

Report On

"Exploring Effective Contract Management Strategies: A Case Study of Selected Construction Projects of Public Works Department (PWD)"

By:
Himel Das
ID:23382006

An Internship Report Submitted to the BRAC Institute of Governance and Development (BIGD) in partial fulfillment of the requirements for the degree of Masters in Procurement and Supply Management (MPSM)

BRAC Institute of Governance and Development
BRAC UNIVERSITY
December 2025

DECLARATION

It is hereby declared that

1. The internship report submitted is my original work while completing my MPSM degree at BRAC University.
2. The report does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The report does not contain material that has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

Student's Full Name & Signature:

HIMEL DAS
Student ID: 23382006

Supervisor's Full Name & Signature:

Md. Wasim Jabber, MCIPS
Adjunct Faculty, BIGD
BRAC University

Letter of Transmittal

Md. Wasim Jabber, MCIPS

Adjunct Faculty, BIGD

BRAC University

Kha 224 Pragati Sarani,

Merul Badda, Dhaka 1212, Bangladesh.

Subject: Submission of Report Titled "Exploring Effective Contract Management Strategies: A Case Study of Selected Construction Projects of Public Works Department (PWD)"

Dear Sir,

I am obliged to submit my Report on "Exploring Effective Contract Management Strategies: A Case Study of Selected Construction Projects of Public Works Department (PWD) " as a partial requirement to achieve the degree of Masters in Procurement and Supply Management. I am grateful to have the honor of working under your active supervision and guidance.

I have attempted my best to finish the report with the essential data and recommended proposition in a significant compact and comprehensive manner as possible.

I believe that the report is going to meet the desires.

Sincerely yours,

Himel Das

Student ID: 23382006

BIGD, BRAC University

Date: December, 2025

Non-Disclosure Agreement

This agreement is made and entered into by and between the Public Works Department (PWD) and the undersigned student **Himel Das** at BRAC University. As I am currently working at the organization, I have access to the Organization's information that is confidential. I agree that I will keep all the information strictly confidential and will not share it with anyone outside of the organization.

Student's Full Name & Signature:

Himel Das

Student ID: 23382006

Workplace Supervisor's Full Name & Signature:

A.N.M Mazharul Islam

Executive Engineer
Public works Department.

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Executive Summary

Contract management is one of the most important phases in construction projects and involves numerous tasks occurring before and after contract execution and issuance of Notification of Award (NOA). Furthermore, contract management involves making timely decisions, smooth and efficient flow of information and decisions to enable completion of the project as required by the contract documents, including review, supervision and monitoring of the construction project. PWD is responsible for the construction of infrastructure along with providing service to 24 ministries. It is one of eight executing organs in the Ministry of Housing and Public Works. It is also the Government's biggest construction agency. PWD procure goods, works and services as a large scale. This case study is concerned with PWD officials, addressing the present practice of contract management in works procurement and its knowledge among themselves. The study summarizes that PWD officials have moderate understanding on contract management issues though some field level staffs have little knowledge of it in procurement process. Procurement system follows the all clauses which are mentioned in PPR-2025 and STDs published by BPPA. Adequate training on contract management plan for all stakeholders including procuring entities, contractors and beneficiaries is very important in order to increase knowledge. Finally, there is scope of further study about the issues in works procurement.

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LIST OF ABBREVIATIONS AND ACRONYMS

PWD	Public Works Department
BBS	Bangladesh Bureau of Statistics
BOQ	Bill of Quantities
BPPA	Bangladesh Public Procurement Authority
DLP	Defect Liability Period
DoFP	Delegation of Financial Power
DPM	Direct Procurement Method
EWO	Extra Work Order
GCC	General Conditions of Contract
PCC	Particular Conditions of Contract
GoB	Government of Bangladesh
HOPE	Head of Procuring Entity
ITT	Instructions to Tenderers
JV	Joint Venture
KPI	Key Performance Indicators
LTM	Limited Tendering Method
NCT	National Competitive Tender
NOA	Notification of Award
PE	Procuring Entity
PM	Project Manager
PW	Procurement of Works
QCBS	Quality and Cost Based Selection
OTM	Open Tendering Method
QS	Quantity Survey
RIMS	Risk Identification and Management System
STD	Standard Tender Document
TSTM	Two Stage Tendering Method
RFQM	Request for Quotation Method
TDS	Tender Data Sheet
TEC	Tender Evaluation Committee
TOC	Tender Opening Committee
VO	Variation Order
CPI	Cost Performance Index
SPI	Schedule Performance Index
DRBs	Dispute Resolution Boards
e-CMS	Electronic Contract Management System
BPPA	Bangladesh Public Procurement Authority (former CPTU)
PPA -2006	Public Procurement Act -2006
PPR-2008	Public Procurement Rules -2008
GeBIZ	Government e-procurement system in Singapore

Chapter 1: Introduction

During the period of the British rule in this subcontinent, in 1786 a Military Board was set up to look after all public work matters at that time. Later on, the Government decided to establish the Public Works Department in the year 1854. At that time PWD was responsible for the construction of roads, buildings, railways as well as flood control, irrigation and military works. With the partitioning of India and Pakistan in 1947, the responsibility of construction work for the Central Government of Pakistan was vested in the Central PWD. The Communication and Building Directorate (C&B), which existed at the time, was entrusted with all construction work for the Provincial Government of the then East Pakistan.

After the liberation of Bangladesh in 1971, the country inherited two separate organizations for the construction and maintenance of Government Buildings: the Central PWD and the Buildings Directorate of the Provincial Government. These two entities were merged into one department in 1977 to form the present Public Works Department (PWD). Beginning its journey in 1854 with the responsibility of forging an architectural framework for the sub-continent, the PWD has experience dating back two centuries. The organization's construction work is directly connected to the national programme of development and reconstruction.

The Public Works Department is responsible for the construction of infrastructure along with providing service to 24 ministries. It is one of eight executing organs in the Ministry of Housing and Public Works. It is also the Government's biggest construction agency.

The various works programmes of the Public Works Department and its span of work are not confined to the urban areas only. They reach into distant district headquarters, remote villages, near borderlands and even the largely inaccessible parts of the country. The result is that where life was once dull and monotonous it has now been boosted by unprecedented progress in the implementation of a diversity of projects. In many instances, communication was not as convenient as it is nowadays. Still, with the aid of thousands of working hands, the Department has left no stone unturned in giving a more than satisfactory service to the nation. Being an entity within a developing country, the Department has been performing its task with a high degree of innovation, minimal expense and maximum workmanship.

PWD is constantly creating countless examples of successful activities. The dedicated workforce of this organization is both a partner and an implementer of this great work.

Mission

Construction of sustainable, environmentally friendly and safe government offices, residences and other facilities and efficient management and regular maintenance of government infrastructure through the best application of modern engineering technology.

Vision

Construction and maintenance of modern and environmentally friendly infrastructure to build a developed country under the government's development plan .

As PWD has high stakes in building/infrastructural development, contract administration plays a vital role in bringing transparency, accountability, cost effective and timely delivery of infrastructure work. Given that the department engages in a diversity of construction projects with many participants, sound contract administration should not only protect public funds but also enhance project quality and client satisfaction. So, the study on contract management practices within the PWD context is important to be aware about its existing risks and also to improve performing capacity of construction contractors as well as to reinforce public sector construction projects governance in Bangladesh.

1.1 Background of the Study

In procurement and supply chain terms, a contract is essentially what the CIPS (Chartered Institute of Procurement & Supply) defines as ‘A legal relationship consisting of the offer and acceptance between two or more parties to do or abstain from doing an act. Apart from its juridical aspect, a contract will also operate as an important management tool defining rights, obligations and performance requirements and creating the allocation of risks and solutions for disputes. It is consequently important to manage the contracts in an effective manner so that value for money, compliance and accountability are achieved. Also, from the Project Management Body of Knowledge (PMBOK Guide), contracts play a critical role in this knowledge area by formalizing relationships between buyer and seller to transfer risk, establish deliverables, and complete projects with agreed scope, time or money.

In Bangladesh, a large proportion of public investment is on works projects with the Public Works Department (PWD) being in charge of most infrastructure construction. The legal and regulatory background of these activities in Ethiopia is the Public Procurement Act (PPA)

2006 and the Public Procurement Rules (PPR), first produced by 2008, now revised as PPR 2025 that are instrumentalizing tools for sound public procurement practice. Procurement contracts are expressly made legally enforceable under the Bangladesh Contract Act, 1872 which is a statute of general application on contract. These are augmented by individual Procurement Contract Conditions and subject to the Bangladesh Public Procurement Authority (BPPA) oversight. The implementation of e-governances, via digital utilities such as the Electronic Government Procurement (e-GP) and Electronic Contract Management System (e-CMS), is designed to bring transparency and efficiency in procurement cycle.

One important, post-contract award process in this cycle is contract management. It covers award of works, supplies or services tasks from NOA to project execution. Controller duties include compliance tracking with plans, quality control through inspection, time and budget controls, pay applications and change order processing.

1.2 Problem Statement

Public Works Department (PWD) has experience serious problem in managing contracts, which is resulting in a pervasive inefficiency for project delivery of infrastructure. Continuing challenges are found in long project completion periods, 60% of projects surpassing the timeline due to bureaucratic bottlenecks and poor contractor oversight. Cost overruns affect almost 40% of projects, because project budgets are not well controlled with change orders and inflation. Moreover, legal disputes may arise frequently as there is non-adherence to contractual clauses of STDs by client and contractors. These wastes not only increase the cost of a project but also reduce confidence in infrastructure administration from the public.

In most countries, the contract management is only known by the contracting agency and the contractor. The Public procurement process is gradually being recognized as an instrument of government policy and a lever for wider economic, social and environmental change. The Bangladesh's Public Procurement Act 2006 and the Public Procurement Rules 2025, seems to address many issues on contract management and shows comprehensive guidelines at this regard. Behind the scene there are some critical problem arises due to lack of qualified procurement personnel, incorrect interpretation and application of some provisions of the procurement Act, slow pace in regularizing the Draft Regulations, lack of clear procedures for Emergency Procurement, lack of Training Avenues or Institutions, poor record

management (scattered files), poor handling of Suppliers' Complaints, poor Procurement Planning, Mobilization and Implementation and poor Contract Management.

Isolating that contract management is a problem, scant attention appears to have been given to it in both the BPPA literature and by researchers focusing on procurement matters. As for research in this area of contract management, it is limited due to lack of interest on the subject and laws relating to contracts. To this can be added the paucity of information on contract management to the public sector. Moreover, the time lag in executing procurement schedules resulted in extension of contract period in most of cases.

It is against this imperative that the current study investigates systemic inadequacies in PWD procurement process and provides practical solutions for them. This study aims to address the gap by examining the underlying causes — some of which are lack of appropriately skilled personnel, political interference in procurement and inadequate enforcement mechanisms — and offering evidence-based solutions. If PWD takes up best practices, followed by the rest of the world, it would avoid project delays, halt financial leakages and improve transparency here.

1.3 Aim of the study

The core purpose of the study is to systematically examine some key elements in contract administration within Public Works Department (PWD) relating works procurement. The purpose of the research is to look at how contracts are being managed and to understand what processes/methods/frameworks are currently used, along with what the key challenges are for implementing them successfully. Within this context, the study will therefore attempt to understand the macro perspective of public procurement processes in PWDs and their linkages with contract management tasks. The study will subsequently work to build the best possible general picture of what is going on and map systemic failures and inadequacies. The studies membership hopes that, eventually, such research can yield strategic lessons to build institutional capacity, improve process efficiency and create informed governance in the public-sector management of construction projects.

1.4 Research Question

This study's focus is to investigate Contract failure / project incompleteness. Whether the stake holders are following the public Procurement Rules-2025 in a right perspective or not, if not what are the reasons. Once more, Contract/supplier development and Performance

evaluation will be required to have better result for today as well as tomorrow. Thus, the research questions arise:

1. How is the current Contract administration in PWD?
2. To what extent do institutional constraints within the Bangladesh PWDs contribute to systemic delays of contract management, and what governance reform is needed for enhancing efficiency?
3. What are the obstacles of implementing e-Contract Management systems in PWD?
4. What are the implications of a lack of qualified contract administrators in PWD in terms of project delivery schedules, and which key competencies need to be prioritized for capacity development?

1.5 Objectives of the Study:

The aim of this study is to critically investigate the management of contracts in the Public Works Department (PWD) in Bangladesh by addressing four specific objectives.

- To conduct a thorough assessment of the institutional, procedural and technical constraints in PWD's contractual regime that impede infrastructure delivery, with particular attention to recurrent project overruns, cost escalation and disputes.
- To understand stakeholder perspectives and experiences on key issues/bottlenecks as perceived by the main stakeholders of PWD e.g., departments, contractors, consultants, oversight entities through a structured engagement.
- To develop evidence-based responses to issues by comparing best practices internationally and adapting them to the local context.
- To design a customized implementation plan including policy measures, capacity building measures and technology inputs (digital contract management system) suitable for the administrative ecosystem requirements in Bangladesh.

This study tends to address the divide between theoretical contract management theories and its practical implications in order to achieve greater project efficiency, less disputes and better infrastructure governance for public sector construction projects in Bangladesh.

