

-Cultural context & the climate for change (Acts as barrier)

-skills & capabilities (Acts as enabler)

-communications, networks & information flows (Acts as enabler)

-Technological Mechanisms (Acts as enabler)

2.2.5. Model of KM enablers & barriers

A model has been developed to identify KM enablers & barriers at a glance in a framework.

Generic Insights

The model represents that KM leadership; top management support and culture of organization are the three main driving forces to impose a successful KM implementation. Top management will develop strategic focus and senior colleagues will support that. Organization culture boosters open communication and transparent process that leads to enhance collaboration.

Givens, Means, and Ends

The bottom element can be interpreted as set of givens. These “givens” symbolizes whether management is adaptive to change or not. End represents the top of the model. Collaboration, quality, results and strategic focus are ends of KM. The means are the contents that can be controlled/ developed to form the linkage between givens & ends. Communication, technology infrastructure, standardized processes, culture, budgetary support and formalization of the KM effort are all aspects that can be changed, increased or decreased in order to accomplish the ends.

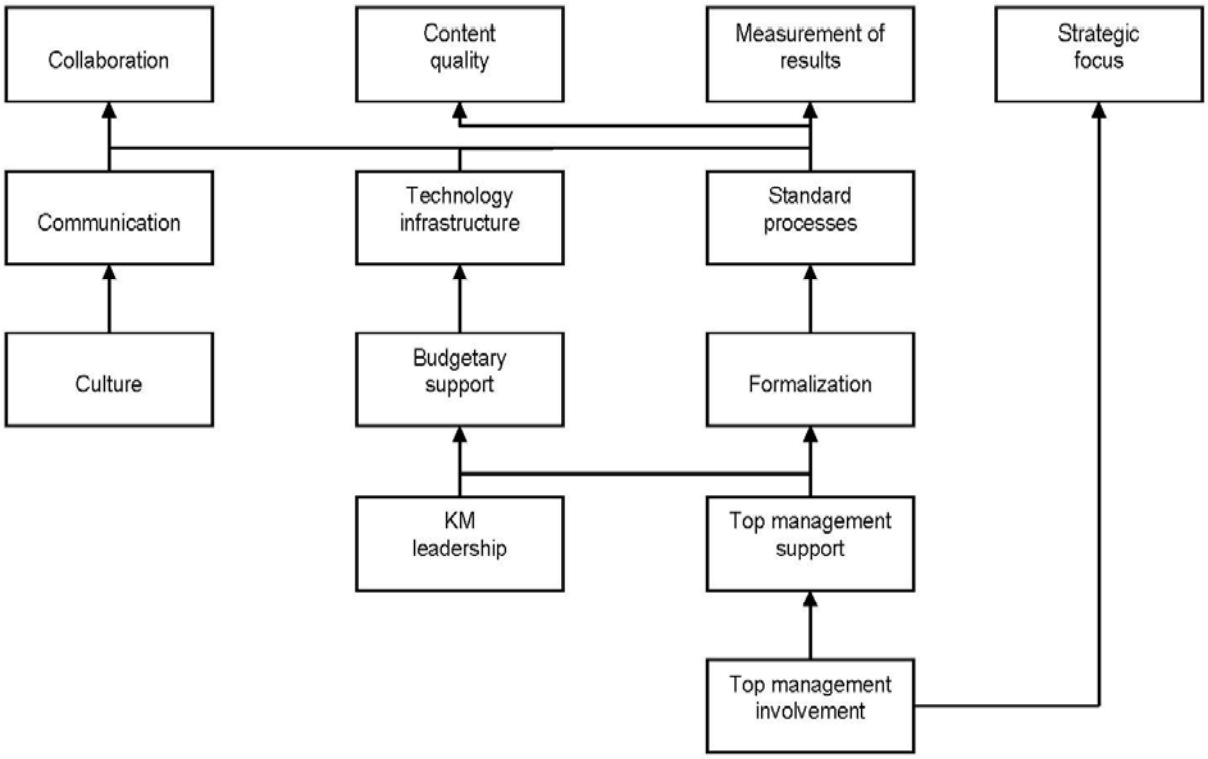

Figure 1: Model for KM enablers and barriers

This approach allows us to understand how each of these elements can behave as an enabler as well as an inhibitor. As a case in point, strong and effective KM leadership leads to shouldering the financial support. However, weaknesses in KM leadership will slower the KM process, thus slow the project operation.

Several implications are found from this model. Top management refers the key initiator and leadership role makes it synergy. When KM initiative is established, it is needed to align the strategic focus, vision with the operational process in fields..

2.2.6 Practices in Organization

Different organizations use their own practice usually. But a shared ideology and vision of change created the platforms for the development of the project based upon an agreed upon set of objectives. Success depends crucially upon on interpersonal and social aspects, rather than

technological or procedural mechanisms. Key problems here are the difficulties in motivating or encouraging staff to use and refresh the databases available. What became clear is that the importance of the tacit and how to acquire it, how that knowledge tended to be embodied and embroiled in members of the network of engineers within the firm.

2.3 Performance Measurement

Performance measurement is the major phase of project implementation. Aside, benchmarking tends to improve the performance rapidly. The main objective of performance evaluation is to boost up managers and members of the organization in developing the direction, traction and speed of their organization. If it works perfectly then the full project minimizes technical problems, conflict among vendors and other stakeholders and overall project will end on time smoothly. Performance measurement mainly focuses how the KPI's are set, to what extent it is linked with the project success, is the outcome really align with the KPI or not. The growing market economy, slow economic growth, high competition, and construction industry restructuring have put a strong pressure on construction companies to continually improve their productivity and performance.

2.4 Benchmarking

Benchmarking is a kind of best practice which can be applied by an organization to measure and compare its performance against results from recognized leaders/organizations for the purpose of identifying the strengths and weaknesses in performance, then using lessons learned from the best ones that can lead to superior performance when adapted and implemented (El-Mashaleh et al., 2007; Stapenhurst, 2009). It can also be defined as ‘‘the continuous process of measuring products, services, and practices against the toughest competitors or those companies recognized as industry leaders’’. It is a systematic process of measuring one's performance against results from recognized organized for the purpose of determining best practices that lead to superior performance when adapted and implemented’’(Hudson, 1997 cited in El-Mashaleh et al., 2007).

2.4.1 Types of Benchmarking

There are several types of benchmarking depending on their contents. Based on the environment against benchmarking, the classifications of benchmarking are: internal, competitive, and functional. Internal benchmarking is carried out within the same organization. For example, between different branches, geographically scattered subsidiaries, and divisions. Competitive benchmarking involves comparing the products, services, and performance of an organization with those of its direct competitors in the same industry. Functional benchmarking identifies best practices in any type of organization, and then compares the performance of the company with the best practices applied in other companies operating in other fields (Camp, 1989; Watson, 2007; CCIC, 2006; Swan and Kyng, 2004).

2.4.2 Breakdown of application

Based on the application level of benchmarking, benchmarking was broken down into the following levels:

(1) Task (e.g. project specific activities such as placement of steel or concrete);

(2) Project (e.g. cost of the project or phases in the project life cycle, times for design or construction, cost and time predictability, health and safety issues, and client satisfaction);

(3) Organization (e.g. profitability of the company, productivity, training, human resources, ability to innovate);

(4) Industry (e.g. industry productivity, ability to innovate, image, human resources); and

(5) Economy (e.g. international competitiveness, financial capacity, and productivity) (Rankin et al., 2008).

2.4.3 Benchmarking and Performance

Tolosi (2000) defined benchmarking as a process which continuously measures the products, services and operational practices of a given organization to compare the organization's performance and operational practices with a selected sample organization. It is a good development tool because it enforces a self-critical approach, indicating the points of criticism that the company must improve. It involves a comparative analysis between at least two

companies in order to compare the scenario, processes and traditions to identify the current performance gap. Then the gap will be analyzed thoroughly to improve performance, whether to follow current process or need to change .Kind of SWOT analysis of the company is done deeply. Chan Albert and Chan Daniel (2004) defined benchmarking as “the search for the best practices that will lead to superior performance of an organization”.

