MANAGING RISKS IN PUBLIC PROCUREMENT IN BANGLADESH:
A Case on Public Works Department

A Dissertation by
RAHUL GUHA

Submitted in partial fulfillment of the requirement for the degree of
Masters in Procurement and Supply Management

BRAC Institute of Governance and Development (BIGD)

BRAC University

Dhaka, Bangladesh

December 2018

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CERTIFICATION OF ACCEPTANCE

This is to certify that Rahul Guha, MPSM ID # 16382016, has completed his dissertation entitled '**Managing Risks in Public Procurement in Bangladesh: A Case on Public Works Department**' under my supervision. He has completed the report as a partial fulfillment of the requirements for the degree of Masters in Procurement and Supply Management (MPSM) in the BRAC Institute of Governance and Development (BIGD), BRAC University.

The report has been prepared under BRAC University's guidelines and is a record of the genuine work carried out successfully.

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DECLARATION

I hereby declare that I am the sole author of this dissertation and this dissertation or any part of it has not been submitted anywhere for the award of any degree or diploma.

I do authorize the BRAC Institute of Governance and Development (BIGD) and the BRAC University to lend this dissertation to other institutions or individuals for the purpose of scholarly research.

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ACKNOWLEDGEMENT

First of all, I want to express my deepest gratitude to the Almighty for enabling me to complete this research work successfully.

I am deeply indebted to and wish to express my utmost gratitude to my supervisor, **Mohammad Sirajul Islam,** Senior Research Associate, BRAC Institute of Governance and Development (BIGD), BRAC University for his continuous support, generous help, constructive comments and invaluable suggestions throughout the progress of the dissertation work.

I would like to acknowledge the cooperation of officers and staffs of BIGD, BRAC University especially **Md. Zahirul Islam**, Training Officer, BIGD, BRAC University for his continuous support during the whole study period.

I would also like to convey my special thanks to the respondents of Public Works Department (PWD) i.e. Executive Engineers & Sub-divisional Engineers of different districts of PWD who helped me at various stages of data collection and provided other official support.

Finally, I want to express my gratitude to my parents, my wife **Sushmita Chowdhury**, and my colleagues for their continuous encouragement and support during the study.

Rahul Guha

ABSTRACT

Public procurement plays an important role in the socio-economic development of the country. It spends public money to serve the people. To achieve the best product, service or work from public investments, the procurement process must be managed properly and made true competitive. Any type of mismanagement and inefficient handling of procurement activities fails to deliver the expected benefits and damages the reputation of a procurement agency. Therefore, it is imperative for undertaking certain measures to avoid risks and reduce their negative effects in case of the management of public procurement. Risk management enables action to be taken to correct deficiencies and to avoid greater problems in future public procurement.

This research aims to examine the current procurement practices in Public Works Department (PWD) and identify the associated risks in various stages of public procurement cycle including bidding process, selection process of contractors, implementation of procurement and financial management. A questionnaire survey was administered to address the research objectives.

It is observed that PWD is complying with Public Procurement Act, 2006 and Public Procurement Rules, 2008 in its procurement practices and by complying with the Act and Rules, PWD manages risks in early stages of procurement (e.g. in tendering) competently. However, significant drawbacks have been observed in managing the risks such as selection of contractors, insurance, liquidated damage, bill payment, completion time and political interference. Appropriate policies and operational practices need to develop to address these risks. Electronic Government Procurement (E-GP) can be useful in addressing corrupt, fraudulent, collusive and coercive practice effectively. Moreover, the documentation of tender processing is saved in E-GP systems database from where any authorized officer can monitor tender processing anytime. Therefore transparency and accountability is ensured and oversight of procuring entities increases which boosts up risk management process.

Although the scope of the dissertation is limited to exploring the risks based on interviews with procuring entities in PWD's procurement, the findings of this study can provide useful inputs for further detailed study regarding the implementation of systematic structured risk management process in PWD and other government organizations.

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INTRODUCTION

1.1 Background

Risks in public procurement simply are the events that make the procurement process jeopardized and the benefits of the public procurement are not produced as envisioned in the government's procurement legal framework. In Bangladesh, the public procurement risks originated from the failures of the procuring entities to carry out the procurement related activities as stated in the Public Procurement Act (PPA), 2006 and the Public Procurement Rules 2008. As public procurement is a huge activity, risks are everywhere and can occur from a simple error in the activities of development and administration of procurement process or an intentional deviation from the existing legal provision (Ioana Livia *et al.* 2010). The Government of Bangladesh (GoB) is the largest buyer in the country which procures different types of goods, works and services by its different procuring entities (PEs). The GoB has a legal framework to be followed for the procurement process. However, all staff in PE's are not equally efficient and careful in handling the procurement activities according to the rules and regulations. This leads to appearance of risks in the activities of the public procurement process.

The Public Works Department (PWD) is responsible for a range of diverse projects within the public works programme. All involve some degree of risk. Failure to manage the risk can have diverse and serious implications to project outcomes including exceeding project budgets, programme delays, failure to achieve required functional requirements, failure to achieve the required quality requirements and damage to the environment, forfeiting the health and safety of personnel involved in the project, exposure to litigation, damage to the reputation of government department. There is clearly a need to manage the risk in case of undertaking projects. This can be achieved through proactive and systematic risk management. Risk management can help PWD's offices improve their performance in a number of ways. It can lead to better delivery of projects, more efficient use of resources and enhanced project management.

Public Works Department, popularly known as PWD is a government organisation under the Ministry of Housing and Public Works. It is one of the major government organisations that deals with the construction of different infrastructure or physical facilities under delegated procurement from different ministries. The organization's construction work is directly connected to the national programme of development and reconstruction. A strong base of standards and professionalism has been developed in the PWD over the years of experience. PWD constructed huge number of landmark buildings and structures that have architectural beauty.

Once the work is given to the PWD, the client is relieved of such responsibilities as getting the plans approved, acquiring land for Government projects, evaluating bids, appointing contractors, setting material standards, resolving disputes with contractors, arbitration and going to court. In short, the whole project becomes the responsibility of the PWD. In the entire procurement cycle i.e. from project planning, implementation and handing over of the project to the concerned ministry, PWD has to face different types of risks since all projects have their inherent or internal risks and some are also from external environment. It is worthwhile to assess how PWD is coping with the risks and how much these risks have impacted its construction management activities.

1.2 Scope of the Study

The research will focus on the procurement activities and their associated risks performed by Public Works Department (PWD), Bangladesh, which is a large government organization dealing with infrastructural projects. PWD has huge revenue and development budget each year that is directly related to the procurement activities especially in procurement of works. This study examines the risks within PWD’s procurement and its management strategies with an ultimate goal to propose a framework for promoting risk management and contingency planning in the procurement process.

1.3 Objectives of the Study

This study has focused on the following objectives:

- To examine the various types of procurement of PWD
- To assess the impact of Procurement risks in PWD's projects
- To identify existing risk management practices and
- To derive recommendations that can help overcome these risks.

1.4 Methodology of the Study

In order to achieve the study objectives set out in the above, the methodological procedures are described as follows:

- A conceptualisation of risk in public procurement
- An extensive literature review was carried out on the topics relevant to the subject including a large number of reports, papers, articles, internet resources etc. By studying those documents, different types of procurement risks and their management system had been understood.
- A questionnaire survey was conducted among the officials of the different divisions of PWD to identify current risks and their management practices in PWD.