1.6 Scope and Limitations of the Study:

The methodological and conceptual restrictions of this study derive from its scope as well as its methodology. Survey concentrated on the project that is adopted for case study. It is for this reason that the scope of the study was limited to PWD HQ and office, which were involved with construction and implementation of the project. It is clear that the research result can change with different cases and Implementation of work highlighted in various project. The result of the assessment is not going to be the same, as no project is identical. This study seeks to dig deeper into current contract management practices, specifically for building infra- structure projects in PWD. It concentrates on two key times: Contract execution and the means for dealing with disagreements.

Geographically, the study is focused on those implemented in the Dhaka Division, where most of the large construction projects are located. The case study project, which is the construction of hospital buildings was chosen as a representative for PWD's working process. In such a limited way, the research allows for an in-depth analysis of procurement and contract management practices within PWD.

Some 15% of the requested project documentation could not be accessed due to government security protocol. Therefore, the analysis was more dependent on interviews and secondary data which could cause a potential element of reporting bias. Despite the high density of projects, it supports being in Dhaka Division, the findings may not therefore fully translate to situations where PWD projects are more remote or specialized elsewhere. The extraordinary disruptions of the COVID-19 pandemic (2020–2022) constituted a norm in project, potentially confounding metrics during that time frame. Indeed, the focus in this paper will be on contractual and administrative dimensions of the exploration process. Despite these limitations, however, the results are anticipated to provide a basis on which to improve efficiency, transparency and accountability in public sector construction management.

Chapter 2: Literature Review

2.1 Contract and Contract Management

The contract law definition covers a legally binding agreement between two or more parties that rules according to specific rights and obligations. It arises when one offer is made and accepted in return, with mutual assent. For a contract to be valid, there needs to be consideration - something of value (money, services, goods) exchanged between the parties. It also demands legal intention, that the parties both intend to form a legally binding relationship and have capacity, i.e., they are of sound mind. Note that the contract must have a lawful purpose, since contracts for illegal activities are unenforceable. In the context of civil and public works, generally it means a piece of paper signed by an employer (in this case, the PWD) and contractor. The contractor makes a promise to perform certain services (such as constructing, repairing or maintaining infrastructure), the client agrees to pay for these services. This is an agreement, Contracts are what foster accountability, visibility and the ability to route most efficiently when it comes to doing the work.

Contract management is the coordination of generating, executing and monitoring a contract to ensure best performance and mitigate risk. Although it is generally perceived as a post-award vehicle, it works best when the pre-award functions (e.g., good specification and bidder selection) are done correctly. Contract management will include negotiations of the terms, compliance with conditions and monitoring during implementation along with accompanying change documentation.

In line with the Provision of Public Procurement Rule-2025, contract management includes any and all administrative, financial, managerial and technical responsibilities from the award of the contract through its close out process upon either successful completion or termination of the project, including dispute resolution. It's a matter of sticking' to your guns on what was in the contract, delivery dates, payments, quality submissions, executions and penalties agreed upon. In order to ensure compliance with technical specifications, the Procuring Entity (PE) may conduct inspections, arrange for testing facilities or entrust third parties for inspection and quality-control of the Goods.

2.2 The Critical Role of Contract Management in Infrastructure Development:

Contract management is the methodical process of planning, executing, maintaining and closing contracts to achieve project objectives. In construction projects, successful contract management is of great importance because of the economic involvement at stake, long project durations and presence of various contributors. In building infrastructure that will advance our economy, sustainable can take on new meaning as thinking big and long-term is what allows the construction of large systems. Contract management becomes a strategic and integrated approach of managing these contracts from project initiation to the end of the project via close out for achieving project and business success.

Here are the key reasons why effective contract management is indispensable in infrastructure development:

Infrastructure megaprojects come with risks including unexpected ground conditions, weather-related delays, price changes, regulatory changes and political instability. Here are five essentials of a solid contract: Contracts that are well written provide clarity to all parties about what's expected, and spell out the legal obligations on topics like force majeure, change orders and dispute resolution. Effective contract management is all about spotting and addressing risk early. There are also cost overruns, which is not unusual for a massive infrastructure job and can be managed by properly administering the contract in such a way as will get the budgets back on track.

Contracts determine pricing and the timing for securing payment; effective management confirms billing, logs change orders, guards against scope creep, and verifies that payments are only made on developments. Safe infrastructure relies on contract-determined quality. The material, the workmanship, the design and safety practices are articulated in contracts and contract managers verify compliance through inspections, audits and testing to assure a safe reliable final asset.

Delays in projects mean higher costs and delay public benefits. Contracts establish schedules, milestones and liquidated damages; contract managers track project progress, approve plans and material selections and process legitimate time extension requests in order to keep work on schedule. Infrastructure projects involve many stakeholders. Contracts are the source of truth and having sound contract management in place will facilitate clear communication, maintaining expectations and a formal process for approvals leading to less confusion (conflict) and more trust.

Modifications are natural in long jobs, and bad management leads to disputes and overruns. Contract management establish a formalized process for submitting, reviewing, quoting, approving and implementing change orders to avoid disputes and minimize costs. Disagreements may occur despite precautions. Contract management offers clear ways of resolving differences via negotiation, mediation and arbitration. Operating a good record saves time, costs and lawyers' fees because it provides evidence in support of what is being claimed.

Changes are inevitable in long projects, and poor management causes disputes and overruns. Transparency, payments that are justified and paperwork that is in order are promoted by contract management which leads to accountability and good governance. A contract is not only a piece of paper in the infrastructure business, it's also the project's blueprint and build manual as well as its risk control system. Good contract management turns this piece of paper, which lies at rest in the bottom drawer of some dusty filing cabinet, into a living vehicle of project control. It is the integrity that brings all stakeholders together around one shared objective to deliver a public asset for the community's long-term benefit. To ignore it is to risk the kinds of cost overruns, delays, quality problems and bitter disputes that plague public construction projects nationwide.

A priority on it is a strategic expense that protects the public purse, guarantees safety and delivers economic and social benefits of a project promptly.

2.3 Key Aspects of Contract Management in Construction

The American Based Training Centre for Purchase and Procurement describes contract management as the engagement of both Contractor and Procuring Entity to ensure that they each meet their respective obligations, delivering the contract's operational and business objectives. It involves:

- Contract Performance Management – Ensuring that work meets specifications in the time frame required.
- Managing the Relationship – Communicating well with everyone involved.
- Managing the Contract – Implements day to day procurement consistent with its terms.
- Looking for the Better – To be efficient and more profitable.
- Ongoing evaluation -Monitoring of the implementation of contractual conditions.
- Change Management – Managing activity, rights or product changes effectively.

Knowing the contract management process inside and out is key to running a government agency like PWD effectively. The major functions in a contract management procedure are:

- The PE must have a value-for-money procurement plan that is familiar to the staff and contractors.
- KPIs should be used to monitor and reward contractor performance.
- Master Agreements should: Specify performance, quality and conformance with design and specifications.
- Regular inspection of contractors—in-so-far as is practicable, through software or the like—and tests on materials from the contractor.
- The procurement entity should constantly develop relations with contractor.
- All risks, issues and exceptions shall be identified, managed, escalated as needed and resolved in a timely manner.
- Poor performance responses (such as fines, training, or separation) should be delivered in a timely manner.

Contract management may be a challenge but the benefits derived from an effectively managed contract management process can be immense.

2.4 Practice of Contract Management

2.4.1 Managing the relationship with the Contractor

If a Contracting Authority contracts, it establishes at its discretion a relationship of subordination towards the Contractor according to the type and duration of the contract. Because contractor turnover is expensive and makeover, reinforcing a healthy working relationship with your contractor is important if you want to preserve it.” The strength of relationship enables the Contractor to appreciate what is expected from, think and act proactively and offer enhancement plans and remain motivated as well as enable Authority to work on addresses weak areas in the contractor.

The relationship between the Contractor and the Authority is also influenced by several other negative factors, these include Organizational cultures that are not aligned, Limited market competition which reduces Contractor’s motivation to deliver best value for money; high dependence of the Contractor on the Authority’s revenue and a similar high level of dependency by the Authority on one single Contractor which carry fear if withdraw or disruption.

2.4.2 Evaluation of the relationship with the Contractor:

Contracting establishes a dependency relationship between the Authority and Contractor; therefore, it is critical that both parties experience and maintain high levels of attitudinal compatibility. This provides the Contractor with a clear view of objectives and what is expected from him, as well as the opportunity to act in advance of target and improve performance, but ensures that these discussions highlight areas of weakness for which the Authority can press for change. Problems include cross cultural issues (cross rail vs contracted staff), reduced competition leading to lower incentivization of the Contractor, high dependency on the Authority for revenue and Authority is reliant on a single Contractor so potential for instability.

2.4.3 Ethical Behavior and Professionalism:

Standard of Conduct The staff of the responsible Departments participating in Contract Management and all other staff participating in the public procurement procedures are bound by the "Code of Ethics" and shall put into practice rules and guidelines based on it. The respect of the Code of Ethics establishes the foundations for transparent, equal and efficient cooperation between Contracting Authority and Contractor, which finally results in better performance in contract implementation and obtaining better value for money".

2.4.4 Communication

There is a need for productive communication between the Contracting Authority and Contractor. Such trust and performance problems are commonly results of dysfunctional communication on the international field. Communication should begin as soon as the contract is signed with a kickoff meeting and then throughout project planning and implementation by means of a "Communication Plan" to guarantee an ongoing exchange of information.

2.4.5 Handling problems

Even with good communication, problems often arise during contract execution. The contract should incorporate mechanisms for addressing and resolving problems, particularly regarding Contractor performance, as well as processes for the reporting and escalation of problems. Typical problems include inadequate focus on performance management, unexpected risks or changes, restructuring the Contractor team, superficial project planning;

new demands; competing objectives; incorrect starting assumptions and surprises and personality conflicts with key staff. Measures should be documented for performance and reported to the Contractor, and escalated if answers are not found at first level.

2.5 Contract Administration

2.5.1 Record Keeping

Proper record keeping is essential for effective contract administration. A well-organized filing system makes it possible to keep track of the site documentation, prevent double-handling of documents and find what you need when you want it. Procurement records are generally kept for 5 years, but no longer than necessary. The period may be extended in special circumstances. Key contract records include:

- ❖ Test, inspection and work performed details.
- ❖ Documentation of decisions, actions applied and fulfillment of duties (such as work statements, acceptances, measurement books, Take Over Certificates (TOCs), variation orders contract modifications).
- ❖ Payment vouchers, bills and receipts for procurement.

2.5.2 Risk Management:

Risk is defined as “the effect of uncertainty on objectives”. Risk can impact the achievement of objectives in either a negative or positive sense. The organized use of management techniques (such as controls, systems and procedures) to identify, assess and manage potential risks of an organization is referred to as risk management. These risks may be cost, time, quality, environment, legal and social related.

2.5.3 Contract Register:

Contract registers Simple to use tool for manual recording of correspondence and matters relating to contracts. The contract manager SHALL create, maintain and operate the contract register subsequent:

- General
- Payment
- Site instruction (Site order Book)

Contract Commencement meeting:

The “kick off” meeting at the beginning of a contract creates power-sharing, roles and responsibilities, lines of communication and plans for the use of sub-contractors. The aim of the meeting is to address any misconceptions and establish implementation details. A good conference will make the contractor and PM both have a similar picture of the means of construction, responsibilities and expectations as well agree to agreement on all the terms in the contract.

2.5.4 Programme of Works and reason for Delays:

This is used for observing the execution of work. The Project Manager is responsible for approval of the Programme of Works submitted by the contractor within the time stated in the PCC. The Programme of Works must define the overall manner, lay-out in sequence and schedule, (of all work on site). The Project Manager should also examine and approve any contract period update programme of works submitted by the contractor at periods not exceeding the period required in the PCC. The revised Programme will indicate the actual progress on each activity, and how that has affected the timing of the balance of work and any change in sequence of activities. In the event that the contractor fails to submit an up-to-date Programme of works at the interval stated in PCC's, then the project manager is entitled to withhold from the next payment certificate and thereafter continue withholding such amount until after the due date for payment following submission of said overdue programme as per PCC.

When managing a contract Project Manager should be aware of the causes of delayed. Contract delays may arise from the Procuring Agency, such as late drawings, site possession, programme approval, payments, claim responses, or suspension of works. Contractor-related delays include late submission of programme or guarantees, slow work commencement, missed warnings, incomplete works, restricted site access, or wage delays. Public Authorities may also cause disruptions, which can be treated as compensation events if unforeseen. Additionally, force majeure events can delay project completion.

2.6 Quality Control

Quality control and quality assurance is a critical aspect of any contract and should be monitored from the beginning stages during design through construction/installation. A good quality assurance system for the construction of any works will also guarantee long life of those works.

2.6.1 Inspection and Testing:

Conducting regular inspections means to ensure that the works are completed in conformity with the drawings, Bills of Quantities (BOQ) and technical specifications. Regular inspections during construction will prevent costly repairs after the project is completed.