The benchmarking analysis consists of the following parts:
(1) the user satisfaction analysis which concerns the identification of customer preferences and includes the estimation of the relative importance, and
(2) focused on the performance evaluation of the competitive organizations against current practices
(3) the internal environment of the organization whether is it adaptive to change or not.
(4) the responsiveness of organization at any situation(i.e dealing with market economy etc)

The results presented how business organizations may locate/fix their position against competition, reduce their weak points and determine which characteristics will improve their global performance. This gives the ability to identify the most critical improvement actions and adopt the best practices of the industry.

2.5 Performance Management (PM)

For measuring the performance of companies and for applying benchmarking approach suitable key performance indicators (KPIs) must be established in determining the overall success of the company. KPIs are compilations of qualitative and quantitative performance evaluation used to assess the performance of a construction operation (Cox et al., 2003). It plays a key role in providing real information about construction tasks, projects. It shows the right way towards achieving projects goals, objectives and missions.

2.5.1 Significance of PM

- It enables performance management on the basis of evidence.
- It facilitates management of a comprehensive set of performance indicators.
- It supports the integration of supply chain processes

- It provides the customization and change management in organization.
- It enables the alignment between strategic objectives and operational objectives
- It helps to build a learning & knowledgeable environment in organization.

2.5.2 PM Objectives

(a) Identifies problem areas with recommended solutions at the early stage.

(b) evaluates the vendors performance level

(c) makes alternate plans for every critical situation

(d) get in to all connected stakeholders to build a collaborative relationship

The main objective is to proactively manage employee's performance for accomplishing organizational goals by attaining a desired level of performance. It links the performance plans of an organization with the strategic vision and identifying the major performance indicators and Key Result Areas (KRA's) for enabling the employees to achieve the expected outcomes for their organization.

Performance management process broadly involves three stages and these are:

- Goal setting and motivation which should be normally done in the beginning of the session.
- Encouraging stage which is normally undertaken when the employees get involved in the process of pursuit of the assigned task.
- The final stage is the stage of rewards and consequences which is applied after the completion of a task.

2.5.3 Process of PM

2.5.3.1 Stages

Project Management is all about developmental and facilitative in nature which involves team leaders & employees together for choosing smart targets, and this is called the forward planning process. For developing high performance organizations it targets at breeding activity orientation to employees. The entire process involves identification, evaluation and development of the work performance of the employees through effective management practices like continuous coaching, feedback and regular communication. The process includes the following stages:

Work planning and defining consumer/user demands

Monitoring performance time to time

Identifying the weak performance areas

Performance rating

Rewarding good performance/providing incentives

The performance management system aims at continuous development of the staff members and recognizing their contributions, assessing the future potential. It also facilitates a shared understanding of mutual accountability through giving and receiving feedback. 360 degree feedback is performed which means feedback is elicited from multiple sources on key performance areas of the employees .The key areas may be competency, behavior and attitude, ethics, values, work life balance, major achievements etc.

The performance management process passes through the following stages:

1. Identification of the Key Result areas both at the organizational level and the local level.

2. The staff members are defined by their job responsibility, targets, and outputs. These outputs are updated every year.

3. After defining the outputs, the staff members describe the key performance indicators which may include some qualitative & quantitative dimensions which can be measured in quantifiable terms that form the basis of assessment for the appraiser.

4. Identification of those set of behaviors and attitudes which are critical for effective performance.

5. Annual review of performance of the staff members against the plans and the behavioral dimensions and also the mid reviews are performed at the local level.

6. Training needs analysis of the employees.

2.5.3.2 Performance Management Cycle

Performance Management should start with formal discussions at least two or three times in a year through final appraisal and it should be continued. To know the exact employee performance scenario mid- year appraisal can be better solution.

The performance management process is an integrated cycle of:

• planning for performance evaluation;

• contracting;

• Managing performance;

• Appraising performance; and

•Appreciating performance

2.5.4 Effective Performance Management

2.5.4.1 Overview

Effective performance management relies on the quality of the relationship and understanding between supervisor and subordinate. To facilitate this, the following roles and responsibilities are assigned to each party.

Supervisor/manager's role

(a) Assigns, negotiates, and coordinates activities, tasks, and projects and facilitates individual and team goals.

(b) Monitors progress.

(c) Identifies problems, and seeks solutions.

(d) Applies expertise and judgment to the performance.

(e) Enables and encourages subordinate development.

(f) Communicates individual roles, responsibilities, results, and standards to ensure effective delivery of required results.

(g) Ensures that employees are provided with sufficient resources to perform work and take actions on their own.

(h) Holds frequent development discussions when change is necessary or not

(i) Regularly provides feedback to higher authority

2.5.4.2 TARGET SETTING

Proper target setting is one of the factors that contribute to the success and effectiveness of performance management. Targets must be challenging, yet achievable. Targets shall be set and agreed up front by the manager/supervisor and shall be used to monitor and track the performance.

The following target range can be set to evaluate performance against set targets:

Floor

Performance at this level is unacceptable. If the actual result is at or below this value, it will be considered as a reason for applying a development option. The probability that this particular point will be exceeded is 95%.

Kick-in

This value represents a level of performance below the expected performance. The probability that this particular point will be exceeded is 80%.

Norm

This value represents the “expected performance” level. The probability that this particular point will be exceeded is 50%.

Stretch

This value means that performance has “exceeded expectations”. The probability that this particular point will be exceeded is 20%.

Ceiling

This value represents “top-level performance”. The probability that this particular point will be exceeded is 5%.

2.5.5 Success of the Project

Enshassi et al (2006) studied causes of contractor's project failure for the developing countries. The major factors were:

Managerial: managerial factors are mainly related to experience, decisions, procurement, control, productivity, communication and claims factors

Financial: financial factors are related to loans, cash flow, profit, expenditures, material wastages, equipment cost and usage, and variation order

Business growth: Business growth factors are related to managerial development, size of projects, type of work and number of projects

Business environment: Business environment factors are related to culture,norms, regulations, awarding, economy, owner involvement and accounting practices

Operational: These factors are related to delay, closure, lack of resource, high cost of materials, banks policy and dealing with suppliers.

2.5.6 Criticism of PM

Criticism is the reviewing and checking the performance level whether it was desired or not, merge with objectives or not. It may do using some measures that focuses on three dimensions: yesterday, today & tomorrow. That means what we do today must have some monetary effect on

tomorrow. It must add value to present activity. Continuous monitoring of financial measures can help to achieve this.

Some reasons for why introducing performance management in projects management is necessary have been identified by Rashied (1999:25).Project Management

• Provides clarity about who is responsible and accountable for ensuring objectives and with whom, by when, and what the expected outcomes are;

• Clarifies what is expected of individuals, teams, and other organizations that are contributing to delivering shared priorities;

• Importantly, it provides or allows feedback to individuals and teams and to Shareholders and stakeholders;

• Demonstrates to interested stakeholders that best value is being achieved;

• Enables effective use of limited resources;

• Improves communication between stakeholders and shareholders.

• Leads to development and training for those who are charged with making things happen.

2.5.7 Challenges of PM

Long et al (2004) commented that projects may delay because of many reasons, for example, poor estimation and change administration, social and mechanical issues, site related issues, change of drawing & design, inadequacy of funds etc.

Navon (2005) expressed that the problems may lie in planning and in strategic level which causes improbable target setting

Iyer and Jha (2005) commented that the components influencing cost variations are: time overruns of the projects; venture administrator's organizing and authority expertise; checking and criticism by the members; basic leadership gap; coordination among venture members; proprietors' capability; social condition, and climatic condition.

Jouini et al (2004) expressed that assumption (i.e cost-benefit analysis, net present value, internal rate of return etc) is another thing to consider at right time in a right way. It can enhance functionality of projects.

In public sector of our country there are some challenges for implementing Project management processes. One of these are the imbalance between planning, design drawing may not compatible while performing in site. The quantity may differ; the unambiguous goals and visions may create confusions. The vendors are not capable to run the project in full. The relationship of clients and project stakeholders may not collaborative to some extent. When problem arises the solution comes from all heads. The following of daily work schedule, work plan and performed each duties properly can help to achieve successful project completion. With this regard the proper leadership is highly needed to implement accordingly.