1.5 Limitations of the study

The limitations of this study have come from both its scope and its methodology. Survey was confined to PWD Headquarters and different district offices in the country. On the other hand, the number of projects taken under this research is very few compared to the volume of work that PWD does.

1.6 Organization of the study

The present study has been divided into five chapters.

Chapter One includes the background of the study, objective, methodology and limitations of the study.

Chapter Two deals with the literature review which includes procurement methods in public sector, general procurement systems, risks in procurement, risk management,

benefits of risk management, risk management process and other relevant topics required to understand the current research work.

Chapter Three includes the data collection procedures, sampling method and sample size, selection of study area and analytical framework of the study.

Chapter Four presents the findings of the survey and analyses the results on the implementation of risk management system.

Chapter Five concludes the report with some specific recommendations and directions for further research.

CHAPTER TWO

LITERATURE REVIEW

The present risk management scenario of Public Works Department shows that the existing risk management procedures are not sufficient to keep pace with growing procurement risks. An efficient risk management system is essential to overcome the risks in PWD. This chapter deals with based on the previous studies on risk management, different risks in procurement, their probability of occurring, their consequences or impact if they occur and effective risk management procedures to overcome the risks.

2.1 Public Works Department (PWD)

Public Works Department (PWD), under the Ministry of Housing and Public Works, is the pioneer in construction arena of Bangladesh. Over about two centuries, PWD could successfully set the trend and standard in the country's infrastructure development. It plays a pivotal role in the implementation of government construction projects. It also undertakes projects for autonomous bodies as deposit works. Public Works Department has highly qualified and experienced professionals forming a multi-disciplinary team of civil, electrical and mechanical engineers who work alongside architects from the Department of Architecture. With its strong base of standards and professionalism developed over the years, PWD is the repository of expertise and hence the first choices among discerning clients for any type of construction project in Bangladesh. Besides being the construction agency of the Government, it performs regulatory function in setting the pace and managing projects for the country's construction industry under the close supervision of the Ministry of Housing and Public Works. (www.pwd.gov.bd).

The contribution of PWD encompasses the entire spectrum of physical and social infrastructure for national development, national security and international relations. Its activities span the length and breadth of the country including remote areas and difficult terrain. The main responsibilities of PWD are shown in following list. It may be mentioned here that the architectural plans and designs of almost all Government

infrastructural projects are done by the Department of Architecture in close consultation with PWD. PWD's main responsibilities are-

- Construction of buildings for other agencies on a deposit work basis
- Maintenance of public parks
- Preparation of book of schedule of rates and analysis of rates for construction and maintenance of public buildings
- Design and construction of public buildings except those of RHD, T&T, Postal Department
- Construction of national monuments
- Repair and maintenance of public buildings
- Preparation of book of specifications and code of practice
- Acquisition and requisition of land for construction work
- Procurement of materials and equipment required for construction work
- Valuation of land and property and fixing of standard rent

It can be said that PWD mainly deals with the construction projects and therefore the risks associated with the department are mainly procurement risks of works.

2.2 Defining procurement and risks

2.2.1 Procurement

The Association for Project Management (APM, 1995) describes procurement as "the process of acquiring new services or products. It covers the financial appraisal of the options available, development of the procurement or acquisition of suppliers, pricing, purchasing, and administration of contracts. It may also extend to storage, logistics, inspection, expediting, transportation, and handling of materials and supplies."

United Nations Development Programme, (UNDP, 2008) defines procurement as overall process of acquiring goods, civil works and services which includes all functions from the identification of needs, selection and solicitation of sources, preparation and award of contract, and all phases of contract administration through the end of a services-contract or the useful life of an asset.

In the Public Procurement Act 2006 of Bangladesh the term ‘procurement’ itself has been broadly defined to include purchasing or hiring of goods or acquisition of goods through hiring and purchasing, execution of works and performance of any services by any contractual means.

2.2.2 Risks

Risk is defined by Chartered Institute of Procurement and Supply (CIPS) as ‘the probability of an unwanted outcome happening’. Probability is the measure of the likelihood that a given event or result might occur. The International Standard on risk management (ISO: 2009) defines risk simply as ‘the effect of uncertainty on objectives’. (CIPS, 2012; p.2)

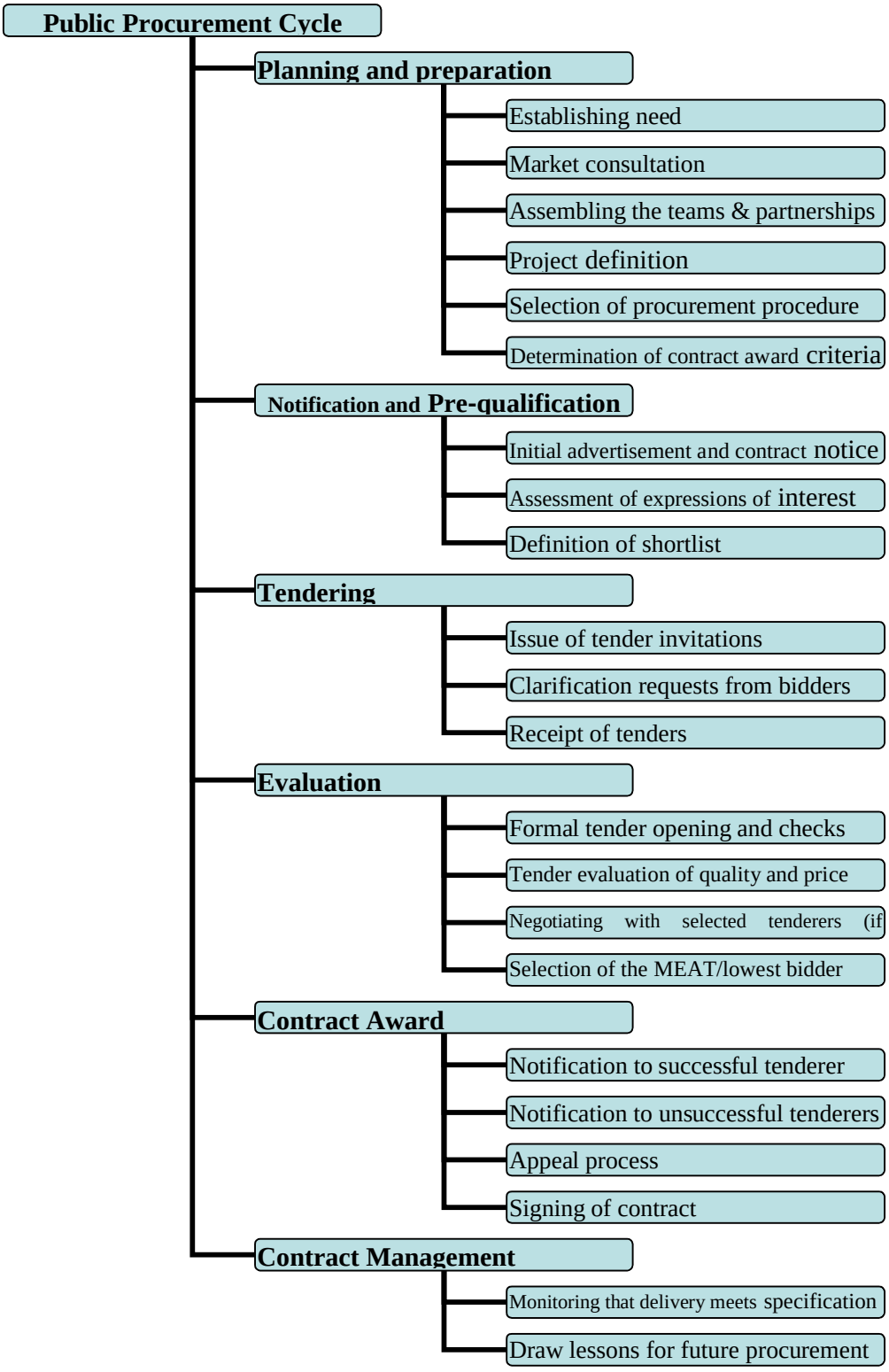
The Project Management Institute in their book ‘Project Management Body of Knowledge’ defines risk as an uncertain event or condition that, if it occurs, has an effect on at least one project objective (PMBOK, 2008; p.275). Several definitions for risks and project risk have been proposed by different authors over the years. The concept of risk as argued by Ehsan et al. (2010) is multi-dimensional with Hansson (2002) categorising risk definitions into technical and non-technical. The latter contends that, the non-technical definition of risk refers to ‘the situation in which it is possible but not certain that an undesirable event will occur’. The technical definition of risk by the author is ‘the statistical expectation value of unwanted events which may or may not occur’.