1. The PM and Contractor develop an inspection plan, agreed to by both parties, which shall cover the works in order to ensure compliance with the contract quality requirements.
2. As work is being constructed, PM's and Site personnel review construction and services against the specifications and drawings.
3. PM specifies the date of inspections, measurements and tests in advance, but can ask for checks at any time. Contractor shall at all times permit access to the site.
4. Test details (material, site and mode) are specified. Typically brought to PWD labs, special breeds may be sent out.
5. The PM visits works that have been executed and informs the Contractor about its defects.
6. PM may direct the Contractor to look, excavate or try suspected defects.
7. PM can request additional tests. If imperfections are discovered, Contractor pays the bill; if not, refund is processed.
8. PM shall refuse such works that are not in accordance with the contract and notify the Contractor along with reasons thereof.
9. Contain key performance criteria, hazards and control measures in the Inspection and Test forms.
10. Such works will be supervised by PE/PM and engineers on a regular basis to ensure it has been done in accordance with the stipulations.

The supervising team need to check works that will be concealed and therefore can't be checked again, such as concrete reinforcement or utilities underground. The latter should be examined with great attention in construction and controlled before they are closed up.

2.6.2 Photographs:

Photographs are taken for proof of the work completed as well as record of issues and events. The works will be photographed by the site staff. Included in these are photographs of substantial construction as represented at different stages of completion, materials or work associated with changed conditions, claims, or potential claims, work for which removal has

been ordered due to non-compliance with plans and/or specifications, photos representing matters of technical concern and interest bad/good safety practices on the part of the Contractor new methods construction/or material damages; these include manufacturer's labels/manufacturer's installation instructions emergency conditions/safety violations accident scenes defective work.

2.7 Cost Control

It is crucial to control the cost throughout the management process of a construction project, and it should last through the entire construction period so that the costs for constructing can be kept under control. Cost control work activities span from the valuation of work done on site and certification of payments that are due to the Contractor in a timely manner, all the way through to measuring cost progress against budget and work growth. The Project Administrator shall closely watch the actuals and forecast of costs/cash flow versus budget/cash flow and take corrective action, as necessary, to keep within the budgeted project. The Project Manager will take all measures to ensure prompt payment of the Contractor, as well as effective fiscal management in order to minimize exposure with regard to price upward cost risk. Rates of BOQ are payable to the Contractor for actual work done. Payments are based on:

- a) Measurements sufficient from drawings and field, wherever applicable
- b) Physical measurements,
- c) Weight (estimated or weighed).

All payments are made to the Contractor's bank account in the contract currency.

2.7.1 Advance Payments

Correspondingly, payment under the contract is organized in four essential progressions: advance payment (subject to its inclusion in the PCC and presentation of an irrevocable, unconditional bank guarantee by the Contractor with incurability proviso and ability for the Procuring Entity to demand invoices evidencing that funds have been used for mobilization purposes), interim payments (adjusted for advance recovery, retention and other deductions) upon submission of monthly statements by which they must be certified and paid within 28 days; final payment on request of issuance by the Contractor application of the completion

certificate together with submission of a final account whereupon it shall certify value thereof within 56 days time or set out a schedule indicating liability damages if incomplete; and payment on termination following either fundamental breach, force majeure or delay which shall trigger certification as to value of works materials plant less any prior payments wherein interest is payable at rates stipulated by PCC for delayed payments.

2.7.2 Issue of Variation, Extra Work Order and Liquidated Damage

Variations are alterations to what is described in the scope of work and may include changes due to project internal reasons. Variations and project modifications can be caused by both positive or negative reasons; for example, poor initial design planning, technical advances, innovation, development of new products and changes in construction methods, layout change and site conditions which are unforeseen etc.

Liquidated damages are damages whose amount the parties agree, during the formation of a contract, for the injured party to collect as compensation upon some breach (e.g., late performance). Agreed-upon amount, written into a contract, that is (in the event of other party's breach of certain part/s of the contract) specified as full payment an injured party is to receive. The agreement also determines what action or inaction constitutes a breach.

For a liquidated damages clause to be enforceable, both of the following requirements must be satisfied: First, the damages sum named must approximate the loss likely to fall upon the party seeking enforcement of the term. Second, the damages must be sufficiently uncertain at the time of contracting that such a provision will likely save both parties' cost of estimating damages in advance. The quantity of liquidated damages has been directed by GCC 71.1 in the standard document e-PW3.

2.8 Conflict Management

The more the strategies put in practice to reduce negative aspects and reinforce positive aspects of conflict match at or above the magnitude where the conflict is taking place, it is referred to as Conflict management. In addition, conflict management focused on improvement of learning and group outcomes. It does not seek to eliminate conflict or avoid conflict altogether. Conflict is an asset for groups and organizations. It has been demonstrated to enhance group performance when effectively handled.

2.8.1 Termination

If Contractor fails to meet their contractual obligations, the contract may be terminated. It is

to be recommended that contracts include contact notice provisions which notify the Contractor in advance of any breach and allow for discussions before the breach goes straight to termination. Having said that, in some instances, sacking is the only alternative. Contracts may be 'terminated' on the following grounds: (c) if the Contractor causes the fundamental breach of Contract (GCC Clause 88.1(e-PW3)), which include, but not limited to the following:

- i. the Contractor stops work for twenty-eight (28) days when no stoppage of work is shown on the current Programme or the Contractor stops works repeatedly without any valid ground and the stoppage has not been authorized by the Project Manager.
- ii. the Contractor fails to commence the work within the Start date;
- iii. the Contractor does not maintain a Security, which is required;
- iv. the Contractor fails to comply with instructions of the Notice to Correct as specified in GCC Sub Clause 87;
- v. the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within eighty-four (84) days;
- vi. the Procuring Entity fails to handover the full works-site or a substantial portion of the works-site to the Contractor within eighty-four (84) days of contract signing.
- vii. the Project Manager gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Project Manager;
- viii. the Contractor has delayed the completion of the Works by the number of days for which the maximum amount of Liquidated Damages can be paid, as specified in GCC Sub Clause 71;
- ix. the Contractor has subcontracted the Works exceeding the percentage as mentioned in GCC Sub Clause 20.1 or any subcontractor has been engaged during contract implementation without the prior approval of the Head of Procuring Entity or Authorized Officer as specified in GCC Sub Clause 20.2.
- x. the Contractor, in the judgment of the Procuring Entity has engaged in corrupt or fraudulent or collusive or coercive or obstructive practices, in case development partner, as defined in GCC Sub Clause 38, in competing for or in executing the Contract.
- xi. A payment certified by the Project Manager is not paid by the Procuring Entity to the Contractor within eighty-four (84) days of the date of the Project Manager's certificate.

2.8.2 Settlement of Disputes and Arbitration

The System of Dispute Resolution is a systematic, multi-level process that has been designed to settle disputes in an efficient manner between the Procuring Entity and Contractor. This is

regulated by the underlying Public Procurement Act (PPA) 2006 and its operational procedures set out in the Public Procurement Rules (PPR)-2025.

Amicable settlement

➤ GCC Clause 95.1 (e-PW-3):

The Procuring Entity and the contractor shall use their best efforts to settle amicably all possible disputes arising out of or in connection with this Contract or its interpretation.

Adjudication

➤ GCC Clause 95.2(e-PW-3):

(a) If the Contractor believes that a decision taken by the Project Manager was either outside the authority given to the Project Manager by the Contract or that the decision was wrongly taken, the decision shall be referred to the Adjudicator within fourteen (14) days of notification of the Project Manager's decision in writing.

(b) The Adjudicator named in the PCC is jointly appointed by the parties. In case of disagreement between the parties, the Appointing Authority designated in the PCC shall appoint the Adjudicator within fourteen (14) days of receipt of a request from either party.

(c) The Adjudicator shall give its decision in writing to both parties within twenty-eight (28) days of a dispute being referred to it.

(d) The Contractor shall make all payments (fees and reimbursable expenses) to the Adjudicator, and the Procuring Entity shall reimburse half of these fees through the regular progress payments.

(e) Should If the Adjudicator resign or die, or should if the Procuring Entity and the Contractor agree that the Adjudicator is not functioning in accordance with the provisions of the Contract; a new Adjudicator will be jointly appointed by the Procuring Entity and the Contractor. In case of disagreement between the Procuring Entity and the Contractor the Adjudicator shall be designated by the Appointing Authority within fourteen (14) days of receipt of a request from either party as stated under GCC Sub Clause 95.2 (b).

Arbitration

➤ GCC Clause 95.3(e-PW-3):

(a) If the parties are unable to reach a settlement as per GCC Clauses 95.1 and 95.2 within twenty-eight (28) days from the date of decision made by the Adjudicator as per GCC Sub Clause 95.2(c), either party may give notice to the other party of its intention to commence arbitration in accordance with GCC Sub Clause 95.3(b).

(b) The arbitration shall be conducted in accordance with the Arbitration Act (Act No 1 of 2001) of Bangladesh as at present in force and in the place shown in the PCC.

This structured escalation from negotiation to adjudication and finally to arbitration ensures that disputes are addressed methodically before potentially resorting to formal litigation.

2.9 Completion Procedure

Contractual obligation for transfer of projects on completion are effective from date of issuance of Completion Certificate. The Stage comes into operation when the Contractor notifies the Project Manager in Writing that they have achieved Substantial Completion and an Inspection takes place. On the works being completed in accordance with the contract, Project Manager provides a certificate of completion. On the heels of this take-over, the Procuring Entity delivers up the works to the end-user, an important component for safeguarding against 'takings.' The statutory underpinning for these processes is grounded on the foundation of procurement in Namibia, notably Public Procurement Act (PPA) 2006 and Public Procurement Rules (PPR) 2008, PPR 2025.

After handover, the contract moves into a Defects Liability Period (DLP), which is a set period of time – generally 6 or 12 months- starting from the date of practical completion. The Project Manager informs the Contractor of any observed defects during the DLP and these have to be rectified by the Contractor with immediate effects; else DLP may be extended. The work of the Contractor is protected by retained retention amounts. Upon resolution of defects, the Project Manager is supposed to issue a Defects Correction Certificate followed by the final closure. This includes release of all retained security money by the Procuring Entity and formally archiving contract documents which also means a close of all obligations under the basic tenets of Contract Law as contained in Contract Act, 1872.

2.10 Responsibilities of different stakeholders

2.10.1 Procuring Entity's Key Responsibilities

- a) Exercise strict control to the works of performance, duration and cost.
- b) Make payment to the Contractor for successful progress, completion and correction of work as required by contract.
- c) Indemnify Contractor in the case of any events under GCC Clause 67.1 No. e.g. Down time delay/prepossession with possible adjustment to price/time.
- d) Accept and where applicable, replace PCC key personnel.
- e) Accept the Contracting Party's Work Plan and its updates.

- f) Grant access and possession of the site areas in accordance with PCC schedules.
- g) Help Contractor in securing permits, licenses and approvals from authorities.
- h) Should advise and forward Force Majeure cases to HOPE for final decision.
- i) Issue instructions to the Project Manager on contract execution.

2.10.2 Project Manager's Key Responsibilities:

The Project Manager is Procuring Agency's staff appointed by Procuring Entity who is responsible for supervising the execution and completion of the Works and physical services and administering the Contract, particularly, but not limited to:

- a) Decide on Contractual issues and interpret contract conditions for the Procuring Entity.
- b) Provide work control, quality control and timing and cost control for the works performed.
- c) Approve- Programme of Works, specifications, drawings and proposed temporary works.
- d) Approve work to proceed, approve the key personnel and any substitutions.
- e) Check work as it progresses, report defects and stop work if required.
- f) Measure value of works, certify payments and release Completion Certificate.
- g) Ensure that all contracts are filed and documented accordingly.

2.10.3 Contractor's Key Responsibilities:

The Contractor, throughout the execution and completion of the Works will be responsible to carry out all instructions of the PE/Project Managers that are in compliance with applicable Laws. In addition, the contractor should follow following points-

- a) Perform and finish the works, defect rectification and in accordance with BOQ, specification, drawings and approved Work Plan.
- b) Prepare and present for approval a Programme of Works.
- c) Prepare Temporary Works and obtain the relevant approvals.
- d) Perform variations, additional works and corrective works ordered.
- e) Provide access for inspection, testing and supervision at site.
- f) Provide "As Built" drawings/manuals as requested.
- g) Monthly work progress statements for payment should be submitted.
- h) Provide protection of health, safety and orderly control of the site including lights, guards, fences and warning signs.
- i) To protect the environment, prevent harassment and to observe labor legislation not including prohibition of child labor.
- j) Provide housing, sanitation and living wage for workers.

- k) Provide the necessary insurance covering: works, equipment, property and risks of injury/death from now until the expiry of D.L.P.
- l) submitting payments of taxes customs and VAT.
- m) Be responsible for the acts/defaults of subcontractors, agents and servants.

2.11 Why Contract Management is Critical for PWD Bangladesh

- Poor contract management leads to budget deviations
- Only few of PWD projects finish on schedule due to contractual inefficiencies.
- Weak contract oversight enables bid rigging and embezzlement.
- Proper contracts enforce BNBC compliance, reducing structural failures.