2.6 Project failure

There are a no of causes why project cannot success at its end. These can be the followings:

- **Vision**

1. Failure to identify the vision. Mission and the correlation between these two, set targets focusing on these.
2. Targets are not precise and clear to all.
3. Lack of coordination between various stakeholders of the projects.

- **Planning**

1. Lack of proper strategic planning, focus on execution.
3. Outcomes and outputs are not clearly defined and widely spread to project stakeholders.
4. Overlook the clients demand sometimes
5. Planning is done at mid-level with less importance at it.
9. Based on Top down approach rather than bottom up approach
12. Changes are handled lightly without detail investigation and recommendations.

- **Administration**

1. Failure to set up an administrative structure suitable to the project
2. Appointing a Project Manager who are not responsible at all and does not have the potential to coordinate all and manage the uncertainties.
3. Wrong selection of vendor who lacks the technical experiences & financial solvency.

- **Stakeholder buy in**

1. Failure to recognize or connect with the related stakeholders
2. Lack of collaboration among the stakeholders
3. Failure to incorporate suitable "change management" in projects

1. their sensitivity as well as the recovery actions of risk.

- **Architectural & Structural design**

1. A major communication and knowledge gap between architectural and structural designs, drawings.
2. The project work starts with preliminary design rather than comprehensive designs in hand.
3. Less time is given to develop a design and drawing
4. Lack of innovation where it is required
5. Solve all issues considering only monetary value, overlooked the other dimensions/factors.
6. New technology is used without giving proper training on how to implement it.

- **Estimation**

1. Detail estimates are not prepared before work start.
2. Estimation is done in considering basic data not specific data.
3. Critical items are not addressed rightly during estimation, later which leads to major technical failure.
4. Preliminary workshop is necessary before estimation in presence of concern parties to clearly know what is needed and what is not.

- **Operational Issues**

1. Communication gap with field level and Head Quarter level.
2. Return on Investment (ROI)
3. Proper estimation and consider clients demand
4. The performance must completed on time with accurate quantity, quality and by right supplier.

- **Quality**

1. Quality always remains behind of Quantity/money.
2. Does not go for ensuring “Value for money” to give equal importance on money and quality
3. Quality measurement parameters are not followed in sites
4. Quality is seen essentially as far as testing instead of a culture of working to make a Brand value

- **Team issues**

1. Lack of clear responsibilities and duties of each members in project implementation team.
2. Unskilled manpower to finish the team work
3. Lack of collaborative relationship/ rapport building among team members
4. Lack of innovation in project team.

- **Risk management**

1. Failure to priorities risk issues and proper actions.
2. Failure to understand linkage between risk issues and planning.
3. A risk register is essential to address the probable risk issues that can occur in project and

- **Project Monitoring**

1. Believing that although the project team is behind wok bar chart, but they will catch up later
2. Project planning is designed focusing on what to be done, but how these will be achieved and what will be the parameter to assess/monitor the performance is neglected.
3. Schedule and budget seem to be the driving force; as a result there are less monitoring parameters to measure right quality.
4. Performance is tracked at implementation phase only rather than each stages of procurement cycle
5. Failure to monitor sub-contractor or vendor performance by higher authority regularly
6. The gap between actual progress and desired progress is not critically analyzed.

- **Decision making problems**

1. Major decisions are made by individuals who do not have the enough technical
2. Lack of "situational response" brings about useless outcome

3. In critical situation discussion among parties are not performed to solve the issue
4. Sometimes small errors are overlooked which poses great risk later.
5. Lack of leadership qualities in concern individuals.

There are a lot of tips, resources, and guidelines on project management. But project failure issues remain behind mostly. Very few project managers or companies want to admit their failure. So it is very important to evaluate all the possible challenges from the earlier. It lets the project manager, the team members, and the client mitigate risks associated with the project work.

2.6.1 Management of poor performance

- Poor performance should be identified and managed at any stage during the project period. A manager should not wait for a performance appraisal before addressing performance concerns and implementing required actions.
- Management of poor performance will not affect the overall performance rating because during performance employees are monitored directly whereas after completion it cannot be addressed.
- An employee must be given a reasonable opportunity to perform his work
- Managers who fail to manage poor performance will be subject to disciplinary action.
- **The follow-up meeting**

In a follow up meeting or appraisal meeting the following issues should be discussed:

- Successes and shortcomings experienced by both parties.
- Reasons for shortcomings and suggestions to resolve shortcomings.
- Revised programme schedule (objectives, targets, dates etc), if necessary.

- **The final review meeting**

A final review meeting shall be held at the end of the project period. If the vendor's performance has not achieved to a "competent/expected level", the following actions may be taken:

a. Give warning about his poor performance which will affect on performance rating
b. Impose compensation for performance delay, lack of quality work and price fluctuation than the contract value

c. Take disciplinary actions according to PPR-2008 for breaking of contract, fraudulent activity and collusive practices.
d. Finally Dismissal of the vendor from that project if none of above worked.

The conclusion was made that measures (indicators) should be:

• Clear
• Comprehensible
• Understandable
• Results-orientated
• Useful and valid
• Verifiable

2.7 Key Performance Indicator (KPI)

2.7.1 Generic view

Key performance indicator plays a role in evaluating and measuring construction performance as well as in benchmarking process. It leads towards following best practice after identifying and overcoming weaknesses. Based on previous studies and literature review, the most important indicators are found as following :

1. Cost
2. Time
3. Quality & quantity
4. Productivity
5. Client satisfaction
6. Community satisfaction
7. People
8. Health and Safety
9. Innovation and learning
10. Environment
11. Stakeholder Involvement

KPI measures the performance progress of projects towards organizational visions. Once the visions are set then the organizations need to set measures to monitor the progress. According to

CIPS course guide book. Continual measuring is a base for continuous improvements of organization performances, that is also one of the most important management principles.

SRGB grouped the 45 KPIs into four categories such as Compliance, Efficiency, Effectiveness, and Transparency. The four target agencies performance is assessed against each of the KPIs separately for (i) tenders/contracts each valued up to Tk. 20 million, (ii) tenders/contracts each valued above Tk. 20 million each at division level as well as at country level.

Moreover, in Bangladesh CPTU has classified these 45 KPIs into 13 broad categories. These are (i) Invitation for Tender (IFT), (ii) Tender Submission, (iii) Tender Opening Committee (TOC) and Tender Evaluation Committee (TEC), (iv) Tender Evaluation, (v) Approval of Tender Evaluation Report (TER), (vi) Contract Award, (vii) Delivery/ Completion, (viii) Payments, (ix) Complaints, (x) Contract Amendments, (xi) Contract Dispute Resolution, (xii) Fraud and Corruption and (xiii) Procurement Management Capacity.

2.7.2 Purposes & Stages

Customers always demand for timely delivery of products with right quality at right price.But they expect to get better every time. With this view in mind KPI can be used for benchmarking with other standard organizations.(DETR, 2000).