2.3 General Procurement System

The procurement strategy adopted ensures the identification of the best possible way of achieving project objectives and value for money (Onosakponome et al. 2011). The aim of a procurement strategy is to achieve the optimum balance of risk, control and funding for a particular project. Procurement strategy is one of the important parts of a project, it helps to fulfill the project requirements successfully internally as well as externally. This refers a planned approach of cost effectiveness of purchasing company required. This includes time period for procurement, required funding or budget, project risk and opportunities.

A government project is initiated once it is included in the Development Project Proposal (DPP). After the approval of DPP, the project is included in the annual procurement plan and necessary fund is allocated. Particular procedures have to be followed before commencement of physical work, once decision is taken to implement a construction work. The preparation of architectural drawings is the first step followed by preparation of structural drawings, electromechanical drawings and other related drawings for the proposed construction. On the basis of the drawings, preparation of "Engineer's Estimate" is done. The approval of the same is done by the competent authority. Once the fund is available and approved 'Engineer's Estimate' is available, tender is called. Then the receiving of tender followed by evaluation of the tenders are done by the Tender Evaluation Committee (TEC). On the basis of the evaluation criteria, tenders are evaluated. The next step is approval of tender and thus contractor is selected. Then notification of award (NOA) is given and contract agreement is signed between PE and contractor. After the signing of contract, physical work is commenced based on the drawings, design and agreed bill of quantities. The activities involved before commencement of physical work are shown in Figure 2.1.

Figure 2.1: Phases of the public procurement cycle



Source: Lewis 2003

2.4 National Procurement Laws and Procurement Methods in Bangladesh

2.4.1 Public Procurement Act (PPA), 2006 and Public Procurement Rules (PPR), 2008

The Public Procurement Act, 2006 (PPA, 2006) is the primary legal framework for conducting procurements by the different sectors of Government of Bangladesh (GoB) using public funds. The government of Bangladesh has promulgated this Act to provide for procedures to be followed for ensuring 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 including the matters ancillary (PPA, 2006).

The PPA, 2006 is a comprehensive law of government having a total of 73 Sections covering all aspects of procurement related activities. Based on the Section 70 of the PPA, 2006 the Government has formulated the Public Procurement Rules, 2008 (PPR, 2008). The PPA, 2006 and the PPR, 2008 are complementary of one another. The PPR, 2008 contains a total of 130 Rules, 9 Chapters and 14 schedules. These 130 Rules describe possible all aspects of procurement related activities. The PPA, 2006 and the PPR, 2008 are enacted as a set of complete guidelines for public procurement in the country.

2.4.2 Procurement Methods

The choice of a procurement method is a critical decision that must be taken into consideration in the procurement of infrastructure projects. Procurement risks can be mitigated or exacerbated depending on the method of procurement. There is the need for public procurement entities to understand the risks associated with the choice of a procurement method.

Cartlidge (2009) ascertains that construction in whatever form involves various amounts of risk and the procurement strategy adopted will largely influence the allocation of risk on a project. Different procurement methods have different inherent risks associated with them and will therefore impact differently on project risks (NSW Government, 2008). Acquaye (2011) opines that poor procurement practices as a result of ignorance of the requisite procurement procedures have led to a number of

contract failures. He further contends that, the choice of a procurement method affects the apportionment of risks between the parties during contract implementation.

In PPR 2008, chapter four explicitly captures the various methods of procurement within the public sector in national and international procurement. Other than International Procurement, it identifies five (5) methods of national procurement, namely;

1. Open Tendering Method (Rule 61),
2. Limited Tendering Method (Rule 63),
3. Two Stage Tendering Method (Rule 65),
4. Request for Quotation Method (Rule 69) and
5. Direct Procurement Method (Rule 74)

The choice of a method by the procurement entity is largely governed by the Act. As noted, section 61 (1) of the Act enjoins all procurement entities to procure goods, services or works by competitive tendering as a default method except as provided by the Act. A comparison among usage of different methods is presented in Appendix 1.

2.5 Risks in Procurement and Managing Procurement Risks

2.5.1 Types of risks in procurement

In accordance with the Guidance Note of Government of South Australia (Attorney-General's Department) seven (7) areas were identified as Common Procurement Risk Areas from where the common procurement risks may arise, such as

i. Planning and Preparation
ii. Product / Services
iii. Procurement Process
iv. - Industry and Suppliers
v. Management
vi. Stakeholders
vii. Contract

The United Nations Procurement Capacity Development Centre, Discussion Note (2012) mentioned two sources of public procurement Risks such as Strategic and Operational. In the Strategic source the Political: associated with a failure to deliver government policy; Economic: affecting the organization's ability to meet its financial commitments; Social: relating to delivery of organization's services; Technological: relating to organization's technological capacity; Legislative: associated with current or potential changes in the law; Competitive: associated with the cost, quality or competitiveness of a service; and Customer/citizen: associated with the failure to meet the needs or expectations of customers or citizens. Actually the strategic risks are related to the constitution of the procurement legal framework. To manage the risks in the public procurement is operational activities and the procurement entity is responsible to manage these risks. They described total seven operational risks such as: Professional: associated with the practice of procurement; Financial: associated with failure to secure a most economically advantageous procurement outcome; Legal: related to a breach of legislation; Physical: related to health, security, accident prevention; Contractual: associated with the failure of contracts to deliver goods, services or works to the agreed cost and specification; Technological: relating to the reliance on operational equipment and Environmental: relating to pollution, noise or energy efficiency of on-going operations. Some potential risks may occur in the public procurement activities arise from the activities of Corruption or Fraudulent or Collusive and Coercive (CFCC) practices by the involved parties and or socioeconomic or socio-political conditions.

For procurements of goods and works, the Government of Bangladesh has prepared the Standard Tender Documents (STDs) and for procurements of Services, Standard Request for Proposals Documents (SRFPs) as the operational tools of the PPA, 2006 and the PPR, 2008. In practice these STDs and the SRFPs are standardized by the GoB for preparation of real Tender Documents (TDs) and real Request For Proposal Documents (RRFPs) for particular procurements done by all the public sector agencies using public funds.