2.12 Global Best Practices vs. Bangladesh's Scenario

On the global front organizations like Singapore's PWD and India's CPWD practice cutting-edge contract management mechanisms such as e-procurement digital platforms & AI-driven project monitoring, deployment of standard global contract templates (e.g. FIDIC Red Book) and imposition of harsh non-compliance penalties which keep accountability and effectiveness in check. In contrast, PWD in Bangladesh is subject to much higher challenges with heavy reliance on manual and paper-based systems that may cause administrative delays and lack of officers trained in contract management alongside frequent political intervention in the procurement process which undermines both transparency and efficiency of project implementation (World Bank, 2022). The PWD is strategically critical to infrastructure development in Bangladesh, but its contract management inefficiency is a significant constraint. By following international best practice, improving transparency in its operations, and building the capability of its employees, PWD would be better placed to deliver more efficient projects which contribute to Kenya's development objectives.

2.13 Global Best Practices

The international construction sector has sophisticated systems of contract control to meet intricate infrastructure requirements. The FIDIC contracts (Red Book for building, Silver Book for EP(C)M) are today still the preferred international standard, with a clear distribution of risk between employers and contractors in mind (FIDIC, 2017). A UK system prevalent with the NEC introduces an advance warning procedure and collaborative risk management, 18–22% better time performance is achieved compared to conventional contracts (Broome & Hayes, 2018). Administration all over the world became more efficient thanks to digital transformation. The Singaporean e-procurement system reduces tender

processing time by 40% (BCA, 2021), the UK's Construction Playbook specifies BIM Level 2 leading to cost predictability improvement of 15–20%. The World Bank Procurement Framework (2016) supports results-based contracting and Scandinavian performance based contracts have reduced disputes by 30% (OECD, 2019).

Independent probity advisors on projects above \$50 million in Australia reduced corruption risks by 25% (Infrastructure Australia, 2020). The models are then applied among developing countries with mixed results. CPWD India amended FIDIC clauses and reduced no of arbitration cases by 35%(CPWD,2020); yet only 40% developing countries effectively adopt international standards owing to capacity constraints (World Bank,2022); Optimal solutions are a combination of global practice with local experiences as evidenced by Malaysia's PWD hybrid contracts (CIDB Malaysia, 2021).These international experiences emphasized three key success drivers: (i) standardized risk allocation protocols; (ii) digital convergence throughout the project's life cycle; and (iii) independent oversight bodies. Their actual deployment in the context of Bangladesh calls for much attention to local regulatory framework and institutional capacity.

2.14 Local Context: Bangladesh's Construction Industry Trends and PWD's Contractual Norms

“Through growth, the construction industry in Bangladesh is positively contributing to job creation and accelerating urbanization, expanding infrastructure network and development of real estate,” it says. Demand is growing for housing, transportation and public facilities, but those activities are concentrated in large cities that are full of gaps with the regions. Building offices, hospitals, schools and special projects such as flood protection and heritage sites is the responsibility of the government's lead construction agency, the Public Works Department (PWD). Protected by the Public Procurement Act and Rules, PWD applies a complementary mix of international practices with locally designed restrictive measures such as per-performance payments, earnest money deposit (EMD) security provisions, Defect liability and price adjustment to available tendering options. Despite a model form of contract formation, PWD is confronted with problems such as late tendering, lack of competition, time and cost overruns in addition to poor quality. In fact, dispute resolution is inefficient and frequently ends up in arbitration. Reforms such as e-procurement, contractor grading, digital templates and monitoring cells are trying to improve efficiency but performance remains held back by inflexible hierarchies, high turnover of leadership and procedural inefficiencies.

Chapter 3: Methodology

3.1 Research Design

In the mixed method research design two types of methods like quantitative and qualitative are used where it is to understand practices and challenges in contract management within PWD of Bangladesh. The dual inquiry facilitates a strong investigation of both quantitative trends and stakeholder beliefs/experiences.

3.1.1 Quantitative Component: Data-Driven Analysis

The quantitative research will include project data from historical PWD records that are used to calculate key performance metrics about the level of project timelines (planned versus actual), budget variation (estimated costs to actual costs), duration for others dispute resolutions and percentage of overall project success rates. Descriptive statistics paradigms and regression models will be used to reveal significant association between these particular contract management practices or processes in achieving overall project performance within a five sample set of completed packages.

3.1.2 Qualitative Component: Stakeholder Perspectives

This qualitative study will be conducted using semi-structured interview with key informants namely PWD officers, contractors and consultant/supervision agency to gain understanding on the underlying causes of problem and focus on any potential change. These interviews would explore relevant issues: re-occurring bottlenecks in procurement and implementation processes, stakeholder perception of potential corruption risks, the implications on set reforms such as e-GP and digital monitoring systems; actionable recommendations for advancing future policy development agendas etc.

3.1.3 Integration of Methods

Quantitative data will be triangulated with qualitative emphasises to ensure the findings are credible. This blended technique achieves Qualitative measurements alongside Quantitative outputs, and adds to both Weighs data against lived experiences Captures/Quantifies Quality of Life and Experience for PWD along with support from stakeholders.

3.2 Data Collection Methodology

This study utilizes a two-phase data collection process that integrates primary and secondary sources of data to facilitate a thorough consideration of the contract management challenges faced by the PWD in Bangladesh.

3.2.1 Primary Data Collection

The qualitative data will be used to validate results of the quantitative survey. This approach combines both Quantitative Output and Qualitative Human element, Cross-validates trend data with real time survey at the ground level to PWDs for Supporting evidence-based arguments and Stakeholders/Government advocacy. The lead (primary) research will use a mixed-methods approach that involves semi-structured interviews with key informants - including PWD officials and contractors - who are interviewed both face-to-face and virtually to draw detailed views of the procurement bottlenecks, issues of enforcing contracts, risks from corruption, and digital reforms in practice. This qualitative component is supported by semi-structured surveys administered to 25 contractor, engineering, and auditing professionals along Likert-scale questions, that capture the frequency of delays and cost overruns (quantitatively) satisfaction on dispute resolution mechanisms (quantitatively), and the discovered training gaps in contract management.

3.2.2 Secondary Data Collection

The primary research method is supported by secondary research, where existing documentary evidence is systematically reviewed to measure performance trends and cross-checks the findings of primary research – drawing on: PWD institutional files (such as annual reports, certificates of project completion and summaries of IMED audits), detailed case studies focusing on disparities between planned and actual timescales and budgets; external reports from reputable sources such as World Bank & ADB infrastructure assessments supplemented with corruption surveys conducted by Transparency International Bangladesh.

3.2.3 Data Integration & Validation

This combined research approach ensures valid, evidence-based findings, based on rigorous triangulation that cross-checks unfolding interview themes against quantitative indicators of project performance—like confirming allegations of “approval delays” with PWD’s written records of tender-processing time frames—while controlling for bias through anonymized

survey results and a wide variety of respondent profiles to help temper response-bias distortion and thus integrate stakeholders' lived experiences at ground level with the official record-keeping to gain broad insight.

3.3 Analytical Tools

This meshing (triangulation) of methods coincides with guaranteeing rigor and evidence-based outcomes through: In the article, in-depth analysis of contract management issues in Bangladesh's PWD is conducted for qualitative procedure. The methodological approach merges thematic analysis strategy for qualitative data interpretation and SWOT/PESTLE frameworks to identify institutional, operational and external context drivers that affect the functioning of PWD.

3.3.1 Thematic Analysis for Qualitative Data

Qualitative data from interviews and surveys are interpreted using thematic analysis. This method consists of examining the data, determining concepts and associating codes to create themes. These themes are confirmed using secondary sources then to enhance credibility. This technique allows structural as well as stakeholder pain points to be revealed, adding depth and context to quantitative performance measures.

3.3.2 SWOT Analysis: Internal Assessment

The PWD's internal contract management process was evaluated using a SWOT analysis. Opportunities are identified in the form of established procurement regulations and embracing e-GP, threats demonstrate stagnation in bureaucratic rigmaroles and incompetence on contract management. It is also determined through the analysis who and what is gaining because of digital transformation, technologies including BIM, AI and threat such as corruption and inflation. The results provide evidence that addressing skill shortages with training programs and technology adoption are key to increasing efficiency and preventing delays.

3.3.3 PESTLE Analysis: External Context

The PESTLE tool identifies the key external macro-environmental influences on public construction projects. Political changes, economic pressures (e.g material price fluctuations), social pressure for transparency and skill scarcity, technology challenges in e-procurement,

legal issues (eg arbitration backlogs) and environmental risk due to climate change are key potential differentiators.” The study indicates that contract clauses on climate change and the enhancement in efficiency of dispute resolution process are required to build resilience of projects.

3.3.4 Integration of Findings

The synthesis combines the qualitative themes coded with the strategic SWOT and PESTLE findings. This comprehensive approach delivers diagnostic insights into what is driving chronic delays and cost overruns, as well as actionable guidance on how to address them.

Chapter 4: Findings & Analysis

4.1 Overview

Chapter 1 (Section 1.4 and Section 1.5) refers to four research objectives and four research questions. This section responds to the first research question which is about existing practice of contract management in PWD, and the first and second research objectives, that refers to thorough examination of institutional, procedural and technical obstacles found within PWD's current contract management system impacting these chronic delays to project delivery. This will help to build references in teaching the modern contract management system of construction industry especially for PWD.

This chapter also presents detailed analysis of the collected data and detail overview on questionnaire survey findings, which has been completed by every responsible contract management personnel at different level of PWD, and contract's staff to meet previously mentioned research goals.

An online survey was circulated to 25(no) officers (respondents) of PWD who are the internal stakeholders and contractor's staffs as external stakeholders whoever involved in contract management activities for their respective departments in construction industry. These officials (respondents) were chosen based on participation in the contract management of large construction development sectors.

Each question from the questionnaire has been analyzed independently to properly understand the subject. Qualitative analysis was performed according to the perceptions of participants. The numbers for these two were processed on the basis of the respondents' information. The rest of the detailed results and analyses are provided in subsequent sections.

4.2 Selection of project as case study & Generic evaluation

A hospital project (Upgradation of Government Employees Hospital to 500 Bed Hospital) has been selected for contract management data analysis. A total 35 Nos Procurement Packages (21 no's Good Procurement Packages, 11 no's works Packages & 3 no's service packages) has been included in this project. Selected following five work packages have been selected as Part of the case study analysis.

Brief Description of Selected Projects:

Project Name: Up-gradation of Sarkari Karmachari Hospital to 500 bedded Hospital.

Sponsoring Ministry: Ministry of Public Administration

Implementing Agency: Ministry of Public Administration & Public Works Department .

Project Implementation Period: Original: March 2019-June 2021(1st Revised: March 2019-June 2023, 2nd Revised: March 2019-Dec 2025)

Total cost: Original Cost: BDT 37996.51 Lakh (Revised Cost: BDT 46651.53 Lakh)

Objective of the Project: Main objective of the project is to create the necessary facilities for providing modern, advanced, and quality healthcare services for government officers, employees, and the general public.

Selected Packages List

Five procurement contracts/packages have been selected for review from this project. In Five contracts five are ‘Works’ package. Regarding method of procurement OTM and e-GP followed for all packages.

Sl. No	Contract Package (Tender ID)	Contract/Cate gory/Method
A	Construction of 16th storied Hospital Building facilities in/c. Internal Sanitary & Water supply Gas connection Sewerage Treatment Plant STP & Internal Electrification works at Fulbaria ,Dhaka. (ID: 348302)	Works OTM/e-GP
B	Fire door, false ceiling, internal decoration, remaning sanitary and other ancillary works. (ID: 767741)	Works OTM/e-GP
C	WPC door and tiles extension work from ground floor to 3rd floor, internal and external electrification work such as CCTV, PABX, Solar System, Medical Gas System, Fire Hydrant System, Dish Line with ancillary works .(ID: 797810)	Works OTM/e-GP
D	Remaining works of tiles from 4th floor to 15th floor] (ID: 753248)	Works OTM/e-GP
E	Installation of Zebra blind, Porch roof top tiles, Internal electrification and other ancillary works) (ID: 1081660)	Works OTM/e-GP

The analysis of the hospital project executed by Bangladesh's Public Works Department (PWD) reveals critical inefficiencies in contract management, leading to substantial delays and cost overruns. The project was to be completed in 27 months (March 2019 — June 2021) and it stretched out to 81 months (Dec, 2025), a threefold delay. This major time-overrun was caused by a number of reasons including late site handover, COVID-19 constraints (which limited daily work hours to 8), and many design changes.

The project overspent its budget of BDT 37,996.51 lakh by 23% to cost a sum total of BDT 46,651.53 lakh.

Underlying these inefficiencies are systemic issues with PWD's management of contracts. Gaps in planning, and not just the absence of complete feasibility studies and late transfer of sites, were further aggravated by stringent procurement, comprising indeed rigid funding periods and lack of bank-up arrangements. The lack of force majeure provisions were further highlighted by external shocks, such as COVID-19. 05 contractors named C1, C2, C3, C4 & C5 were selected by Tender Approving Authority.

4.3 Analysis of Delay Causes in Hospital Construction Project

Purpose: The objective of the study is to determine the causes of delay on selected hospital construction project using selected five (5) works packages, (A - E). This investigation offers additional insight into common failure themes and site specific obstacles that slowed the trajectory of projects over time, focussing on top predicted failures by contractor.