So The main purposes of using KPI is to:

- Measure vendors performance
- Set measures for benchmarking process
- Monitor progress of the project work up to desired level
- align the measures with targets and overall project objectives
- measure quantifiable items and also quality

With a specific end goal to characterize the KPIs all through the lifetime of a venture, five key stages have been distinguished presented in Figure 2 (DETR, 2000):

A. Resolve to Invest: customers are willing to pay for what they demanded

B. Resolve to Construct: the time when the customer approves the vendor to begin the development work.

C. Accessible for Use: When the product is completely ready to use or fit for purpose..

D. End of Defect Liability Period: After delivery of products suppliers are oblized to repair/change the product for certain period

E. End of Lifetime of Project: The total lifetime of a product that is to what extent it will be utilized.

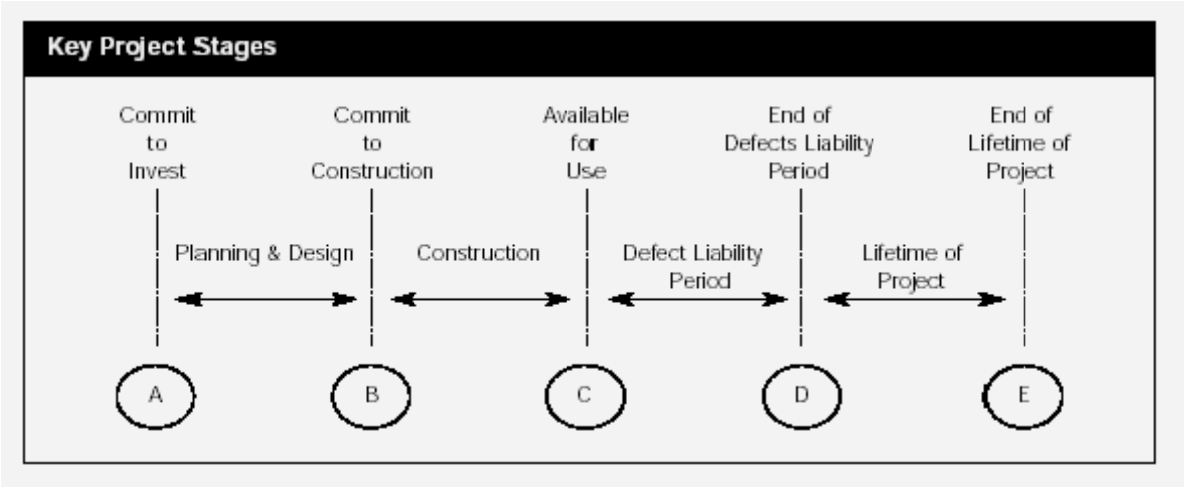

Figure 2: KPIs throughout the lifetime of a project (Source: DETR, 2000)

2.7.3 Types of Performance Indicators

Rashied referred, Nayyer-Stone (1992:42) considers four primary types of performance indicators: input, output, outcome and efficiency. In general, input indicators address the amount of resources used in providing a service, whereas output indicators describe the activities undertaken in providing a service. The advantage of input/output performance measures is that data's readily available. These indicators however, only provide limited insight into whether goals have been achieved. Outcome/effectiveness indicators are used to evaluate the quality and effectiveness of Services. These indicators provide an indication of how effectively customer's services are provided, but according to Nayyer - Stone (1992: 43), they are often difficult to use due to the inability to determine a direct correlation between the services provided and the results measured. The final type of indicator is efficiency, which relates inputs to units of output or outcome, referring to what was achieved, for example, the cost of electricity distributed to a household. It can be concluded that, when efficiency indicators are used over time, they provide evidence of productivity trends. Following Figure below defines the four primary types of performance indicators.

Table 2: Types of performance Indicator

Type of Indicator	Definition	Example
Input Indicator	Measure of resources employed	✓ Accessories needed ✓ Employees required
output Indicator	Quantity of services delivered	✓ Number of projects ✓ Number of meetings ✓ Number of people served.
Effectiveness/outcome indicator	The degree to which Projected output of the service is being met	✓ Percentages ✓ Completed projects on time ✓ Increase in electrification lines

Projects implementation period is the vital period of any projects .Because if the monitoring/supervision is done accurately then the item variance, cost variance and schedule variance won't occur and that will be solved easily. Here the project manager can play the significant role if he is responsible, sensible and honest with the work. Manager must perform both the managerial and leadership activity to run the work.

2.7.4 Implication of KPI's

KPIs differ from one country to another. It varies with different market situations, policies and strategies, cultures, and competitive environments (Kaplan and Norton, 1993). Therefore, a need exists to develop a set of KPIs that suits the environment in our country. Here is a short list of KPI's used in various countries:

Table 3: Summary of available previous studies on performance indicators at project level

Author&year	Country	No of KPI's
• Cheung et al. (2004)	China	1. People 2. Cost 3. Time 4. Quality 5. Safety 6. Client satisfaction 7. Communication 8. Environment

• Rankin et al. (2008) and Canadian • Construction Innovation Council (CCIC)(2007)	Canada	1. Cost 2. Time 3. Quality 4. Safety 5. Scope 6. Innovation 7. Sustainability 8. Client Satisfaction
• Luu et al. (2008)	Vietnam	1.Construction cost 2. Construction time 3. Customer satisfaction 4. Quality management 5. Team performance 6. Change management 7. Material management 8. Safety
• Skibniewski and Ghosh (2009)	USA	1. Construction cost 2. Construction time 3. Predictability cost and time 3. Defects 4. Client satisfaction product
• Toor and Ogunlana (2010)	Thailand	1. On time 2. Under budget 3. Specifications 4. Efficiently 5. Effectiveness 6. Safety 7. Defects 8. Stakeholders 9. Disputes

After a long dependence on financial measures, many studies and researches have been conducted to develop performance measurement frameworks that included financial and nonfinancial indicators. The study revealed that the KPIs should be distributed among three perspectives namely, financial, customer and internal business.

A) Financial:

Monetary measures are very relevant in KPI. Inadequate budget can cause major problems. Monetary context included four measures that got high positioning by respondents, specifically productivity, development, money related soundness, and income.

Gainfulness:

Gainfulness is observed to be the most essential KPI for the development organization supervisors. Two classes of destinations for business association have been broadly perceived: monetary and non-financial. The most well-known corporate financial destinations concern gainfulness, rate of profitability, and development. Thus productivity became as the primary pointer to gauge (monetary) execution of the project.

Growth, Financial Stability, and Cash flow:

Development can be viewed as a measure of achievement for the company. Financial steadiness and income are likewise included, individually. Survival can be measured with income and money related security. Money related execution pointers assist development administrators with specifying the specific activities they need representatives to take and afterward measure to see whether the workers have in certainty taken those activities (Kaplan and Norton, 1992). Expanded gainfulness, high income, and high development ought to be the sensible outcome of changes in the fundamentals,i.e. quality, efficiency, wellbeing, time, cost, and so forth.

B) Customer:

Numerous development organizations today have a corporate mission that spotlights on the client. How an organization is performing from its clients' point of view has progressed toward becoming, in this manner, a need for top administration. The client point of view incorporated three markers, to be specific, nature of administration and work, outer consumer loyalty, and piece of the overall industry. Quality measures the imperfection level of expectations as saw and measured by the client. Quality ought to be overseen – it doesn't simply happen. Fulfillment of clients and other invested individuals is important for the achievement of the venture and association. At the end of the day, expanding the fulfillment of clients and partners through successful objective arrangement, cost lessening, efficiency and process change has ended up being basic to remain in operation (Oakland and Marosszeky, 2006).

C) Internal Business:

Excellence in company performance derives from enablers that include leadership, people, resources, processes, and actions. Managers need to focus on such critical internal operations that enable them to satisfy customer needs. Earlier companies focus on monetary to increase

functionality. But the new focus emphasized integrated business process. The internal measures can include productivity, safety, quality, and business efficiency and effectiveness.

2.7.5 Performance Models

Quality Management Excellence Model (EFQM)

The EFQM model performs through individual's best strengths, clients, society and empowering agents. This model takes into account five points of view; money related client, inward business process, learning & development condition. The model also says that supervisions are so fruitful in carrying out success in the projects. The combination of budgetary & non budgetary measures can give the best outcome of the project.