In accordance with the STD PW3 (the PW3 is the Standard Tender Document for the Procurement of Works with a value up to Taka five hundred (500) million applicable only for national procurement) the definitions of CFCC are such as:

- "**corrupt practice**" means offering, giving or promising to give, receiving, or soliciting either directly or indirectly, to any officer or employee of the Procuring Entity or other public or private authority or individual, a gratuity in any form; employment or any other thing or service of value as an inducement with respect to an act or decision or method followed by the Procuring Entity in connection with a Procurement proceeding or Contract execution;
- "**fraudulent practice**" means the misrepresentation or omission of facts in order to influence a decision to be taken in a procurement proceeding or contract execution;
- "**collusive practice**" means a scheme or arrangement between two (2) or more persons, with or without the knowledge of the Procuring Entity, that is designed to arbitrarily reduce the number of tenders submitted or fix tender prices at artificial, non-competitive levels, thereby denying the Procuring Entity the benefits of competitive price arising from genuine and open competition;
- "**coercive practice**" means harming or threatening to harm, directly or indirectly, persons or their property to influence a decision to be taken in the procurement proceeding or the execution of a contract, and this will include creating obstructions in the normal submission process used for tenders.

2.5.2 Risk Management

The works of Uher (2003) as cited by Zou et al (2006) describes risk management as - a systematic way of looking at risk and consciously determining how each should be treated. It is a management tool that aims at identifying sources of risk and uncertainty, determining their impact, and developing appropriate management response. Tadayon et al (2012) defines risk management to include identifying risks, assessing risks either quantitatively or qualitatively, choosing the appropriate method for handling risks, and then monitoring and documenting risks'.

There are many risks involved in every step of the public procurement process as the whole nation has stake with it. This is because the PPA, 2006 has included some of the tools to mitigate the risks may arise in the implementation stages of the public procurement process such as corruption, fraudulent, collusive and coercion practices

(CFCC), developing clear specifications, selection of procurement methods, drafting contract terms and conditions etc. and developing contingency plans.

Management of risks is an integral part of good project management practice. Learning how to manage risk enables government employees to improve outcomes by identifying and analyzing a wider range of issues and proving a systematic way to make informed decisions. Thus by implementing a systematic project risk management process on Government projects, a number of consequential benefits can be ensured. These include:

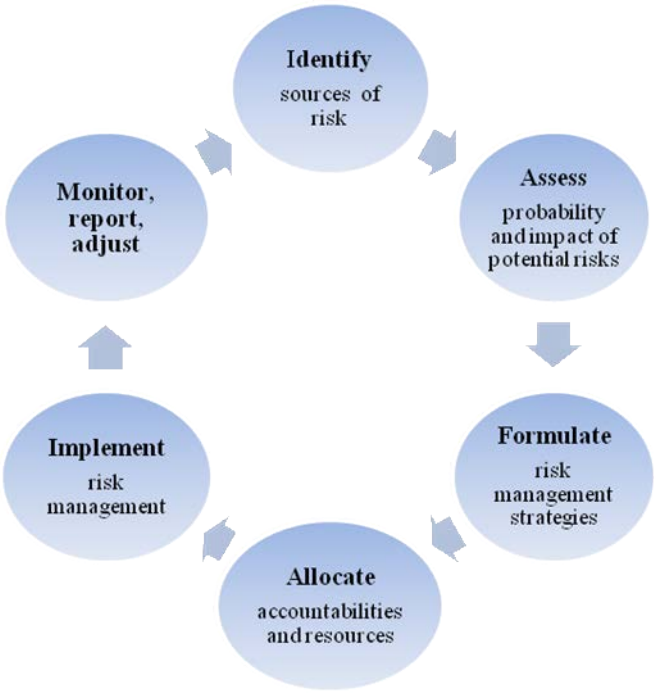
· Improved planning, performance and effectiveness
· Improved information for decision making
· Greater time and cost certainty
· More efficient use of resources
· Enhanced quality of output
· Improved communication and stakeholder relationships
· Exploitation of opportunities
·Greater certainty in delivery, and the effective realization of required project outcomes
· Objective comparison of project options
· Optimal placement of risk
· More effective management of change
-Enhanced reputation.
(Risk Management User Manual, 2005)

2.5.3 Risk Management Process

Risks can be characterised by (a) their nature and origin, (b) the likelihood of them occurring and (c) the potential consequences. Risk management is a process that has to deal with all these properties.

The ‘risk management cycle’ is an expression of the continuous process of risk monitoring and management, portrayed as a cycle in Figure 2.2

Figure 2.2 The risk management cycle



Source: Chartered Institute of Procurement and Supply, n.d.

The basic dimensions of risk management are to identify and reduce risks, mitigate the potential costs and allocate responsibilities for those dimensions. The identification is actively pursued through studies, information and hiring of expertise. Initial information may point at the need for additional knowledge to further reduce risks Risk reduction can be achieved through more accurate information, while mitigation is faced with alternative scenarios, early warning and contingency plans. It is important that risk be managed as explicitly and as professionally as possible keeping in mind that it can never be eliminated entirely. However, in-depth work on public procurement and risk management is scarce. Against this background, and on the basis of the above definitions of risk, there are three major tasks for risk management:

1. Define and assess risks and reward for all partners involved at the various stages of the procurement process, including

- ✓ nature (kinds of risks) of risks, which may change during the various procurement stages,
- ✓ causes and sources of risk,
- ✓ likelihood of risks to occur,

- ✓ potential consequences of risk occurrence

2. For each risk, take action to avoid or reduce the likelihood of risk (Bannerman, 2007) and allocate responsibilities to take action to reduce the likelihood,

3. For each risk, define action to mitigate the potential consequences and allocate who bears the cost of mitigation and the reduced benefits (contingency plan, i.e. 'having in place a corporate and systematic process for evaluating and addressing the impact of risks in a cost effective way' (NAO 2000, p.2)

Banaitiene & Banaitis (2012) identifies four (4) key steps in the management of risk confirming the works of Zou et al (2006);

1. Risk identification,

2. Risk assessment,

3. Risk mitigation,

4. Risk monitoring.

a. Risk Identification

Risks identification is the first and most important step in any risk management process (Banaitiene & Banaitis, 2012). This process involves the determination of the most likely risks that can occur on a project and documenting their characteristics (Ehsan et al, 2010). Buertey et al (2012c) posits that, ―due to the importance of the risk identification process, this process should begin at the project planning phase to help with the early identification of potential risk on the project.

b. Risk Assessment

Risk analysis is the second stage in the risk management process where collected data about the potential risk are analysed. Risks assessment on project can be done qualitatively or quantitatively. As noted by Gajewska and Ropel (2011) the qualitative methods are most applicable when risks can be placed somewhere on a descriptive scale from high to low level. The quantitative methods are used to determine the probability and impact of the risks identified' (Gajewska & Ropel, 2011).