Findings: As shown in Table 1, The analysis of the hospital project revealed a static list of main sources for delay regarding several packages. " Construction within a functioning hospital was one recurring and shared challenge across the five contractors. Key Other challenges that will not go away are lack of ARCHITECTURAL plans (Packages B, C, D) and FINANCIAL constraints (Packages B,C,D), indicating systemic issues in planning and procurement.

Most complex delays were experienced on Package A such as bad management of execution, delivery of site delay, approval interference with the RDPP as well modern changes in scope claimed by the client. This clustering of problems in Package A matches its position as the most poorly performing case on schedule performance. Directly adjacent in Package E the only sweetener that was available (work to schedule and delivery of materials could not have been better co-ordinated) was a working hospital and this one constraint, cordon bleu as it is, at least opens the door for an unequivocal answer: managing a single primary constraint beats multiple snarl ups any time. The results suggest that delay causes are not absolute events, but related problems from initial poor planning, lack of stakeholder collaboration and overlook contractual terms which are unable to accommodate in such an environment with a rapidly changing construction sector.

Table 1: Documented Causes of Delay by Contract Package

Pack age Name	ID	Contr actor Name	Major anticipated causes of failure/Delay				
			1	2	3	4	5
A	3483 02	C1	Delay in Site Handover	Architect ural drawing Revision	Poor Constructi on Managem ent	Covid- 19 and Constru ction in operatio nal hospital	-Finish Schedule change -Work Time constraint -Delay in RDPP approval -Scope Change (Clients Demand change) -poor leadership skill
B	7677 41	C2	Non Availibility of Architectur al Drawing	Fund Problem	-Delay in RDPP approval	Constru ction in operatio nal hospital	
C	7978 10	C3	Non Availibility of Architectur al Drawing	Fund Problem	-Delay in RDPP approval	Constru ction in operatio nal hospital	Scope Change (Clients Demand change)
D	7532 48	C4	Non Availibility of Architectur al Drawing	Construct ion in operation al hospital	Fund Problem	Scope Change (Clients Demand change)	
E	1081 660	C5	Constructio n in operational hospital				

4.4 Evaluation of Project Schedule performance Adherence:

Purpose: This part aims at diagnosing schedule status of five contracts to measure time delays; to identify contractor failing in performing well and extract essential lessons learned from both the unsuccessful and successful elements of the project.

Findings: The summary Schedule Performance and Delay Analysis by Contract Package in the results Table 2 indicates that has wide spread variation up to 6 months difference of SCH

and very poor performance for all the three contract packages. Most of packages showed extremely low SPI value below the 1.0 base line and long LAPST. The worst performing Package was Package C (SPI = 0.11), around nine times as long as the planned Duration; this, followed closely by Packages A, B and D all experienced severe planning delays not below 22% SPI. This reflects a chain of systemic planning, implementation and oversight issues that plagued much of the project. On the other hand, Package E demonstrated that it is feasible to get the OTD on target exactly when its work ended as scheduled (SPI: 1.00). This was a great performance and result that demonstrates what sound contract management, planning & coordination can achieve even in a challenging project environment. Such a disparity between Package E and any other constitutes an unmistakable performance benchmark, hence clearly indicating the large extent of opportunities for improving project management practice.

Table 2: Schedule Performance and Delay Analysis by Contract Package

Case Package	Contractors Name	Planned Project period (in Days)	Actual Time	Delay	SPI	Remarks
A	C1	401	1,857	+1,456	0.22	Worst delay
B	C2	161	888	+727	0.18	Shared bottlenecks
C	C3	92	822	+730	0.11	Severe inefficiency
D	C4	180	907	+727	0.20	On budget but delayed
E	C5	180	180	0	1.00	Flawless execution

4.5 Cost Performance Analysis

Purpose: This section evaluates the financial outputs of 5 contract packages of hospital project. Measure cost overruns and savings, find the sources of budget deviations, evaluate the multi-dimensional relationship between financial performance and project success according to client requirements.

Findings: The findings in table 3: Cost Performance and Client Satisfaction by Contract Package illustrates the intricate relationships that exist between cost, scope and client satisfaction, showing that to be on or under budget does not always mean existing success. Package A was delivered 16% under budget (CPI: 1.19) due to scope reductions and client

dissatisfaction statements of work do not have an updated schedule, a completed WBS or Detailed Schedule at the Activity Level. Packages B and C, in contrast, suffered cost overruns of 14 per cent (CPI: 0.88) due to project delays and consequently the results were disappointing too. Two perfect 1.00 CPI packages, D and E, demonstrate contrasting routes to success. Package D has met its programme despite some delays but on a positive financial control note, was delivered to budget, and Package E demonstrates clear project delivery best practice, being ‘on time’ ‘on budget’, if all is satisfactory for an ideal project. The most important conclusion is that cost performance has not so much to do with variance as overall scope, schedule and stakeholder management.

Table 3: Cost Performance and Client Satisfaction by Contract Package

Case Package	Planned Cost (Lakh)	Actual Cost	Variance (by %)	CPI	Remarks/Client satisfaction
A	13491.00	11,316.34	-16%	1.19	Under budget (scope reduction)/Not Satisfactory
B	2,400.00	2,733.77	14%	0.88	Overrun due to delays /Not Satisfactory
C	2,190.00	2,488.46	14%	0.88	Not Satisfactory
D	1,980.00	1,980.00	0%	1.00	On budget despite delays/Satisfactory
E	743.93	743.93	0%	1.00	Perfect execution / Satisfactory

4.6 Insurance

Purpose: The scrutiny of this section evaluated the practical application and significance of contracting insurance requirements (GCC Clause 36.1–36.6) in an individual project plan or project programme. To review if the contractor provides the required insurance before performing work, so that both PE and Contractor are protected from the named risks.

Findings: The results show (figure:1) that although a majority of contracting organizations secure insurance cover and related certificates ahead of the project start date, as claimed by 60% of respondents (15 from 25), a substantial minority — 40% (10 respondents out of 25) reported that compliance only occurs partially or tardily, raising the possibility of ongoing

exposure for the project and associated entities to uninsured threats throughout the crucial early stages of work.

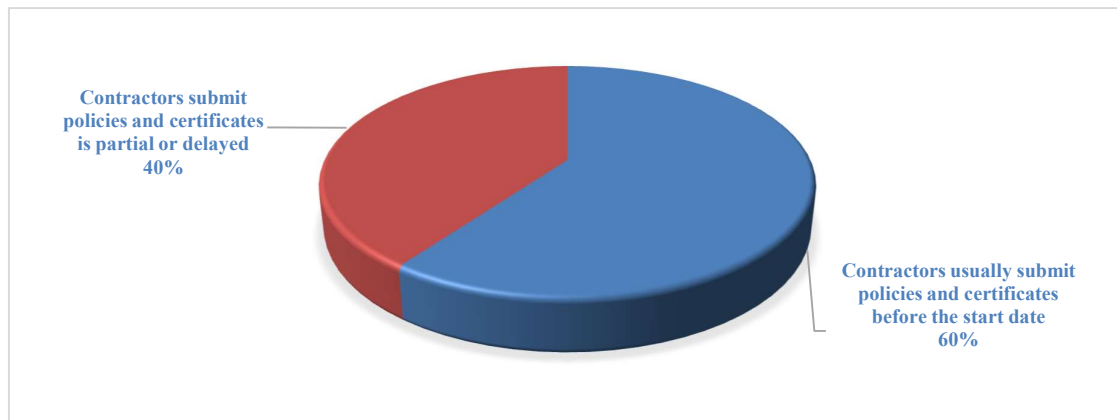


Figure 1. Contractor Compliance with Pre-Commencement Insurance Submission Requirements

4.7 Programme of Works

Purpose: These questions focused on the extent of PWD’s and its contractors’ consideration when procuring for their services, as to practicality of compliance with, and effectiveness of the provisions in relation to Programme of Works (GCC Clause 41) and Pro Rata Progress (GCC Clause 42).

Findings: Table 4 presents a number of issues in implementing contractual program management framework. Just over half (56%) of contractors supply the initial Programme of Works on time, but there is a significant number (44%) that do not, suggesting a level of non-compliance at the outset. It’s a poor picture which becomes even worse when updates are provided to the programme, with 60% stating that updates are entered erratically or too late – this has a detrimental impact on a Project Manager being able to effectively track progress.” The results are not uniform As for Pro Rata Progress, 52 percent said that progress is generally being made, while 48 percent replied that they’re falling behind on some important things because delays and planning may be poor. Overall, the outcomes suggest that the contract terms are not systematically nor entirely lived in practice with relative internal effectiveness and project monitoring and control interferences.

Table 4: Survey Results on Compliance with Programme of Works and Pro Rata Progress Provisions

Aspect	Key Observation	Respondents	Percentage (%)
Submission of Programme of Works (Clause 41.1)	Contractors usually submit Programme on time	14	56%
	Submission delayed or incomplete	11	44%
Updating Programme (Clause 41.2)	Regular updates submitted	10	40%
	Updates irregular/delayed	15	60%
Pro Rata Progress (Clause 42.1)	Progress generally maintained as per schedule/value of work	13	52%
	Progress falls behind due to delays/poor planning	12	48%

4.8 Extension of Intended Completion Date

Purpose: The aim of this study was to determine the causative of delay in time extension request approval under GCC Clause 44 by evaluating stakeholders compliance with all crucial procedural time frames and reviewing generic lead times with a view on areas that need urgent improvement.

Findings: We find an important gap between the contractual rules and their enforcement practice. While most (68%) respondents feel that contractors typically need extensions due to valid delays, compliance with critical deadline dates remains poor.

Only 48% reported compliance with the 28-day notice rule, and a mere 40% believed that Project Managers' decisions are rendered within the stipulated 21-day period. Both parties (contractors for submitting notices and Project Managers for reaching decisions) are in breach of procedural timescales as a result, causing lack of certainty on planning projects while weakening the evidence that forms the basis of claims. In general, the process is believed to be stymied by administrative bottlenecks and a scarcity of disputes, as well as delays in approval emerged – indicating that greater awareness and streamlining will increase equity and efficiency.

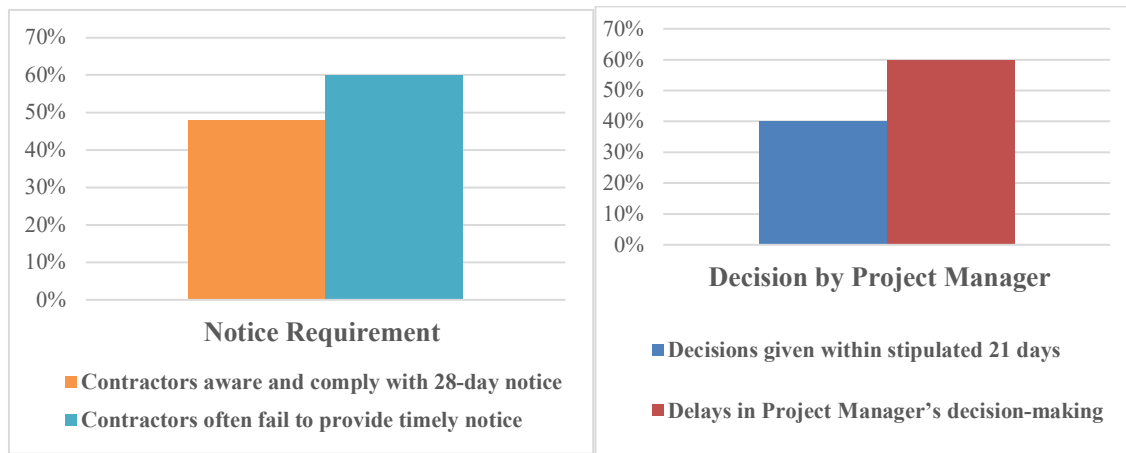


Figure 2. Stakeholder Perceptions on the Administration of Time Extension Claims

4.9 Quality Control

Purpose: The purpose of this analysis was to determine the efficacy of the QC inspection and testing program. The purpose was to validate the regularity of supervisory inspections and ascertain whether or not this forms a benchmark in project personnel's opinion with respect to quality control on construction sites, defect rate and the safeguard thereof.

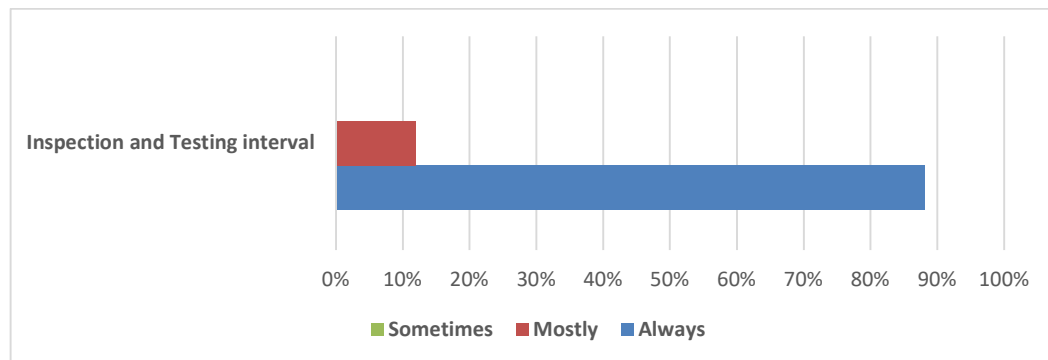


Figure 3: Frequency of Pre-Commencement Inspection and Testing

Findings: The results in figure 3 reflect an intense and proactive quality control. PWD staff by and large (88%) say they always check site supervision and material testing before allowing a work to begin. Moreover, those respondents link directly the importance of high frequency inspection with maintaining work quality, reflecting a strong organization norm to act in prevention to prevent quality problems.