2.7.6 Methods of Measuring KPI's

The KPI's can be measured in different methods. Some are given below:

Table4: Measurement methods of KPI

No	Perspective	KPI's	Measurement Methods
1.	Financial	Profitability (Constructing Excellence, 2006; Yu et al., 2007;Bizwiz, 2011)	• Return on Equity • Shareholder equity • Economic Value Added • money cost of capital • Return on Capital • Book value of invested capital • Net Income (NI) • Profitability • Total revenues
2.		Growth (Yu et al., 2007)	• Volume of works • Revenue growth
3.		Financial stability (Yu et al., 2007)	• Debt Ratio • Total assets
4.		Cash flow (Bizwiz, 2011)	• Cash Flow • Current liabilities • Net income • Net cash flow from operations • Fixed cost
5.	Customer	Quality of service and	• Rework Factor • Actual construction phase cost

		work (El-Mashaleh et al., 2007)	
6.		External customer satisfaction (Excellence 2006; El-Mashaleh et al.,	• Percentage of Repeat Customers • Total number of customers • Customer Satisfaction Survey • Number of Complaints
8.	Internal Business	Safety (Excellence 2006; El-Mashaleh et al., 2007; Rankin et al., 2008)	• Safety Performance • Average number employed in that time • Incidents Rate • Total site work hours • Time Lost • Total site work hours • Accident Cost
9.		Business efficiency (Yu et al., 2007;Bizwiz, 2011)	• Efficiency Ratio • Net Profit Margin • Total revenue
10.		Effectiveness of planning (Excellence2006;El Mashaleh et al., 2007; Rankin et al., 2008)	• Predictability Cost • Predictability Time • Change Cost • Actual total cost of works

2.8 Partnering in Project

2.8.1 Partnering

Construction Projects are linked with many parties such as clients, owners, engineers, architects, contractors, subcontractors etc. A complex relationship exists among them. Partnering adds value in big projects because it becomes difficult to run mega projects all in one hand with ones expertise. If the works are shared then it becomes easier. The risks are also shared then. They are legally banded to run the projects. It is defined as a cooperative strategy to perform activities and as a result a long term commitment, trust are built up among them.

The mission of the partnering is that Partnering parties want to be the leaders in the construction field by delivering a high quality product in a timely, cost-effective, and safe manner through a long term strategic relationship among partners.

2.8.2 Situations of formation

In a general sense, there are three circumstances that can be utilized to prompt the development of cooperating in project: These are:

• **Bidding New Contracts**. When a new project is undertaken and asked for bidders then two construction firms can legally binded to submit the bid .It all depend on the value and extent of the work.

• **Executing Contracts**. When projects are executed the authority can make a decision to execute it by sharing with another organization in financial terms and non financial way both. It is done to mobilize the work and delivery it on time.

• **Organizational Growth**. This can be formed in macro level of organization. When the company whether it is construction company or any other, is willing to widen its business growth it may merge with another company to get financial suppot and organizational support, enhance expertise etc. It gives them market value, quick profit, more investment etc.

2.8.7 Five Useful Guidelines to Initiate Partnering

Some guidelines are there to initiate partnering:

1. The relationship between the two partnering organizations is necessary. The staffs, managers, engineers, managers and all others should have respect for each other and team working attitude among them. Some shared objectives may include:

• Consistent consistence with natural directions
• Completing the venture on timetable
• Completing the venture inside spending plan
• Pursuing cost-adequacy
• Committing to rapidly illuminate each other of new innovation
• Committing to share best work rehearses

2. The joint partners must share the similar goals, data, assets with each other. It strengthens relationship, fosters innovation.

3. They meet regularly to discuss and share information. The top management supports the midlevel and they inspire staffs. Thus a gradual business bonding is developed among them which eventually create ownership.

4. The meeting proposes for new technology, new ideas, new systems, new strategies, methodologies for best practice.

5. Change management raises many questions, difficulties which are dealt with great care and responsiveness. Leadership and manage trial role both are effective in dealing with change management in organization.

2.8.3 Critical Success Factor (CSF) in Partnering

Table 5: CSF & Measures

Variable(CSFs)	Example of measure
Adequate resources	Investigating extent to which responding organization has received adequate resources from its partners. Questions are • Our partners have provided us with sufficient information to execute the project. • When we need relevant information for executing our work, our partners are always helpful. • Our partners always keep us informed about events or changes that may affect us.
Management support	Investigating the extent to which top management has supported formation of partnering. Questions are • Top management has shown their support for formation of partnering by providing us with sufficient resources, including money, time, manpower, and authority. • Top management has agreed that formation of partnering is strategic affair.
Mutual trust	Investigating the extent to which trust is established between partnering organizations. Questions are • Our partners are highly trustworthy. • We believe that trust established between organizations is critical to the partnering relationship. • We trust that our partners' decisions will be beneficial to our business.

Long-term commitment	Investigating extent to which long-term commitment is established in partnering organizations. Questions are • We believe that our partners are committed to the partnering relationship on long-term basis. • We are highly committed to what we have promised our partners.
Coordination	Investigating extent to which partnering parties are effectively coordinated. Questions are • Our partners have established good contact with us to avoid any misunderstanding. • We would contact our partners when things are not clear. • Our activities with other partners are well coordinated.
Creativity	Investigating extent to which partnering team is creative. Questions are • Partnering team always likes to use advanced techniques to initiate their creative thinking, such as the use of value engineering and benchmarking.
Effective communication	Investigating extent to which partnering organizations communicate effectively. Questions are • Partnering team members have possessed effective communication skills. • Partnering workshops are organized to facilitate communication.
Conflict resolution	Investigating extent to which organizations can resolve conflicts. Questions are • Our organization has used conflict resolution techniques, such as joint problem solving or outside arbitration, to solve conflicts. • Our organization can resolve conflicts immediately
Perceived satisfaction of partners' expectations	Investigating extent to which our partners' expectations are satisfied. Questions are • Our partners praise our successful completion of tasks. • We fulfilled our task commitments, conforming to our partners' expectations.

2.8.4 Characteristics of partnering success

Satisfactory Resources

An organization must have sufficient financial solvency to run its business. In partnering if one lack solvency, the partnering organization can help in fulfilling the lackings.Thus a complete firm run its functional activity.

- **Administration Support**

A strong administration support is required in partnering.The top management collaboration is crucial to hold business partnership.

- **Shared Trust**

Shared trust is transparent, open and worthy. It makes open window between the two organizations vision. Mission and objectives smoothly.

- **Long term Commitment**

Along with trust commitment is needed in partnering. If it lies truly then a strong collaborative relationship exists between the two partnering organizations.

- **Coordination**

Good communication can make successful projects, whereas week one causes failure. Misunderstanding occurs while performing operational activity.

- **Imagination**

When strong partnership is built then together they can plan for doing more. Higher expectations and desire can shape it up. Competitive advantages can be gained in the market.

2.8.5 Critical Management Skills of Partnering

Formation of inter organizational relationships has always been a problem in construction. The appropriate managements skills needed to convert critical threats to opportunities (i.e., effective communication and conflict resolution) are conducive to successful partnering.

Viable Communication

Viable relational abilities can help associations to encourage the trading of thoughts and dreams. In partnering it acts like enabler to energize the projects. This includes the utilization of resources properly, which can be further used to take an interest in arranging and objective setting and consequently apply their helpful endeavors to make perfect desires (Mohr and Spekman 1994).

Struggle Resolution

Huge stresses, clashes, pressure, crisis moments may come. But therefore all one need is to struggle and face the obstacles. Team work helps to recover the stresses.

Good Goals

Good objectives are vital objectives of individual partners which can meet to achieve the goals of project and set up targets, measures, and related exercises. Wrong goal setting leads to long term demage.

2.8.6 Objective Measures of Partnering

Table 6:. Objective Measures of Partnering Outcomes

Criterion (1)	Measure (2)	Measuring Unit (3)	Benefit (4)
▪ Cost effectiveness	Cost variation	Actual cost/Budgeted cost	Improve cost savings for client
▪ Quality	Rejection of work Client Satisfaction Quality of work	% sample rejection No. of claims by client No. of claims by contractors	Improve client confidence Increase client satisfaction Increase construction durability
▪ Schedule	Schedule variation	Actual duration/planned duration	Reduce additional expenses
▪ Scope of work	Change in scope of work	Change orders/budgeted cost	Reduce additional expenses
▪ Profit	Profit variation	Actual profit/projected profit	Increase income
▪ Construction process	Safety Rework	Number of accidents Total number of workers Total Man Hour	Develop safety practice to manage risks Reduce wasted work
▪ Others	Litigation Tender Efficiency	Expense of litigation Success rates	Reduce cost Generate Income

2.9 Training & Development

2.9.1 Overview

Taking preparation of anything always give better results. In case of professional career training it boosts up performance, motivates to do better, innovates new etc. Training is essential in every layers of career to improve skills as well as confidence. In developed countries it is given as one of the top priority to get promotions. In project management practice the project team both in HR & in operational level should get proper training to run a project successfully. Esther Ly et al.,(2005) demonstrate that the prime item for an expert is intellectual competence and learning gives as an aggressive technique that goes improve efficiency.