Risk is often quantified using the basic formula:

Risk = Likelihood (probability) x Impact (adverse consequence)

Risk likelihood is the probability of occurrence, given the nature of risk and current risk management practices. This may be expressed as a number between 0 (no chance) and 1 (certainty) or as a percentage (100% = certainty), a score (1-10) or a rating (low-medium-high). The more likely the risk event is to occur, the higher the overall risk and the higher priority risk management will be. Risk impact is the likely loss or cost to the organization or the likely level of impact on its ability to fulfill its objectives. The severity of impacts may be quantified (e.g. in terms of estimated cost or loss), scored (1-10) or rated (low-medium-high). A simple risk or impact assessment can be performed by using a matrix or risk map on which threats and hazards can be plotted according to (a) the likelihood of their happening and (b) the seriousness of their effect if they do happen. Chartered Institute of Procurement & Supply, n.d.

c. Risk Mitigation

There are four alternative strategies as suggested by Banaitiene & Banaitis (2012) in taking risk mitigating measures. These are risk avoidance, risk reduction, risk transfer, and risk acceptance. According to course book named Managing risks in supply chains, Chartered Institute of Procurement and Supply, risk mitigation strategies are often classified as the Four T's:

- ✓ Tolerate (or accept) the risk: If the assessed likelihood or impact of the risk is negligible (or there is no viable way to reduce the risk), no further action may, for the moment, be required, or justified (on a cost-benefit or business case basis). The risk may simply be acknowledged and registered or it may be flagged for monitoring and periodic re-evaluation, in case the likelihood or impact of the risk escalates to the defined threshold for acceptable exposure.
- ✓ Transfer (or spread) the risk: e.g. by taking out insurance cover, or not putting all supply eggs in one basket or using contract terms to ensure that the costs of risk events will be borne by supply chain partners (e.g. by clarifying liability for risks at all stages of the contract, using liquidated damages clauses, insisting on supplier insurances, or sharing responsibility for risk monitoring as part of the contract management process.)

- ✓ Terminate (or avoid) the risk: if the risk associated with a particular project or decision is too great, and cannot be reduced, the organization may consider not investing or engaging in the activity or opportunity.
- ✓ Treat (mitigate, minimize or control) the risk: take active steps to manage the risk in such a way as to reduce or minimize its likelihood or potential impact or both. In relation to supply risk, this may involve measures such as: supplier monitoring and performance management, codes of conduct, supplier certification or pre-qualification, critical incident and/or variance reporting analysis, contingency and recovery planning (e.g. alternative sources of supply) and so on.

d. Risk Monitoring

Ehsan et al (2010) noted that in the management of risk on construction projects, both avoidable and unavoidable risk should be monitored and contingency plans put in place. Predictive indicators should be adopted to monitor risk as the project approaches a risky point. Alternative courses of action in the form of contingency plans should be prepared before the risk event occurs. The most common contingency plan is to set aside extra money, a contingency fund, to draw on in the event of unforeseen cost overruns. However, contingency plans can be expensive since they act as a form of insurance on the project. (Ehsan et al, 2010).

2.6 Major Clauses/Terms in Tender Document

PPA, 2006 and PPR 2008 along with Standard Tender Document (STD) published by Central Procurement Technical Unit (CPTU) is the strategic risk mitigation tool for the public procurement in public sector of Bangladesh. Some of the clauses and terms that are usually used in tender document (as practiced in PWD) are as follows:

- Liquidated damage clause
- Termination clauses
- Force majeure clause
- Time extension provision

 Insurance

 Settlement of disputes

 Price adjustment

 Inspection and tests

Robust risk-management is not at all present in public procurement practices in Bangladesh. In common practice, sufficient performance security is retained from the supplier. Litigation history of the supplier is also considered during evaluation. Considering this, data is collected about risk factors of early stages of procurement, during execution stages of procurement and completion stages of procurement. Some examples of risk management is as follows

Risk Identification		**Risk Assessment**		**Risk**	**Remarks**	**Risk Management**
		Likelihood	**Impact**			
Properly advertised or not	Yes	0	0	0	No risk	
	No	5	5	25	Corrupt practices may happen if not advertised properly.	Treat
Easily accessible to bidders	Yes	0	0	0	No risk	
	No	5	8	40	1) Corrupt practices may encourage 2) Bidders may bid higher price resulting in cost overrun.	Treat
Insurance coverage	Yes	0	0	0	Risk event can be compensated.	
	No	5	7	35	Compensation	Transfer

					cannot be taken in case of accidental coverage.	

A questionnaire survey is designed considering these types of different procurement risks and their management which is appended in Appendix 2.

The chapter provided insight into the works of previous researchers in the domain of works procurements, general procurement systems that are commonly encountered in the procurement of works and the various procurement methods commonly used in the procurement of works in PWD.

CHAPTER THREE
DATA COLLECTION

In this chapter the data collection procedure is described. A questionnaire with open and close ended questions is prepared which has been administered among PWD's procurement officials in order to identify risk responses in procurement activities.

3.1 Questionnaire design

Since this study focuses on analyzing different approaches of risk management in PWD's procurement, questionnaire survey is undertaken for assessing procurement risk. Findings collected from survey questionnaire are analyzed by using statistical tool on computer.

Mostly close-ended and some open-ended questions were included in the questionnaire to reveal the real experiences of the respondents. Questions were asked to give respondents' experiences regarding the current practices of risk management, performance gaps, reasons behind such gaps and probable solutions to improve risk management performance. For example, the respondents were asked that if their proposals was advertised in media of wide circulation. Accordingly questions about bid opening, bid selection, insurance, corrupt, fraudulent, collusive and coercive practice etc. were asked and taken in "yes" or "no" form. They were also asked to give suggestions about proper risk management strategies.

3.2 Selection of Study Area

Thirty two PWD district offices were selected for collection of data. Emphasis was given on the on-going development projects of PWD; especially those which are in the middle stage of their implementation. Additionally, some completed projects were considered for data collection.

3.3 Data Collection Procedure

All data pertaining to the study is collected in such ways that the results obtained from the study present the actual situation. The questionnaire survey was conducted

for collecting data from thirty two Sub-Divisional Engineers and thirty two Executive Engineers of PWD, who were working in different working divisions and who were directly related to entire procurement activities (i.e. from project initiation to project hand over to the concerned ministry) of a particular project. Before asking for filling the questionnaire, the general idea of the research objectives were exchanged with them. They were requested to fill the questionnaire based on their experiences of at least two specific projects under his/her territory.

The analysis and integration of collected survey data was combined to describe risk management process and contingency plan for PWD's procurement.

The entire process is depicted below:

Selection of study area

↓

Data collection from PWD professionals through questionnaire survey and interviews

↓

Analysis of survey data to identify the current practices of risk management

↓

Findings and recommendations for improving risk management performance in PWD

CHAPTER FOUR

FINDINGS AND RESULTS

In this chapter the collected data on existing risks of procurements, and risk management are analyzed and presented. During data analysis, bar charts and pie charts have been used to demonstrate comparison and findings.

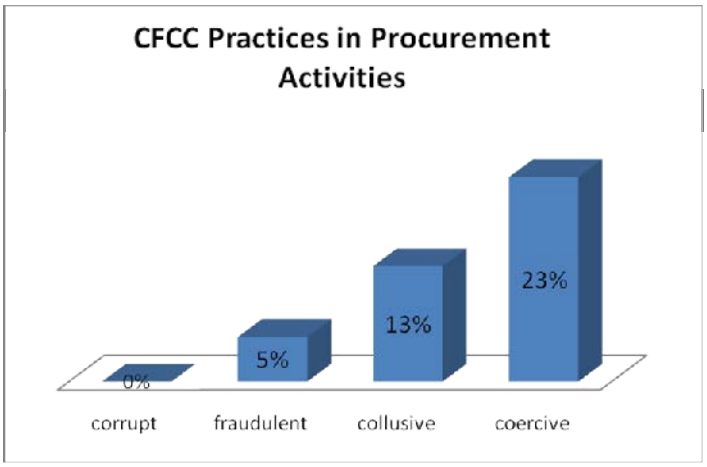
The respondents were asked to fill up three (3) sets of questions, which comprise of total twenty six (26) questions for two projects under his/her jurisdiction regarding procurement activities. Responses were received from nineteen (19) districts out of sixty four (64) districts in the country. Since the respondents provided responses on two projects, data about risks and their management were analyzed on thirty eight (38) projects of PWD.