4.10 Correction of Defects

Purpose: The study aimed to examine construction issues, including operational problems and contractor barriers that support improving the parties' process with regard to rectification of defective work during liability's period.

Findings: In fig. 4, the results show a highly inherent issue of defect correction algorithm. Most users (60%) say contractors normally do respond to rectification notices, though a substantial minority (40%) note that these days the response can be slow. These delays stem from predominantly two significant problems: time required for contractor repairs and the absence of budget and other resources.

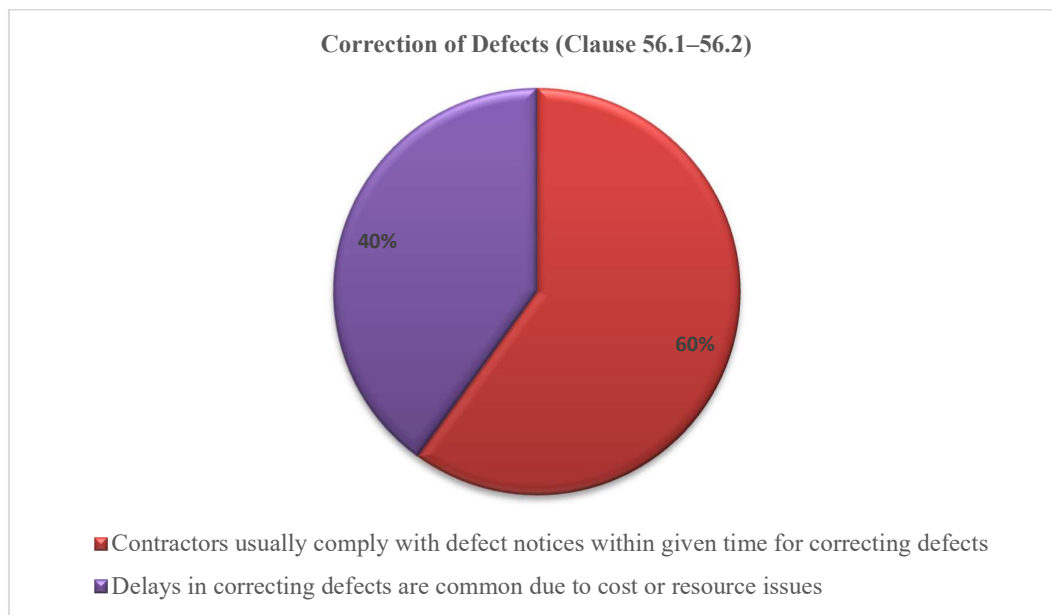


Figure 4: Contractor Compliance and Causes of Delay in Defects Correction

4.11 Variation Order

Purpose: The objective of this feedback aimed to identify where and why the VO (Clauses 61 & 62) process fails in terms of keeping to time lines, streamlining approvals, avoiding/reducing cost overruns and keeping the project on its scheduled track.

Findings: The results confirm that although the infrastructure to control variance, on paper is sound and un-ambiguous, it is executed with undue administrative delays. Even though 72% acknowledged that Project Managers can give orders effectively, there's a major stall at the "approval" stage. In a significant majority (68%) it was said that the essential 28/35/42-working-day processing limit is consistently breached(Rule 50(21) of the PPR 2025). This

means that the real problem is not in ordering but in an approvals and documentation cycle that may lead to a project slippage and/or cost overrun.

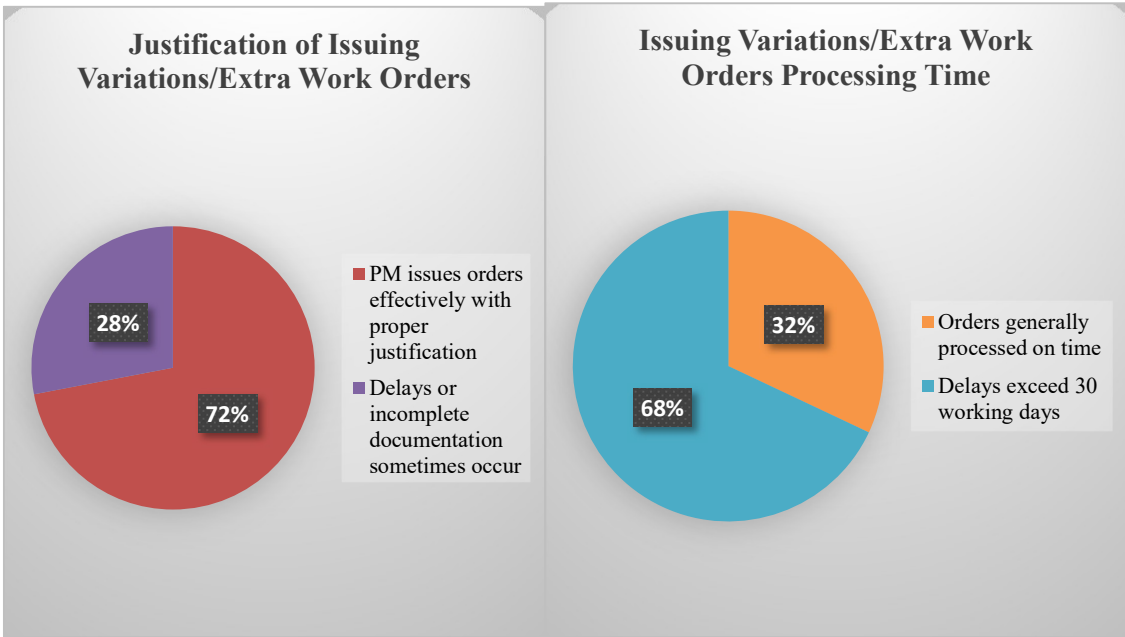


Figure 5: Adherence to Timelines in the Variation Order Process.

4.12 Liquidated Damage

Purpose: This paper aimed to diagnose the effectiveness and the challenges associated with implementation of LD provision. The aim was to identify any practical obstacles relating to its use, focusing on the accuracy of cost calculations and rapid deductions, and their causes of action that in practice limit this crucial contractual response to delay.

Findings: As shown in Figure 6, the responses indicate that while the LDs clause is generally well-drafted (agreed by 68 percent of respondents), its performance is frequently less than optimal. Close to a third of the respondents (32%) also refer to active claims, most often concerning the question if delays are excusable and assessment of liquidated damages. These problems indicate potential system-related issues regarding controls, communication and possibly the fact that project timer deadlines have stuck in their original dates when a project is initiated but postponed shortly after which of course can decrease this tools intended effect.

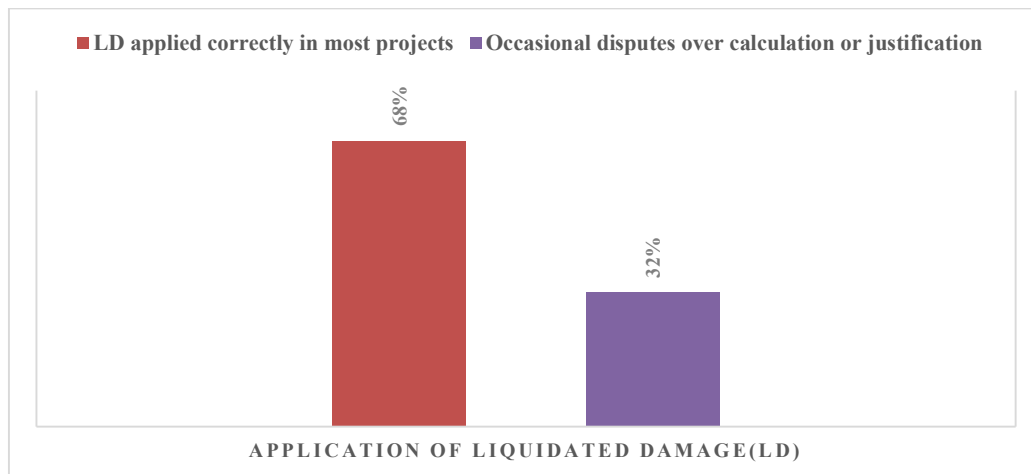


Figure 6: Application and Dispute of Liquidated Damages (LD)

4.13 Amendment to Contract

Purpose: This part shall be to examine the practicability of the GCC Clause 80 procedure for diagnosing the effectiveness of contract amendment. The aim was to identify the concrete operational inefficiencies—such as procedural delays and documentation errors—which prevent the efficient integration of changes, despite this clause offering a well-defined formal system.

Findings: (Table-7) The findings imply that the main problem for the implementation of amendment clause is not that it is unclear but difficult to enforce. While most people (56%) think amendments are incorporated into the system correctly, 44% reported they have encountered delays and mistakes in official papers. This is further proof that there currently appears to be a systemic exposure for this process and one which fundamentally depends on staff awareness and following proper channels of approval calling out for improved standardization and oversight.

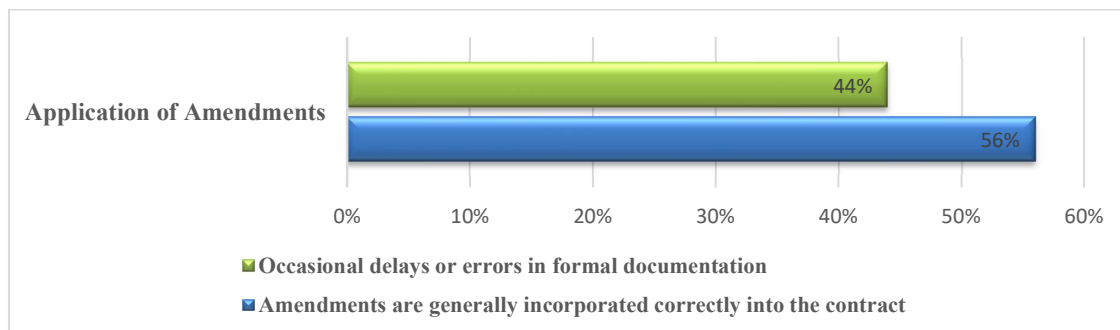


Figure 7: Compliance and Challenges in Contract Amendment Documentation

4.14 As-built Drawings and Manuals

Purpose: This aspect of the course discussed shortcomings in the As-Built documentation process (Clause 82) such as, reasons why submissions are late and partial and how procuring ways to enforce up-to-date and correct project documentation does not work efficiently.

Findings: Timeliness and Quality of As-Built Drawings and Manuals This level of noncompliance is depicted in figure 8 below, which has to do with the fact that long term usability issues within the project are inevitable. Though the majority (64%) of those that contract out construction work turn in the appropriate As-Built documentation on time, 36% do not managing to get the finished product delivered are later than wanted or without a complete record. This ongoing deficit shows that the enforcement elements of such contracts are not being fully successful and it has been made susceptible to contractor priority and possible poor quality control preceding submission.

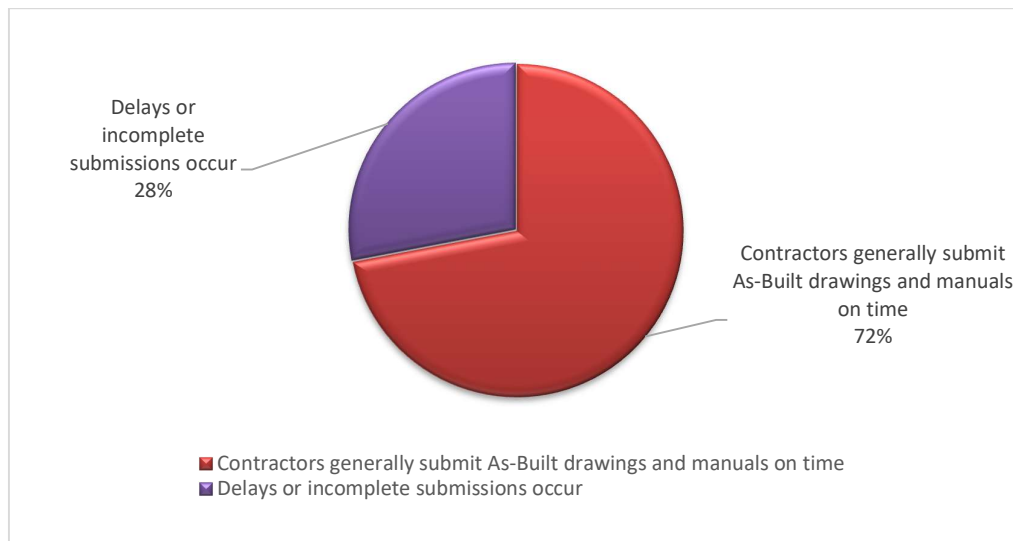


Figure 8: Timely Submission of As-Built Drawings and Manuals

4.15 Termination of Contract

Purpose: This part discusses how the keywords of the termination clauses (for default, for insolvency, and for convenience) are given effect in practice. Its aim is to provide a measure of compliance and check its practical utility, and identify clauses which are most divisive in terms of contracting parties.