2.9.2 Importance

There is no alternative of training in life. It increase ones confidence, knowledge level, motivation, self awareness, willingness to work, makes refreshes the mind. In developed country training and work life are balanced alongside. They develop and become smart only because they always attend for on job and off job training. For newly entrant both on job and off job training is needed. On job training is the experience gathered during work and shared from colleagues. Off the job training performed outside workplace i.e foreign tour, workshop, field visit etc. Training can be on different topics, it is not mandatory that always it should be related with work. The purpose is to make person more educated. That's why training and development are interlinked with each other.

2.9.3 Benefits of Training and Development in Project Management

a) Training improves the individuals knowledge, abilities, capacities and makes new space for advancement of identity and professionalism

b) Training makes a learner confident and ready to perform any given work at any situation. It makes them prepared for action any time.

c) In project management practices, both administrative skills and technical skills are necessary. That's why on the job training & off the job training both should be organized by the concerned.

d) Leadership is very important to run a project successfully. So the project manager/supervisor has to hold some leadership qualities especially to efficiently operate & manage in a smooth way.

e) Training is a continuous process. It should be performed on a regular basis to every layer of organization so that all employees have an effect on their work.

2.9.4 Training Policy

Why needed?

1) The Training policy reflects the organizations vision, values and top management's strategic planning.

2) The training policy includes the rules, regulations, procedure, budget, standards and conditions regarding training.

3) The training policy describes the intention of the organization to train and develop its personnel.

4) Training policy set the standards for performing project works.

5) For change management and applying Business Process Reengineering (BPR) theory in organization the organization environment should be made adaptive to bring change, and it is only possible through training policy about the real need.

Training & Development process :

Figure 3: Training and Development (T&D) Process in Construction Industry

In construction industry the training need analysis are done annually on the basis of employee performance. To measure the performance of each employee, they are assigned with particular key role area (KRA) which is evaluated against the standard key result area (SKRA) to analyze the gap between standards and the employee skill. The reviewer will highlight the area of improvement in the skill matrix form. Based on the skill matrix form, training and development department will form a training module for the individual to improve the skill gap.

Table 7: Off the Job & On the Job Training for Project Management Team

Fresher's	1 to 3 Years	4 to 7 Years	More than 7 Years.
• Basics in Civil Engineering. • Drawing Study. • MS Office • Measurement Methods • Quality and Safety basics • Administrative & managerial capabilities	• Work force Billing • Site marking and coordinate checking • Work force monitoring and performance check • Client and sub-contractor billing documentation • Site quality and Safety procedures. • Writing Measurement book • Work Methodology	• Monitoring sub ordinate works. • Client and sub-contractor billing • Effective monitoring of resources. • Focus on quality and safety in projects • Client's satisfaction. • Contractual and Claims document preparation	• Fund release work • Total Workforce handling • Site administration • Client and consultant management. • Perform legal actions with client • Reviewing site progress • Assuring monthly turnover

Both on the job and off the job training work literally in career. So man should go for both whichever possible.

2.10 Leadership role in project management

Each project has specific goals and objectives. To achieve that proper direction is needed by the authority. Here they have to play leadership role in achieving the goals. The focuses will be on managerial and administrative role at a time.

2.10.2 Project Manager's Leadership and Management Roles

Projects Managers role are multidimensional, in one hand he has to play managerial role, on other hand he also has to play leadership role every time. He has to take decision in different situations. The right man in right place is very important in business area because a lot of issues are there to run it and make profits. The manager must have the capability of quick decision making, hard working, patience, influencing skills, logical and open minded. If all these are present in balanced then definitely the business reaches its final destination. Manager must be extrovert and poses strong motivation skill to make the work done willingly by his staffs.

2.10.3 Distinction between management & leadership

There is a little distinction between managerial role and leadership role. Managerial is related to administration, capacities, arranging, settling on choices, operational productivity and etc. Whereas leadership is directing in right way, make new ideas, innovation, changes, utilize the best potentials, bring transformation to process etc (Hersey and Blanchard, 1996).Leaders may have followers, but the managers don't. The manager has to take leadership role to end the projects, to reach the finish line with all supporting and successfully.

2.10.4 Enabling factors

The behavior that reflects the true manager and leader are incorporated by enabling factors. Trust, skill, group activity etc all can be the enablers. In accordance with Mullaly's (2004) discoveries, Thamhain (2004a) proposed that many elements, which drive extend execution, can get from the human side. Others can be situational, organizational, cultural, social etc. Close communication helps the team members to give better result following the managers leadership guidance. Workshop, seminar, meetings, evaluation, appraisal, feedback etc all enable the managerial responsibilities.

2.10.4.1 People related factors

The people related factors can be evaluated as following:

- Create mobility and cooperation in project work.
- Define duties and responsibilities to each.

- Communicate with all stakeholders and design the path accordingly.
- Creating friendly working environment in workplace.
- Mutual trust building among the staff, seniors and juniors.
- A strong and transparent administration system in organization.
- Define the right path, real scenario analysis.

2.10.5 Leadership Role in Performance Management

Change is obvious with the progress of development. In project performance leadership role is very important to guide the right work at right time by the right staffs. The manager just want his work done in a traditional way, but the leader make work done more efficiently and innovatively. The whole man force will be under manager's control if he can take control over them and make them motivated to do the work. So As a whole a great leader can be the key to success if he has such leadership qualities. When problem arises the leader is ready to solve it by any way or make major changes if needed. The sense of responsibility is built by nature, again the sense of accountability also reflects that whether a manager is suitable/perfect for his job or not. For example, In the western world growing company firstly look for the whistleblower because they know if he is found then the company compelled to run faster in a smooth way. Thus the top management's role is vital in every company's business sector.

Chapter 3

Methodology

3.1 General

This examination is exploratory and subjective in nature. The fundamental target of this exploration is to distinguish the project management practices and performance evaluation of vendors in developed and developing sector. Also, the point is to investigate the critical point areas and the way toward overseeing success. This is obvious that this explanation will prove to some extent in future also. The structure of the examination is theoretical in nature, including an overall scenario of how an idle scenario can be developed in operational level.

This part gives a review and abridges the extent of the postulation. It clarifies the exploration foundation, the justification for the examination, inquire about targets, investigate questions, look into techniques and extension and constraint of this examination.

This part is devoted to the means and procedure that has been taken after for the assessment of Project Management frameworks in Public Works Department after usage. It likewise incorporates the accumulation of essential and auxiliary information identified with venture execution and aggregate exercises.

3.2 Sample procedure

For the dissertation purpose, two types of data have been collected. These are as follows:

- Primary data
- Secondary data

Primary data were collected from case study projects. Case study research excels at bringing us to an understanding of a complex issue or object and can extend experience or add strength to what is already known through previous research. Case studies emphasize detailed contextual analysis of a limited number of events or conditions and their relationships. Researcher Robert K. Yin defines the case study research method as an empirical inquiry that investigates a

contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used (Yin, 1984, p. 23).

Contextual investigation explores “by” and large answers at least one inquiry which starts with "how" or "why." When utilizing numerous cases, each case is dealt with as a solitary case. Each cases conclusion can then be utilized as data adding to the entire review; however each case remains a solitary case. Watchful separation at the purpose of determination additionally erects limits around the case. Choosing numerous or single cases is a key component, yet a contextual investigation can incorporate more than one unit of installed examination. For instance, a contextual investigation may include investigation of a solitary industry and a firm taking part in that industry. This kind of contextual investigation includes two levels of examination and expands the unpredictability and measure of information to be accumulated and dissected.

A key strength of the case study method involves using multiple sources and techniques in the data gathering process. The researcher determines in advance what evidence to gather and what analysis techniques to use with the data to answer the research questions. Data gathered is normally largely qualitative, but it may also be quantitative. Tools to collect data can include surveys, interviews, documentation review, observation, and even the collection of physical artifacts.

In case of secondary data, I used official website of PWD and some project offices file to collect the information of on-going and completed projects related works of last 06 financial years.