4.1 Risk Management in tender preparation to submission stage

The question set A comprises of ten (10) questions of early procurement activities in relation to tendering process. From the survey, it is found that all respondents (100 per cent) said that bids/proposals were in line with the advertising principles of PPR such as advertisement in newspapers of wide circulation, which were easily accessible to potential bidders. , Non-ambiguous clarifications related to bidding/proposal documents were provided timely to all potential bidders. Bids were opened in public in the presence of bidders or their representatives immediately following the deadline for bid submission. Number of bids received was reasonable as compared to the number of bidding document purchased/number of pre-qualified bids. Sufficient time was allowed for bid or proposal preparation. Evaluations of qualification was carried out thoroughly and on the basis of the criteria specified in the documents. From these responses, it can be said that risks were minimal in early stages of tendering and this was because of compliance with PPR. Respondents said that introduction of PPR in procurement activities helped reduce procurement risks in early stages. Furthermore, in regards of questions about corrupt, fraudulent, collusive and coercive practices all respondents said that there was no corrupt practice. However, five percent (5%) respondents reported fraudulent practices in procurement activities. In addition, occurrence of collusive practices and coercive activities in the time of submitting tenders was reported by 23% and 13% respondents respectively. These vulnerabilities, according to the respondents, can be addressed through Electronic Government

Procurement (e-GP). In this electronic system any eligible tenderer can submit tender from any parts of the country without any influence or fear which can help manage the risks in the procurement activities. Figure 4.1 presents respondents' reporting to the practices of corruption, fraudulence, collusion and coercion (CFCC) in bid submission.

Figure 4.1: CFCC Practices in Procurement Activities



4.2 Risk Management in tender processing

In regard to selection of tender, all (100%) respondents said that the lowest evaluated bids were selected for works provided that all other criteria of tenderer such as previous experience, liquid asset, turnover, updated license were in compliance with tender documents. When asking about criteria of selection, 92% respondents said that tender should be selected on 'Most Economically Advantageous Tender' (MEAT) rather than lowest bid. However, in case of MEAT basis selection, accountability lies upon procurement entities which create personal responsibilities and risks. Although, in short-term it seems that Government wins in lowest evaluated bid, project costs overrun in the long run. This is mainly due to inability of contractor to handover the project with required quality in time. They recommended that government officials should empower the procuring entities to decide on which criteria should prevail either it is lowest evaluated bid or on MEAT basis. Government audit officials are accustomed with lowest bid evaluation. If tender is selected on MEAT basis instead of

lowest evaluation, the auditing officials find out this selection as illegal activities or corruption against procuring entities. Anticipating the future implications resulted from handling procurement on MEAT basis, the procuring entities do not take the risk and hence prefer to selection of bid on traditional lowest price. It results in ignoring long term benefits from government projects. Thus, there is need for harmonization between modern procurement management techniques (MEAT based bid selection is an example) and audit process. In specific, audit officials need to be given training in this regard. In fact, there should be rules and defined criteria in PPR for evaluation of tender on MEAT basis.

4.3 Risk Management through insurance coverage

In regard of project insurance, 45% respondents said that PWD's projects were not always insured against accidents and other construction hazards. There are specific clauses in tender documents for insurance; however, sometimes the tenderers do not fill up the contents. This portion of tender documents is overlooked when evaluating tenders. There are little records of insurance claim in past. It is a major drawback in risk management of PWD's tender. In this case, the respondents suggested insurance clause be strictly maintained and tender should be cancelled if insurance clause is not properly followed.

4.4 Risk Management through timely payment

Seventy nine percent respondents said that bills of contractors against their work done were paid in accordance with the contractual terms. Sometimes there are records of nonpayment in time which is due to scarcity of fund especially in umbrella and revenue projects. However, most of the time payment is given according to their work done which is positive for risk management in PWD.

4.5 Risk Management in timely project completion

It was revealed that project completion was delayed in case of 60% of the projects (Figure 4.2) and 47% of the projects could not be finished within allocated budgets (Figure 4.3). The reasons of not maintaining project schedules and not completing projects with the first allocated budgets are problems in land acquisition, site difficulties, delay in receiving architectural and structural drawings, unrealistic completion time mentioned in tender documents, negligence of contractor, delay in

taking critical decisions of projects, fund problems, change of finished schedule, political turbulence, fluctuation of materials price etc. Failure to complete work timely and within budget is a major drawback of risk management in PWD. These issues highlighted should be taken care of before initiation of work. In failing, reputation of the Department will be damaged.

Figure 4.2: Completion time of Projects

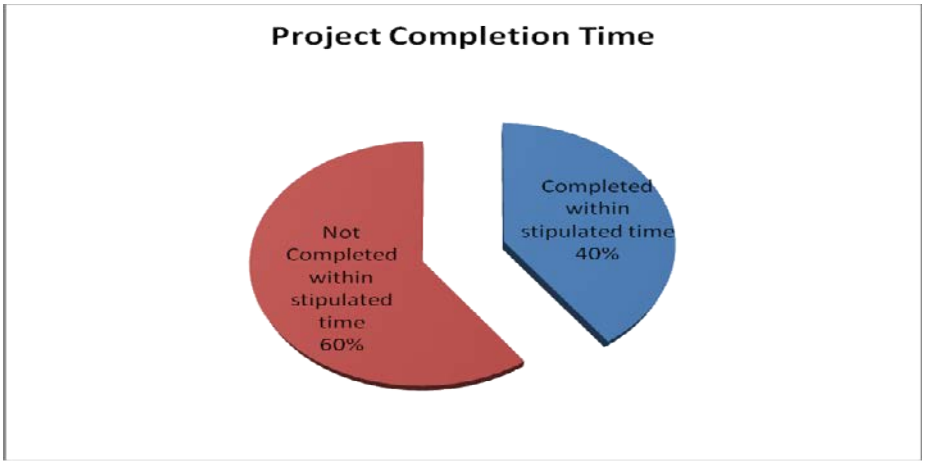
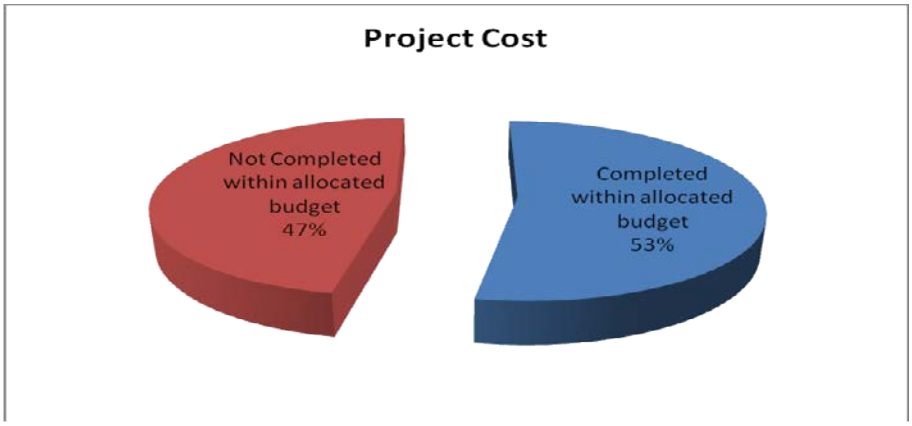


Figure 4.3: Budget Allocation of Projects



4.6 Risk Management through liquidated damage

Sixty one per cent respondents said that they applied liquidated damage in accordance with contract documents if it was proved that delay happened due to negligence of contractor. On contrary, 39% respondents said that it was not always possible to apply liquidated damage because of undue pressures of contractors, political interference,

due to the good sake of projects. Where the procuring entities cannot apply the liquidated damage as per PPR due to undue pressures, it becomes difficult to address delay in completion of work driven by the contractors. Furthermore, contract cancellation and revised tendering process lead to delays in completion of the project.