Findings: From the questionnaire results (Table-5) it is clear that there is an obstacle to use termination for default. Almost nine out of ten (88%) respondents said that termination disputes often arise in relation to the definition of a “fundamental breach”. This high rate of disagreement would seem to indicate that as an important part of the solution, the clause itself is also a significant problem in many cases. A mere fraction (12%) found that termination was exercised properly, without such contestation, in cases of actual fundamental breach projects. This underscores the fact that it is not really the supply, but rather how one understands and accepts under what circumstances it gets activated.

Table 5: Survey Results on Compliance with Contract Termination Provisions

Aspect	Observation	Respondents	Percentage (%)
Application for Default	Termination applied correctly in projects with fundamental breaches	3	12%
	Occasional disputes over breach classification	22	88%

4.16 Settlement of Disputes

Purpose: The aim of the present analysis is to assess life-tenants’ knowledge, implementation and overall performance of GCC Clause 95 structured dispute resolution process. It seeks to gauge awareness, understanding and the use of the three -pronged system (negotiation, adjudication and arbitration) for resolving contractual disputes.

Findings: In table 6, The survey shows a high degree of awareness and mostly successful implementation of the grievance resolution mechanism as depicted in table 6. An overwhelming majority (88%) of participants are familiar with the three-tier system, and the amiable settlement stage is considered effective for addressing minor disputes (72%). The adjudication operation is substantially conforming in that 80% of decisions have been made within the prescribed 28-day timeframe, although this is still showing a delay (20% are being delayed from time to time). There is also high disposition to arbitrate (awareness 84%) and limited question at the level of the seat and process. Generally, the results support the conclusion that Clause 95 is a predictable, prompt and enforceable framework that balances negotiation and legal formality while reducing project delay.

Table 6: Respondent Experiences with the Settlement of Disputes Process

Aspect	Observation	Respondents	Percentage(%)
Awareness of Dispute Resolution Process	Most respondents understand the three-tier approach (amicable → adjudication → arbitration)	22	88%
	Some respondents are unclear about timelines or cost-sharing for adjudication	3	12%
Effectiveness of Amicable Settlement	Seen as effective in resolving minor disputes	18	72%
	Some disputes still escalate to adjudication or arbitration	7	28%
Adjudication Process Compliance	Adjudicator decisions generally issued within 28 days	20	80%
	Occasional delays reported	5	20%
Arbitration Readiness	Respondents are aware arbitration follows Bangladesh Arbitration Act	21	84%
	Minor uncertainty about venue or procedure	4	16%

4.17. Record Keeping System

Purpose: The current status of record keeping in project setting was discussed in this section. It is designed to ascertain following the stipulated that premise of reliable systematic filing for accountability purpose the analysis measure compliance with specified requirement that a verifiable structured filing system should be established by testing other formats (hard copy, soft copy or combination of both) used on various organizational hierarchy level from field officers and reaches to the Project Director's desk.

Findings: The survey data in Table 7 clearly demonstrates continued high reliance on traditional practices and a severe difference between the sophistication of systems at different levels of project. That is in part because 80 percent of the implementers on the ground — contractors and site staff members — use only hard-copy systems, such as record books, according to the data. Contrarily, 20% from the balance is being undertaken on far sounder lines of record keeping in hard as well soft and form; but alas! this too confined to Main

Offices (P/A Project Director Etc.) This distribution is symptomatic of an operational imbalance where the capacity to keep a tidy and accessible filing system is not necessarily proportionate with the scale of a project.

Table 7: Prevalence of Record-Keeping Formats Across Project Levels

System	Frequency	Percentage
Hard Copy	20	80
Soft Copy	0	0
Both	5	20
None	0	10
Total	25	100

4.18 Time Management:

Purpose: This work was accomplished in order to minimize systemic level of scheduled overruns for procured works. The purpose was to look beyond general acknowledgment of delays and specifically highlight procedural inadequacies by PWD and functional deficiencies by the Contractors that are responsible for time surges and non-completion within scheduled duration.

Findings: The findings confirm a severe time shortfall indicating that the majority (60%) of respondents perceive that contractual times are not being closely adhered to. This rampant noncompliance is due to the same set of excuses with very minimal deviations from either end - The main source of delays (PWD) are administrative and procedural access barriers - delay in site possession, approval of Programme of Works (POW), time taken for payment processing and inspection and certificate issues. At the same time, Contract-side delays of a more practical and economic nature – including late start, insolvency or late payment of workers – are enhancing the timeline overrun. Even the 40% on-time performance is clearly not satisfactory, which implies a time management system that fails to keep pace with project execution and poor enforcement so we experience growing cost increase due to contract time extensions.

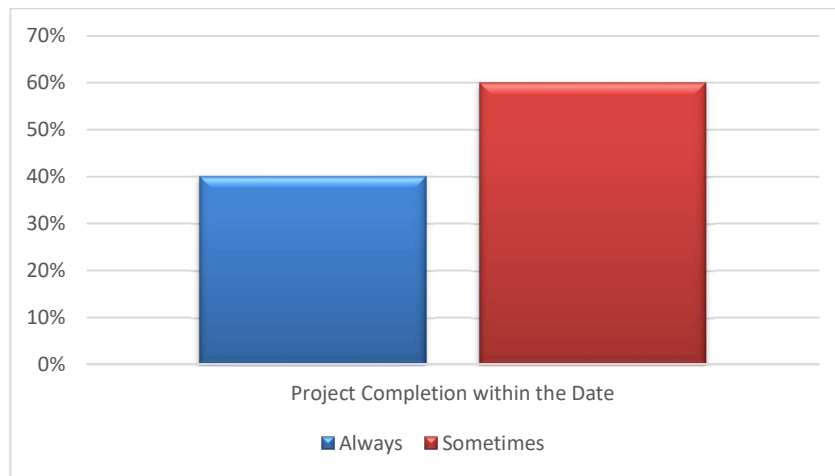


Figure 9: Root Cause Analysis of Project Schedule Non-Compliance

4.19 Managing Contract Risk:

Here we find, structured risk-management is absolutely absent in the public procurement of Bangladesh including the field level of PWD. In practice, adequate performance security is retained from the contractors. The suppliers' litigation experience also is a factor. Worldwide, more inclusion of contract risks is allowed from the practice such as –

- Insurance coverage
- Guarantee from third party
- Indemnity clause implemented
- Stringent risk assessment of supplier's financial viability
- Plan 'B' as an alternate

4.20 General Findings:

In PWD, Procurement Practice follows provisions of PPA and PPR in most cases. Compliance is there to a great extent but as far commitment regarding the best value for money is concerned it is not visible. In summary, the findings of this review were as follows:

- a) Major clauses as used in the tender document are in conformity with requirement of PPR and Standard Tender Document published by BPPA is made use during open procurement.
- b) No adequate Contract Management Plan is in PWD;
- c) Payment schedule is reasonably adhered to in PWD for payment of suppliers bill;
- d) No practice of vendor rating, KPI among the contractors in PWD.

- e) No opportunity for contractor growth;
- f) Price Adjustment clause would not be practiced on projects which are of project duration less than 18 months.
- g) Poor management of relationships;
- h) For dispute management, only three options are expressly used. Dispute resolution clauses are sometimes not understandable by the parties, as a result of which contract management process is hampered;
- (i) Record keeping is good in PWD's works contract management practice. Web based project management system has been launched in some projects.
- (j) Contract risk management system is not up to the mark;

However, the overall findings of the study are satisfactory to the researcher and the trend of contract management practice in PWD is very much positive despite of everything

4.21 Mitigation Strategies for Enhancing Contract Management in PWD Bangladesh

The problems in the case of Bangladesh's Public Works Department (PWD) – chronic delay, corruption, ill-defined contracts and weak enforcement – call for a multi-pronged approach to reform. Based on international best practices and local adaptations this study recommends three main mitigation measures: digital procurement, capacity building measures and external audit. These are direction towards lesser opacity and idling and more accountability in procurement practices of PWD by addressing reasons causing inefficiency.

4.21.1 Digital Procurement Systems for Transparency and Efficiency

End-to-end digital procurement – including the way contracts are managed - is a shift PWD needs to make. Bangladesh's existing e-Government Procurement (e-GP) platform is a good one, but it needs to be widened to cover the entire life cycle of the project. AI supported bid assessment tools could reduce the involvement of human in tendering process and hence the extent of collusion and rigging opportunities. Blockchain based contracts being smart contracts when signed, might also be more secure and reduce unwanted alterations changes.

4.21.2. Capacity Building for Sustainable Contract Administration

Training Only 22% of PWD engineers have had formal training in contract management, resulting in misinterpretations of the clause and poor enforcement. Capacity development with BUET and IEB along certification courses on FIDIC/NEC as well as workshops on risk, dispute resolution, digital tools will bring the PWDs in line with international standards.

Knowledge-sharing with agencies such as BCA Singapore could lead to new procurement options in the form of performance-based contracting and constructability reviews. A staged implementation, beginning with project directors and procurement staff, would increase compliance and reduce arbitration delays (now averaging 3.2 years).

4.21.3 Third-Party Audits and Independent Oversight Mechanisms

At present, independent quality check of PWD work is applied to only 30% of PWD projects, leaving room for poor quality work and financial malpractice (IMED 2023). Trust would benefit from a need for mandated third-party audits including on-site material testing and LiDAR monitoring. A UK-style ACC-run whistleblower portal could cater for the safe reporting of such wrongdoing. India's highways reforms demonstrate that such interventions reduce leakage of corrupt funds by 30% and increase quality of goods by 25% (World Bank, 2021). For PWD, these measures would save BDT 300–500 crore yearly and restore public trust

4.22 Synergistic Implementation and Expected Outcomes

It is hardly possible to distinguish between digitization, capacity building and audit. Pilots in the short term (0–2 years) test digital tools and train staff, medium-term phases (2–5 years) scale interventions across PWD zones, while long-term reforms (5–10 years) may embrace AI-driven analytics and collaborative contracts such as NEC4. These will generate a 3-4x return on investment in avoided delays, disputes and corruption. It also needs political will, stakeholder collaboration and sustainable funding. The effectiveness, integrity and harmonization can be strengthened by prioritizing digital systems, learning supports and checks by third parties.

4.23 Stakeholder Perspectives

The success of a public construction project is highly dependent on efficient communication and cooperation among the executing agencies and contractors, however in the PWD of Bangladesh this vital linkage between implementing agencies and the contractors remain poorly established. Their different orientations towards risk transfer and transparency also reveal the shortcomings in contractual governance that typically underpin endless disputes, budget overruns and poor performing projects.

Chapter 5: Conclusion & Recommendations

5.1 Summary of Key Findings

Insights these studies of the contract management performance of Public Works Department (PWD) uncovers important systemic inadequacies that pose significant obstacles to infrastructure development, distilled into four major axes.

Firstly, Chronic delays to projects and cost overruns are widespread shown in both near 2-year average delay for PWD projects, with 63% of projects facing an average cost overrun on project 27%, primarily driven by bureaucratic approval delays, weak contractual risk allocation and void force majeure provisions as we have seen play out through the COVID-19 pandemic.

Secondly, Systemic corruption permeates the procurement process, manifesting as bid rigging, pre-selection of contractors, material substitution, and informal negotiations for payment expediting, which undermines the principles of the Public Procurement Act (PPA) 2006.

Thirdly, Ambiguous contract clauses in standard Particular Contract Conditions (PCC) including those of force majeure, price adjustment and quality determination rules have caused many disputes – the average arbitration time is 3.2 years, which has led contractors to cut corners.

Last but not least, weak enforcement and significant political interference are prevalent; only 12% of blackspot contractors were reported as being once or more blacklisted, whilst the corresponding proportion actually rose to 55% for engineer who refused orders from politicians to bypass violations demonstrating severe public sector governance and accountability weaknesses that the BPPA and legislative frameworks have so far been unable resolving sufficiently.

To address these systemic issues the research recommends actionable reforms including the mandatory incorporation of dynamic price adjustment and clear force majeure clauses, full adoption of electronic CMS for all post-award activities to ensure transparency and prevent delay, creation of an independent contract management oversight cell within BPPA with the mandate to audit projects and blacklist without political interference and introduction of mandatory in-service training for PWD engineers on modern concepts in contract

administration, dispute resolution under BCA 1872 and ethical practices as key interventions in building institutional c

5.2 Practical Recommendations

To fix these structural problems, the research recommends:

- **Require Full e-GP Implementation:** Scale up Bangladesh's e-Government Procurement (e-GP) system to include an auto evaluation based on AI-driven scoring, blockchain-secured contract signing. The goal should be full e-tendering compliance by 2025.
- **Contractor Performance Grading:** Create a public repository of contractor on-time completion rates, audit quality findings and dispute histories. Multiple time offenders should be banned to the Naught corner for min 3 years.
- **Introduce Fast-Track Dispute Resolution:** Enact state-level Construction Dispute Resolution Boards (DRBs) to enforce final resolution within a 6-month timeframe for all claims, based on examples from Singapore's BCA and India's PMGSY roads program.
- **Connect e-CMS with the e-GP:** The system of Electronic Contract Management(e-CMS) has to be integrated directly with the CPTU's e-GP portal, so that immediately after the Award of Tender; any downward steps towards contract management will automatically move to the domain of e-CMS.
- **Adopt FIDIC Standard Contracts:** Enforce FIDIC Red Book for conventional procurement projects and Silver Book for the design-build format. Clear risk sharing of price variation, ground conditions and approval delays must be incorporated in these contracts.
- **Capacity Building Program:** To train 500 PWD engineers every year on digital contract management, FIDIC/NEC Standards and Dispute Resolution. Collaboration with organizations such as Singapore BCA can help in knowledge and technology transfer.
- **Independent Quality Audits:** Introduce mandatory 3rd party audits for all projects of over BDT 50 crore and random material testing for a minimum of 30% sites & drone-based monitoring for onsite progress.
- **Institutionalization of life-cycle costing and total cost of ownership** into procurement practices to ensure that considerations reflect lifetime value rather than lowest cost. There should be an item in the budget which says, "sustainability alternatives are to be developed."