3.3 Collection of Primary data

The information were gathered and put away in numerous wellsprings of proof thoroughly and efficiently, in configurations that can be sorted with the goal that uniting lines of request and examples can be revealed. Renegotiation of courses of action with the objects of the review or expansion of inquiries to meetings might be fundamental as the review advances. Contextual investigation research is adaptable, however when changes are made, they are reported efficiently. Keeping up the connection between the issue and the confirmation is obligatory. The 05 no's of contextual analysis undertakings were identified, data were gathered from division

workplaces. Undertakings are chosen randomly. But it is dependably a superior alternative to direct face to face meet, yet for time and asset limitation, it was unrealistic to gather other real case ventures information.

The 05 projects were initiated by PWD and ran through using Gov. Development fund. All the procurement works have been undertaken following the PPR-2008. But the quality of the projects have not been satisfactory at all (clients satisfaction level is not much high) and mostly none of the projects have been completed on time. So here a root cause analysis has been done to identify the major causes of project failure & performance. The construction management issue came out to find the operational difficulties. The analysis was done through close observation, vendors performance rating, clients observation and complaints if any, reviews of documents, progress reports, project completion reports etc.

3.4 Collection of Secondary Data

Secondary data include printed materials, data which are collected from website of PWD, project offices of PWD, Zone office and official websites of other Public Sector Organizations in Bangladesh. The previous study related to public sector procurement specially in PWD also gave some information regarding gap analysis between before and after situation in field.

Chapter 4

Data Analysis & Discussion

4.1 General

This Chapter portrays the points of interest examination of both the essential and optional information. In different contextual investigation look into, there are two sorts of examination: 'inside case' and 'cross-case' (Eisenhardt 1989, Miles and Huberman 1994, Creswell 1998, Stake 2006). Inside case investigation gives a point by point portrayal of each case and subjects inside it (Creswell 1998); cross-case examination is done to dissect topics over the cases to distinguish likenesses and contrasts (Eisenhardt 1989). In subjective information examination, topics are created that catch and bring together the way of the marvel (DeSantis and Ugarriza 2000). Notwithstanding, it is insufficient to investigate topics as discrete substances – their between connections must be illuminated or the examination will be fragmented (Ayres et al 2003).

4.2 Approach to data analysis

There are no precise guidelines for breaking down subjective information. However, the point is to thoroughly and imaginatively sort out, discover designs in, and inspire topics from information (Burnard and Morrison 1994). There must be rationale behind the investigation and consequently a structure (Yin 1998).Case review examination is, by nature, factious, so it is important that the scientist be reasonable in laying out the contentions and consider contending speculations and proof that would disconfirm what is being looked for. Sofaer expressed, "As contextual investigation specialists, we must be demonstrated wrong; that implies you're a scientist."Test your decisions with "assuming at that point" articulations ("on the off chance that I see x, at that point I ought to likewise observe y"). This may propose extra investigations to seek after. Get criticism from others and test your decisions. Specialists regularly backpedal to their sources to do this and can likewise counsel with different analysts.

Public Works Department constructs various development project works every year for almost all ministries. The overall project initiation to implementation period is sometimes too lengthy and complex that no projects complete within the schedule period. In PWD this happens frequently. Again project performance varies time to time and clients complain about the overall work.To identify the causes of poor quality of works and to know the actual situation in projects

I've collected data from different project offices (as secondary data).The random selection were done. All projects works were constructed by the contractors selected by "Low Cost Tendering Method" in Open Tendering Method followed by PPR-2008.

4.3 Case Study Analysis

- **Generic evaluation & selection**

In table 1 the selected five projects A, B, C, D & E represents 05 different ministry's projects.05 contractors named C1, C2, C3, C4 & C5 were selected by Tender Approving Authority. In each case, All suppliers submit lowest estimate than original official estimate (which remains confidential to suppliers)for the projects. The less amount percentage is sometimes too low & sometimes too high. Project B, C & D the bidding amount is very low, whereas in project A&E bidding amount is near the value of the official estimate.

Table 9: Case projects evaluation & selection

Case study Name	Contractors Name	Project Official Cost (in crore)	Contractor's bidding (in crore)	Amount less (in crore)	% less than official cost
Project A	**C1**	**22.46**	**22.29**	**0.17**	**0.75%**
Project B	**C2**	**112.55**	**100.28**	**12.27**	**10.90%**
Project C	**C3**	**47.78**	**42.38**	**5.4**	**11.30%**
Project D	**C4**	**28.33**	**23.44**	**4.89**	**17.26%**
Project E	**C5**	**99.51**	**99.49**	**0.02**	**0.02%**

Here comes the "quality issue". In projects B,C &D the contractors may need to cut down quality of materials to perform work at lower cost. When he goes for lowering then the standard of works will surely fall. As a result it will affect overall project performance. Client dissatisfaction arises. After handover they complain about the work quality. Whereas In case of Project A&E the contractors can focus on the 1st choice items for performing construction work, because he has no issue to remain price lower.

- **Projects acceptable Range:**

Again in Table 2, it shows the projects, in which bidders submitted tender value are beyond/within the reasonable acceptable limit. CPTU guideline states that the bidding amount that show above or below 10% of official amount during tender evaluation method will not be accepted for evaluation or recommendation. The tenders are considered as non-responsive for that specific work. The reason behind these addendum is that the contractors sometimes intentionally provide too much lowest bid for getting the final selection for the projects, which adversely effects the projects. They perform their construction works with poor workmanship and compromising with quality. As a result project outcomes do not become satisfactory to clients. Again it decreases the service period of those projects. That's why contractor's selection is very much important.

Table 10: Projects acceptable tender value limit

Case study Name	**% less than official cost**	**Total amount variation limit (Max 10%above or 10% less from official cost)**
Project A	**0.75%**	**within limit(<10%)**
Project B	**10.90%**	**beyond limit(>10%)**
Project C	**11.30%**	**beyond limit(>10%)**
Project D	**17.26%**	**beyond limit(>10%)**
Project E	**0.02%**	**within limit(<10 %)**

- **Front Loading in Cases**

Generally suppliers quote prices for each item of civil works, sanitary works & internal-external electrification works. The total value is considered for selecting eligible and responsive tenders. But in some cases it has been seen that they quote too low prices or abnormal prices for some items which are called "front loading item". There is a huge gap between the original market price of that item with quoted item price. The reasons behind this is that for getting that particular contract suppliers focus on total tender value keep minimum, cut down some items price abnormally. Again another reason behind it is that they want to make a maximum profit within a short period of time after projects start. They will simply slower the project work after getting enough amount of bill. It give them advantage that they will get into another project work at the same time leaving the current project work incomplete. Again another reason is they can't continue their works due to lack of technical inefficiency and insolvency. As a whole projects are delayed, remain incomplete.

In table 3, it is seen that in all projects A, B,C,D & E they quoted abnormal prices within 1st 40 items. The percentage of item may be low but value is huge. All those items cover maximum cost of that project. A pareto analysis can be done to know the actual situation.

Table 11: BOQ Front Loading

Case Project	Total tender item no (Civil+Sanitary+E/M works)	Front Loading item no(upto)	% of item	Cost of item (in crore)	% of cost	Total project Cost (in crore)
A	**105**	**22**	**20.95**	**15.4**	**69%**	**22.29**
B	**206**	**45**	**21.84**	**82.30**	**82.07%**	**100.28**
C	**129**	**12**	**9.30**	**5.33**	**12.57%**	**42.38**
D	**116**	**5**	**4.31**	**7.60**	**32.42%**	**23.44**
E	**50**	**18**	**36**	**80.52**	**80.93%**	**99.49**

- **Front loading level:**

- At table 4, in project A 20.95% item out of total (100%) item value represents 69% cost of total project value. Here front loading risk is nearly high because contractors will get 2/3rd bill after performing 70% work done. His profit level will become high enough not to continue with rest of work.
- In project B, 21.84% item represents 82.07% cost of official estimate. It directly expressed with Pareto Analysis where 20% or more item represents 80% value of work in this project contractor slow the work after fabrication of reinforcement of the proposed infrastructure. Because rest brick walling and finishing work poses low value than up to RCC work. So at this stage project works delay. As a result project cannot complete o time.
- In project C&D the front loading value is not significant. There cannot be high possibility of contractor fraudulent activity during implementation
- In project E high front loading affect total project work just like in project B

  So the cumulative amount up to the front loading item represents a significant value of total project cost. Front loading item normally shown in reinforcement, earthwork excavation & in finishing item. A guideline may be given to justify the level or limit of front loading during evaluation process. Here in the project A, B& E front loading level is very high, that project is in the high risk zone. Project C & D is in Low level zone & there is low possibility of performance failure during construction.