4.7 Risk Management against political interference

Political interference impacted projects under their jurisdiction, said 26% of the respondents. Sometimes contractor had to give extortion money to local influential peoples for allowing the contractors to complete the work. There are also collusive and coercive practices in tender under influence of political persons. Most of the time, this undue political factor increases risks in smooth completion of projects. Since the political people have power, sometimes it becomes not possible for procuring entity to take legal action against them. Respondents suggest that e-GP may help in reducing this risk significantly. Government initiative and political resistance to this interference may help managing this risk a lot.

4.8 Risk Management through audit

All respondents said in the survey that procurement operations were subjected to regular internal and external audits in their projects. Internally, the audit division of PWD audits all the projects of PWD in regular manner. Moreover, audit from Comptroller and Auditor General Office is also done in each financial year. Seventy three percent (73%) respondents said that audit reports were issued in a timely manner and recommendations related to procurement generally implemented promptly. Therefore, it can be said that risk can be successfully minimized through auditing.

4.9 Risk Management through training

Forty three percent respondents said that proper risk management strategies (i.e. risk identification, assessment, mitigation & monitoring) are not taken in projects of PWD. Sometimes, the projects of PWD are taken on government decision to satisfy people's need. In some cases proper feasibility study is not done for those projects. This creates problems related to land acquisition and project fundings slowing down project work and causing delayed project completion. If the projects are taken on priority basis through proper risk management, those problems may be minimized. Almost all respondents suggested risk analysis be done before taking any project and some cost

should be allocated for ongoing risk management so that the upcoming problems can be successfully encountered. All respondents felt risk management training is necessary to identify and coping with procurement risk. Though some risk management criteria are inherent in PPR and PWD's procurement system, explicit training is necessary for proper risk management in PWD's procurement.

4.10 Risk Management through e-GP

Almost all respondents said that e-GP can help in effective risk management against corrupt, fraudulent, collusive and coercive practice because any eligible tenderer can take part in tender process from any parts of the country without any influence or fear which can help manage the risks in the procurement activities. Moreover, the documentation of tender processing are saved in systems database from where any authorised officer can monitor tender processing anytime. In this way, transparency and accountability are ensured and responsibilities of procuring entities increase which boosts up risk management process.

CHAPTER FIVE

CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusion

The main objective of this paper was to identify the direct and indirect risks in PWD's procurement and to assess how these risks are managed in order to improve the overall procurement performance in Public Works Department. Research objectives were examined by reviewing the scholarly publications, project reports and procurement related laws and rules and through administering a survey questionnaire among the officials of PWD. Key highlights of the study on risk management in PWD's procurement are as follows.

i. PPA-2006 and PPR 2008 have positive impact on the procurement of works in respect of risk management. In fact, the Rules helped reduce time for processing of tenders/bids and also its completion.
ii. Compliance monitoring of PPR 2008 is a vital issue for ensuring good standards and value for money in the public procurement. PPA 2006 and PPR 2008 have led to formulation of guidelines in risk management. Awareness to some extent about PPA 2006 and PPR 2008 has already been developed within the officials and staffs of PWD through mandatory application of PPR 2008 and training that all Government Government owned organisations have to follow these rules without any deviation.
iii. Provision of liquidated damage has helped in timely works completion.
iv. Changes to initial design, problems with foundations, problems in land acquisition, inclement weather, estimating error, labor shortage, shortage of key materials, variation of works, delay in payment, contractor's insolvency, political disturbances, accidents/ health and safety hazards, and fire hazard all these factors expedited overall risks in PWD's procurement of works and careful management of these can help achieve overall risk management in PWD.

5.2 Recommendations

According to the results and analysis of data, the following recommendations can be made regarding the ways to improve risk management in PWD.

i. In assessing the time limit for the completion of any construction project pragmatic procedure should be adapted. The situation of force majeure should be taken into consideration.

ii. Detailed site plan and soil testing should be done at the primary stage of a project. Before floating of tenders detailed drawings of architectural, structural, artistic, sculptural, sanitary, water supply, waste disposal system should be done and based on it cost estimates according to sub-heads be determined.

iii. Sufficient budget allocation and commitment of timely payment are the main motivating factors to get better as well as committed performance from the contractors/suppliers. Since contractors/suppliers often have to take loan from commercial bank at high interest rate, if they do not get payments timely their business will not bring reasonable profit. For this reason, they stop work after making some progress if payment is not given to them for that progress. For making timely payment to the contractor, its smooth flow is required to be ensured.

iv. Liquidity damage clause should be applied vigorously. To avert this damage, periodic meeting between contractor and the authority should be held.

v. Specifications for various items should be drawn according to nature, requirement and usages of the construction. It should always be kept in mind that, during the progress of construction no addition or alteration be happened (any change in given specification cause many complications in respect of unit rate, time frame etc.).

vi. During the process of tender evaluation it is to be looked seriously so that it is done on the MEAT (Most Economically Advantageous Tender) rather than low cost selection.

vii. The necessity of submitting huge number of documents with every tender, irrespective of value of procurement, needs to be changed. A national web portal may be developed where such documents of eligible contractors will be available in electronic form.

viii. Training on procurement risks along with its rules and regulation can be provided right from field level to high level officers. Procuring entities as well as contractors should also be accorded with such kind of training.

ix. E-Procurement system must be implemented in PWD.

x. There is lack of coordination between the architectural department, structural department and the executive division of Public Works Department. Due to lack of effective communication and coordination, the divisions have to do repetitive works. In order to improve the risk management, all departments have to improve the communication process. The department has to introduce the electronic communications like email in order to improve the communication process and in this way significant time, cost and risks can be minimized in the procurement process.

xi. Tender should be floated only after ensuring availability of sufficient fund. This would ensure the timely payment to the contractors.

xii. Liquidated damage clause of PPR 2008 is to be properly applied. The amount of liquidated damage per day or per week should be calculated on the basis of approximate real monetary loss for delay. Compensation event needs to be properly incorporated in the tender document so that contractors can get appropriate compensation if the situation arises so.

xiii. Reviewing physical progress of works by field visits and conducting progress meeting with contractors on monthly basis can help in reducing risks of delay in construction. The concerned engineer may motivate contractor through both approach of motivation i.e. the carrot approach (e.g. giving recognition and rewards: inclusion on the preferred contractor list, certificate of excellence which will increase the goodwill of the contractor in the market) and the stick approach (e.g. publicizing poor supplier grading ‘name and shame’ or debarred/black list for unsuccessful contractor, giving exemplary punishment, including penalty clauses in contract to take compensation from contractor due to his failure to fulfill contract)

xiv. A lesson learned report should be developed.

5.3 Future Directions

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

- This research may have opened the doors for researchers to explore the risk management practices in PWD and other public sectors.
- Researchers can also investigate the risk management in the private sector to have an overall picture of risk management practices and find the difference of private and public sector risk management performances.
- Researchers can also research on short term and long term strategies for the public sector organisations to reach the higher maturity level in risk management.