- **Judicial Reforms:** Create Construction Courts, as being done in Singapore and then modify the Arbitration Act 2001 to facilitate faster dispute resolution.
- **Political Accountability Measures:** Enact laws against whistle blowers and mandatory disclosure of ministerial level intervention to prevent political interferences and corruption.
- **Climate-Responsive Contracting:** Emphasize robust force majeure clauses that mitigate against climate related risks such as flooding, extreme heat and supply chain disruptions– creating a more resilient project delivery.
- **Policy & Institutional Framework:** Establish and adopt formal sustainable procurement policy in accessibility to the National SPP Policy 2024, SDGs, and international framework (ISO 20400). Articulate sustainability in the tender evaluation criteria, instead of going beyond least-cost options.

5.3 Future Research Directions

While this study has identified critical challenges, further research should explore:

- ✓ Evaluate the efficiency of existing means of contract dispute resolution within the public sector.
- ✓ Examine risk such as cost overrun and delay management in government contracts, and consider contingency planning.
- ✓ Examine ways of adding social and environmental sustainability criteria to government contracts, in order to encourage responsible procurement.
- ✓ Investigate the establishment of robust performance measurement regimes to enhance contract accountability and delivery.
- ✓ Identify the training and skill development necessary to enhance contract management business performance in government offices.
- ✓ Explore the role of gender in contract management, identifying barriers and opportunities for more inclusive practices in government contracting.

These areas can help improve efficiency, transparency, and sustainability in Bangladesh's government contract management processes.

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Survey Questionnaire

Research Topic: "Exploring Effective Contract Management Strategies: A Case Study of Selected Construction Projects of Public Works Department (PWD) "

(This is a survey questionnaire for conducting a study on the project entitled "Challenges and Solutions in Contract Management: A Study of Construction Project Under Public Works Department (PWD) in Bangladesh" to find out how the compliance is achieved in PWD's Contract management activities on this project. The aim of this research is to find out the extent of compliance of PPR 2008 and Contract Management activities in PWD and whether there is any hindrance to follow Contract Management activities. It is a part of academic necessity for the Masters in Procurement and Supply Management in the Institute of Governance and Development, BRAC University. Your honest 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.)

Part A: Respondent's Profile

1. Name:
2. Address:
3. Designation and Organization:
4. Age:
5. Gender: Male/Female
6. Length of service in present position:
7. Years of experience in public procurement:
8. Work as Contract Management level: Procuring Entity/Project Manager/Contractor
9. Did you get training or familiar with the following concepts? (Please Tick mark)
 - a. Public procurement of Works..... Yes/No
10. Do You Familiar with Contract Management System? Yes/No

Part B: Assessment Questionnaire

(The following questions are designed to assess the extent to which the Contract Management activities of PWD comply with the rules stated in PPR 2008 and Contract Agreement.)

Please tick (✓) your option/options)

(Your choice can be more than one where appropriate)

Q. Does existing contract management practice in PWD comply with the PPA-2006 & PPR-2008?

- ☐ Always
- ☐ Mostly
- ☐ Sometimes
- ☐ Never

Q. What Kind of standard document do you use in procurement of works?

- ☐ PW2
- ☐ PW3
- ☐ PW2(b)
- ☐ PW544.

Q.What method/methods of procurement do you usually follow in your projects for the procurement of Works and related services?

- ☐ International Competitive Bidding
- ☐ National Competitive Bidding
- ☐ RFQ
- ☐ Direct purchasing
- ☐ Limited Tendering
- ☐ Others (please specify)

Q.Is there any agreed contract management plan (CMP) that you practice in your contract administration process for the procurement of Works?

- ☐ Always
- ☐ Mostly
- ☐ Sometimes
- ☐ Never

Q.What is the record keeping system that you practice in your contract administration process for the procurement of Works?

- ☐ Hard Copy
- ☐ Soft Copy
- ☐ Both

Q.Do you maintain Contract Register?

- ☐ Always
- ☐ Mostly
- ☐ Sometimes
- ☐ Never

Q.Do you arrange Contract Commencement Meeting? – Yes / No

Q.If yes, who are invited at the meeting? (Please tick (✓) your option/options)

- ☐ Procuring Entity
- ☐ Project Manager and any other LGED staff assigned by Project Manager
- ☐ Contractor's site engineer
- ☐ Sub contractor's nominated representative (if any)
- ☐ Representatives from Utility companies (if required)
- ☐ Representatives from emergency entities- hospitals/Fire service (if required)
- ☐ Any others

Q.Do you take any compensation events for late commencement works?- Yes/ No

Q.Do contractors usually submit insurance policies and certificates before the contract start date, as required by the contract (Clause 36.1–36.5)?

- ☐ Yes, always
- ☐ Sometimes (partial or delayed compliance)
- ☐ Rarely
- ☐ Never

Q. Does contractor generally submit the Programme of Works on time as per GCC Clause 41.1?

- ☐ Yes, usually on time
- ☐ Sometimes delayed/incomplete
- ☐ Rarely submitted properly
- ☐ Never submitted

Q. How frequently are Programme updates submitted as required under GCC Clause 41.2?

- ☐ Regularly (on schedule)
- ☐ Occasionally (some delays)
- ☐ Irregular/delayed
- ☐ Hardly ever

Q. Is Pro Rata Progress (Clause 42.1) generally maintained in line with the value of works?

- ☐ Yes, progress usually meets expectations

- ☐ Sometimes maintained, sometimes delayed
 - ☐ Frequently falls behind
 - ☐ Rarely maintained
- Q. Does contractor usually comply with the 28-day notice requirement when seeking an extension of time?
- ☐ Yes, usually within 28 days
 - ☐ Sometimes delayed but acceptable
 - ☐ Frequently delayed
 - ☐ Rarely comply
- Q. Are Project Managers' decisions on extension of Intended Completion Date usually given within 21 days?
- ☐ Yes, within stipulated period
 - ☐ Sometimes delayed
 - ☐ Frequently delayed
 - ☐ Rarely on time
- Q. How often are materials tested prior to starting the works?
- ☐ Always
 - ☐ Mostly
 - ☐ Sometimes
 - ☐ Never
- Q. How often do contractors comply with defect notices within the stipulated Defects Liability Period?
- ☐ Yes, within stipulated period
 - ☐ Delays in correcting defects
- Q. How often does the Project Manager issue Variation/Extra Work Orders with proper justification and documentation?
- ☐ PM issues order effectively with proper justification
 - ☐ Delays or incomplete documentation sometimes occur
- Q. Are Variation/Extra Work Orders generally processed within the 30-working-day timeframe?
- ☐ Orders generally processed on time
 - ☐ Delays sometimes exceed 30 working days
- Q. How often are Liquidated Damages (LD) applied correctly when contractors fail to complete works on time?
- ☐ Applied correctly in most projects
 - ☐ Occasional disputes over calculation or justification
- Q. In your experience, how often are contract amendments (time, cost, scope changes) correctly incorporated into contract documents?
- ☐ Generally incorporated correctly into the contract
 - ☐ Occasional delays or errors in formal documentation
- Q. In your experience, how often do contractors submit As-Built drawings and O&M manuals within the stipulated time (as per PCC)?
- ☐ submit As-Built drawings and manuals on time
 - ☐ Delays or incomplete submissions occur
- Q. In your experience, how often is contract termination applied correctly in cases of fundamental breach?
- ☐ Applied correctly in projects with fundamental breaches
 - ☐ Disputes over breach classification
- Q. What are the methods that you expressly mention in your contract document for dispute/conflict management?
- ☐ Negotiation
 - ☐ Adjudication
 - ☐ Arbitration
 - ☐ Litigation
 - ☐ Conciliation
 - ☐ Others (please specify)
- Q. Are you aware of the three-tier dispute resolution process (amicable settlement → adjudication → arbitration)?
- ☐ Yes, fully aware
 - ☐ Partially aware/ Not aware
- Q. How effective do you find amicable settlement (mutual discussion and negotiation) in resolving disputes?
- ☐ Seen as Very effective in resolving minor disputes

- ☐ Some disputes still escalate to adjudication or arbitration
- Q. Do adjudicators generally issue decisions within the required 28 days?
- ☐ Always
- ☐ Never, Occasional delays reported
- Q. What is the record keeping system that you practice in your contract administration process for the procurement of Works?
- ☐ Hard Copy
- ☐ Soft Copy
- ☐ Both
- ☐ None
- Q. In your experience, how often are PWD projects completed within the stipulated time (as per agreement)?
- ☐ Always
- ☐ Mostly
- ☐ Sometimes
- ☐ Never
- Q. If not, what compensation events do you follow? (Please tick (✓) your option/options)
- ☐ Fine for late submission
- ☐ Withholding an amount from the next payment.
- Q. In case of managing construction contracts what are the main causes of delays held by PWD staffs? (Please tick (✓) your option/options)
- ☐ Delays of issuing Drawing/ specifications
- ☐ Delay of possession of site
- ☐ Delays of approving Programme of works
- ☐ Late responding of Contractor's Claims
- ☐ Delay of approving process
- Q. What are the causes of delays held by Contractors?
- ☐ Late submission of Work Programme
- ☐ Late submission of Performance Guarantee
- ☐ Delays of commencing work
- ☐ Delays due to insolvency
- ☐ Delays in paying wages to its labour
- Q. Do you record suspension and its cause in your register? Yes / No
32. What are the major clauses / terms that you incorporate in your tender/contract document to manage on time delivery as per PPR-2008?
- ☐ Time is the essence of the contract
- ☐ Liquidated damage clause
- ☐ Termination due to delay
- ☐ Force majeure clause
- ☐ Time extension provision
- ☐ Others (please specify)
- Q. Do you use Inspection and Testing Plan? Yes / No
- Q. What is the Inspection interval of projects that you supervise?
- ☐ Always
- ☐ Mostly
- ☐ Sometimes
- ☐ Never
- Q. Do you take any remedial works?
- ☐ Always

- ☐ Mostly
- ☐ Sometimes
- ☐ Never

Q. What is/are the major quality assurance activities according to you?

- ☐ Supervision
- ☐ Inspections
- ☐ Measurements
- ☐ Tests
- ☐ All

Q. Do you use photographs to control your projects? Yes / No

Q. Do you use following clauses in contract document?

- ☐ Advance payment
- ☐ Price Adjustment
- ☐ Interim payments
- ☐ Liquidity Damages
- ☐ Provisional sums

Q. Do you handle any compensation events claimed by the contractor?

- ☐ Always
- ☐ Mostly
- ☐ Sometimes
- ☐ Never

Q. What is/are the main causes for compensation events do you think? (Please tick (√) your option/options)

- ☐ PWD does not give contractor access to the site on time.
- ☐ PWD modified the schedule of others contractors
- ☐ PE/PM orders delay or does not issue instructions required for execution of works
- ☐ The PE/PM unreasonably does not approve subcontract to be let
- ☐ The advance payment is delayed
- ☐ The effect on contractor of any PWD risks
- ☐ The occurrence of Force majeure as defined in GCC
- ☐ Other Contractors, public authorities, utilities or PE cause
- ☐ PE/PM instruct Contractor to carry out additional test resulting in finding no defects

Q. What are the causes of termination?

- ☐ PWD or Contractor causes the fundamental breach of contract (GCC sub-clause 36.1 (PW2), Sub-clause 87.1(PW3)
- ☐ Contractor delaying of works.
- ☐ Contractor not doing works as per specifications
- ☐ Late payment by the PE
- ☐ When Contractor become Bankrupt or insolvent

Q. With the existing rules & system, you can ensure the procurement of best quality works that can bring best benefit to the project.

- ☐ Always
- ☐ Mostly
- ☐ Sometimes
- ☐ Never

Q. What measures do you take to manage contract risks?

- ☐ Insurance coverage
- ☐ Guarantee from third party
- ☐ Sufficient Performance Security

- ☐ Indemnity clause put in place
- ☐ Robust monitoring of supplier's financial status

Q. Do you think that present contract management practice in PWD is competent enough for achieving procurement objectives? Yes/No

Q. What is the importance of contract management in PWD?

.....

Q. What Kind of challenges do you face during contract management practice?

.....

Q. What is/are your suggestion(s) for effective contract management for the procurement of Works?

Signature of the Respondent
(optional)

Thanks for your Cooperation