Table 12: Front loading point/level

Case Project	% of item	% of official cost/Front Loading value	Critical point/Front Loading Zone	Front Loading level
A	20.95	12.66	After full RCC fabrication	High
B	21.84	10.80	After 50% of RCC work	High
C	9.30	1.2	After foundation work	Low
D	4.31	0.5	During Excavation work	Very Low
E	36	15	After full superstructure work(without finishing work)	High

- **Guidelines: Nill/Very low: 0 to 1(%); Low:> 1 to 3; Medium: >3 to 5; High: >5**

  - **Projects delay causes:**

There are a no of causes for project delay and project failure. After studying some cases data, discussion with some field officials of projects and overall observation the possible causes found are funding problem after 40 to 50% work done, delay of project start, front loading, poor contract management, lack of co-ordination between suppliers & buyers, unethical intensions of contractor etc. These all are common in almost all projects in public sector projects. As a result project work slowdown, it can't be completed within time, complexity issues arise, quality of work falls, clients become dissatisfied, overall implementing agency(here PWD) lose their reputation and trust to their clients. Again due to some contractual obligations buyers cannot directly take actions against suppliers. Variation problem occurs due to change in drawing, design, original quantity increase/decrease, soil condition, improper maintenance of measurement book(MB) etc. Again if suppliers are not financially solvent then project work delay. All these possible reasons are behind a non completion of project on time.

Table 13: Causes of Delay

Contractors Name	Major anticipated causes of failure/Delay			
	1	2	3	4
C1	Front Loading	Change of Design & Drawing	Poor Construction Management	Contractors financial insolvency

C2	**Front Loading**	**Delay of Project start**	**Contractors manpower shortage**	**Non-cooperation with Procuring agency(PWD)**
C3	**Fund Problem**	**Change of Drawing & Design**	**-**	**-**
C4	**Clients Demand change**	**poor leadership skill**	**-**	**-**
C5	**Poor Quality Management**	**Time constraint**	**Fraudulant Practices**	**-**

In case of C1, C2 and C5 there were major complications arise in projects, as a result project time overruns adversely. Whereas in case of C2 & C3 the complications were not that much severe to delay the projects work.

- **Project period variation:**

In case of project A & B, it takes too long to complete due to the reasons described in previous tables. Project A is delayed by 03 years and B by 04 years. As a result the following clients were not satisfied with the implementing authority & contractors. They had to invest more to complete the projects. Project C and D did not face any major restraints for 01 year overrun. So clients were almost satisfied, they will prefer that specific supplier for next time if required. Again project E had to face much for delaying of 3 years because it was a big project. Here contractors did some unethical means; therefore they faced huge complaints/pressure from clients. Ultimately project was completed, but it became a burden for clients to overrun the projects with the same contractor. Market prizes were also high, and then the final work done amount will become so high than the expected amount.

Table 14: Time lapse between planned & actual project period

Case Project	Contractors Name	Planned Project period (in years)	Original completion time (in years)
A	**C1**	**03**	**06**
B	**C2**	**02**	**06**
C	**C3**	**03**	**04**
D	**C4**	**05**	**06**
E	**C5**	**04**	**07**

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- **Clients Satisfaction**

Due to projects delay and cost overruns clients were not at all satisfied. They prefer average rating of construction works due to excessive time though in some case the work quality were high. But if clients cannot get theirs desired product on time, they will not further purchase from that specific supplier. Again Cost variations were almost high that clients had to manage excess fund which is not that easy due to some administrative rules & regulations of project.

Table 15 : Clients satisfaction

Case Project	Total projects period	Cost variation (by %)	Clients Satisfaction
A	**2013-2016**	**30%**	**Not Satisfactory**
B	**2010-2016**	**35%**	**Not Satisfactory**
C	**2015-2016**	**15%**	**Satisfactory**
D	**2013-2014**	**12%**	**Satisfactory**
E	**2012-2016**	**55%**	**Not Satisfactory**

For all cases where front loading is identified, performance guarantee can be imposed higher to10% than usual 5%.If it is set then contractors may become more liable to perform the work. Again if in selection process they are selected based on their previous quality of works, clients rating and capacity then the projects have low possibility of becoming unsuccessful.

Chapter 5

Conclusion & Recommendation

5.1 Conclusion

In the wake of examining diverse contextual analysis ventures outline data, some new measurements have been turned out seriously. A fruitful finished venture is the result of dealing with all challenges and issues and builds up a solid trust between the related partners of the project. The customary venture administration rehearses need to change that is, vision of the tasks ought to concentrate on "maximum quality with lowest price" to clients instead of simply selecting the venture with minimum cost (due to budget constraint), compromising quality issue.

"Supplier selection" is one of the imperative parts; from case it is obvious that none of the vendor's ventures were completely competent enough to perform work successfully on time. Again "front loading" is one of the root recognizable proofs of provider's expectation towards finished undertakings or he has the aim just to profit after the 25% to 30% advance of works. The open obtainment Rules 2008 is the pattern of playing out any govt. projects. The controls are forced for the best outcome. At present, with the accomplishment of innovative advancement, projects activities, management method has been changed. The appropriate usage of PPR-2008 is an unquestionable requirement and itemizing of every occasion ought to be included, updated for accomplishing most noteworthy standard level.

5.2 Recommendation

Based on the analysis of the collected information and on international practice, some practical measures are recommended for better implementation of public sector projects in Bangladesh:

Training programs

- It is prescribed to create HR in the development business through appropriate and nonstop preparing programs about development ventures execution. These projects can refresh their insight and can help them to be more comfortable with venture administration procedures. It is wanted to create and enhance the administrative aptitudes of architects keeping in mind the

end goal to enhance execution of development activities. The majority of that can be executed by offering viable and proficient instructional classes in advanced technology, time, cost, quality, wellbeing, efficiency, data frameworks and administration of HR.

- **Recommendations for implementing agency**

Public organizations who are responsible for implementation of projects, are recommended to work diplomatically and collaborate with contractors because each of them are vital in projects work. The ultimate goal can be to maintain good relation for future purpose also. As the contractors make profits, at the same time they should consider the quality issue seriously.

- **Recommendations for Clients**

Our PPR-2008 follows such regulations where clients don't have any direct relation with contractors. So they change decisions sometimes all of a sudden. So they should made their demand before work starts to avoid conflict issue with contractors later due to various changes in field. Again should have enough funds to funding any projects through its full period.

- **Recommendations for contractors**

For contractors, it should keep in mind that appointing sub contracting is beneficial as well as risky. Sub contractors are to be monitored regularly during project period, otherwise work wont be done according to design and planning and quality will fall drastically. Contractors should not engage politics in professional purpose. Contractors should maintain enough liquidity to run 2/3 projects at a time. Quality must not be compromised with anything. Again timely completion is another trademark for contractors.

- **Supplier Selection process**

In supplier selection process the traditional least cost based selection (followed by PPR-2008) is not appropriate in some cases to identify right contractor rather it should focus on "Value for Money" which can ensure delivery of services with best quality at least cost.

- Overall public sector project management system should go for "Benchmarking" to reach a standard , performance evaluation & set the proper KPI's to monitor performance.

- The e-GP can be a better solution to select the suppliers to ensure transparency.
- The implementing agencies should go for legal actions when performance falls badly and to avoid fraudulence.
- The monthly progress report should be analysed properly and informed higher authority (if needed) to run the project smoothly.
- The tendency of time delay, cost and quantity overrun should be minimum by performance rating system, KPI, appraisal time to time by following the rule of PPR-2008 strictly.
- Overall the focus should not be only on the Project performance and implementation period, but also post performance period/construction management period to get benefit throughout service life.

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