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APPENDICES

Appendix 1: Comparison among different procurement methods

Name of tendering method	Circumstances for selecting the method	Bidding advertisement procedure	Bidding time	Bid Security	Qualification of contractors	Bid evaluation
Open Tendering	Most preferred method for Goods and Works anytime.	Invitations shall be advertised in, at least one Bangla language national newspaper and one English language national newspaper. 2) All invitations shall also be advertised in the Procuring Entity's website and if the contract values are estimated to exceed Tk. one crore then	1)Not less than fourteen (14) days for Procurement up to Tk. 3 million 2)Not less than twenty-one (21) days for contracts above Tk 3 million and up to Tk. 50 (fifty) million 3) Not less than twenty-eight (28) days for	Mandatory	Can be invited from all eligible Tenderers of country.	1)Responsive tenderer with lowest quoted rate. Quoted rate should not exceed 10% above or less from the official estimated cost.

		in CPTU's website.	contracts above Tk. 50 (fifty) million			
Limited Tendering Method.	1)Specialized nature of Goods & Works 2) Urgent need for Procurement of Goods & Works. 3)When required time and administrative cost for going through Open Tendering would be high compared to the value of the Procurement	1)Invitations shall be advertised in the Procuring Entity's website. 2) advertisement in brief in the local press is recommended but not mandatory.	1)Not less than fourteen (14) days	Not Mandatory	Enlisted Suppliers or Contractors of the organization.	Responsive tenderer with lowest quoted rate. Quoted rate should not exceed 5% above or less from the official estimated cost.
Two-Stage Tendering Method	1) Can be used in the case of turnkey contracts or contracts for large complex facilities. 2)When it is	1) Advertisement procedure is same as OTM but In the First-Stage, a Procuring Entity shall	1)Forty-two (42) days for submission of Technical Proposal in the 1st	Not Mandatory	Can be invited from all eligible Tenderers of country.	Responsive tenderers from the First-Stage shall submit priced 'best and

	difficult for Procuring Entity to prepare a full technical specification.	invite unpriced technical proposals through advertisement on the basis of a conceptual design that provides potential tenderers with basic technical information 2) After evaluation of technical details all responsive tenderers from the First-Stage shall be invited to submit their priced 'best and final' tenders.	stage of Two-stage Tendering 2)Seven (7) days Time for submission of the Tender Evaluation Report of the 1st stage 3)Twenty-one (21) days for Preparation for the 2nd stage			final' Tenders.
Request for Quotation Method	1) For readily available in the market standard off-	1) Procuring Entity shall invite quotations	1)Less than ten (10) days from the date of	Not Mandatory	Procuring Entity shall invite quotations	Responsive tenderer with lowest quoted rate.

(RFQ).	the-shelf Goods and related Services and low value simple Works. 2) For Procurement of Goods required for maintenance and urgent repair works.	from suppliers by letter, fax or electronic mail, indicating the last date by which the quotations shall be submitted. 2) RFQ do not need to be advertised in the newspaper ; but for the minimum circulation shall publish in the Website of the Procuring Entity including its Notice Board.	invitation for quotations		from preferable Suppliers & tenderers by letter, fax or electronic mail. .	
Direct Procurement Method	1)Procurement of Goods and related Services of proprietary nature which can be obtained only from the	No need of advertisement .	Not less than fourteen (14) days to not more than forty two (42) days.	Not Mandatory	Procuring Entity shall prepare a description of its needs and any special requirements concerning	Responsive sole tenderer with his offer rate and through negotiation .

	proprietary source 2) critical plant components from a specific manufacturer, Supplier or distributor 3) Procurement of perishable commodities such as fresh fruit, vegetable on the basis of reasonable market price 4) Procurement of Goods, Works and Services of very urgent or essential nature such as catering services, ambulance services, transportation services, event management services, repair/maintenance services,				quality, quantity, terms and times of delivery and ask for a priced Offer from a Tenderer directly and afterwards shall be free to negotiate with the selected sole Tenderer.	

	plumbing services, carpentry services, masonry services etc.					

Source: PPR 2008

Appendix 2: Survey Questionnaire

BRAC Institute of Governance and Development (BIGD)

BRAC University, Dhaka.

Survey Questionnaire

Research Topic: **MANAGING RISKS IN PUBLIC PROCUREMENT INBANGLADESH: A Case on Public Works Department**

This is a survey questionnaire for conducting a research to find out procurement risks in PWD's procurement activities on the selected projects and proposing a framework that aims at promoting risk management and contingency planning in the process. It is a partial requirement for the fulfillment of the Degree "Masters in Procurement and Supply Management" at the BRAC Institute of Governance and Development (BIGD), BRAC University. Your sincere response is valuable for the researcher. The researcher assures you that the information given by you will be kept confidential & will be used only for the academic purpose.

N.B. Please type "Y" or "N" or tick as "√" in the appropriate row. You are requested to answer the questions at least for two (2) projects under your jurisdiction.

Name of Project:		
Project Cost/ Tender amount :		
Completion Time :		
Questions Set A	**Yes**	**No**
1. Are bids/proposals consistently advertised in media of wide circulation, easily accessible to potential bidders, in line with the advertising principles of PPR?		
2. Are timely and non-ambiguous clarifications to bidding/proposal documents provided to all potential bidders?		
3. Are bids opened in public in the presence of bidders/representatives and immediately following the deadline for bid submission?		
4. Is the number of bids received reasonable as compared to the number of bidding document purchased/number of pre-qualified bids?		
5. Is sufficient time allowed for bid or proposal preparation, appropriate to the complexity of the bid?		
6. Are evaluations and qualification carried out thoroughly and on the basis of the criteria specified in the documents?		
7. Did you face any kind of corrupt practice in the tendering process of your project?		
8. Did you face any kind of fraudulent practice in the tendering process of your project?		
9. Did you face any kind of collusive practice in the tendering process of your project?		
10. Did you face any kind of coercive practice in the tendering process of your project?		
Questions Set B	**Yes**	**No**
1. Do you/ your division/approving authority select the tender of lowest bidding price for any project?		
2. Do you think tender of a project should be selected on MEAT (Most Economically Advantageous Tender) basis rather than lowest bidding price?		
3. Are your projects properly insured according to insurance clause		

stated in the tender documents?		
4. Are bills of contractors against their work done paid within the contractual terms?		
5. Did your project delayed or is there any possibility of delays because of contractor's poor performance?		
6. If yes, did you or will you apply liquidated damage in accordance with contract documents?		
7. Does political interference impact projects under your jurisdiction?		
8. Are procurement operations subjected to regular internal & external audits?		
9. Are audit reports issued in a timely manner and are recommendations related to procurement generally implemented promptly?		
Questions Set C	**Yes**	**No**
1. Do you think proper risk management strategies are taken in projects of PWD?		
2. Do you think risk analysis should be done before taking any project and some cost should be allocated for ongoing risk management?		
3. Do you think risk management training is necessary to identify and coping with procurement and project risk?		
4. Do you think E-GP can help in effective risk management against corrupt, fraudulent, collusive and coercive practice?		
5. What is the percentage of projects under your division has been completed in time mentioned in tender documents in last three financial years?		
If not 100%, Please mention the reasons.		
6. What is the percentage of projects under your division has been completed in budget allocated without making any variation in last three financial years?		
If not 100%, Please mention the reasons.		
7. For implementation of proper risk management strategies in project procurement, please mention your suggestions.		