



**TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
PULCHOWK CAMPUS**

THESIS NO: 079/MSCoM/013

Assessing the Effectiveness of EoT Provisions in Nepal's PPR 2064

Amendments:

A Project Based Study of DUDBC Projects

by

Kushal Bhandari

A THESIS

**SUBMITTED TO THE DEPARTMENT OF CIVIL ENGINEERING IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF MASTER OF SCIENCE IN CONSTRUCTION MANAGEMENT**

DEPARTMENT OF CIVIL ENGINEERING

LALITPUR, NEPAL

APRIL, 2026

COPYRIGHT

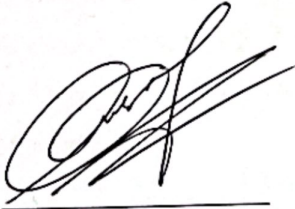
This author has agreed that the library, Department of Civil Engineering, Pulchowk Campus, Institute of engineering, can make this thesis freely available for inspection and references. Moreover, the author has agreed the permission for the extensive copies of the thesis for scholarly purposes and practical applications may be granted by the professor(s) who supervised this thesis work recorded herein or, in the absence, by the head of the department wherein the thesis was done. It is understood that the recognition will be given to the author of this thesis and the department of civil engineering, Pulchowk Campus, Institute of engineering, in any case of use of this thesis. Copying, Publishing of this thesis for any financial gain without any approval of the Department of Civil Engineering, Pulchowk Campus, Institute of Engineering and author's written permission is prohibited. The request to the copying or to make any other use of the material in the thesis in whole or in part should be addressed to:



Head
Department of Civil Engineering
Pulchowk Campus, Institute of Engineering
Lalitpur, Kathmandu
Nepal


DECLARATION

I hereby declare that the thesis entitled “Assessing the Effectiveness of EoT Provisions in Nepal's PPR 2064 Amendments: A Project Based Study of DUDBC Projects” submitted to the Department of Civil Engineering in partial fulfilment of the requirement for the degree of Master of Science in Construction Management, is a record of an original work done under the guidance of Thesis Supervisor Asst. Prof. Mahendra Raj Dhital, Institute of Engineering, Pulchowk Campus. This thesis contains only work completed by me except for the consulted material which has been duly referenced and acknowledged.




Kushal Bhandari

079MSCoM013


TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
PULCHOWK CAMPUS
DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE OF THESIS APPROVAL

The undersigned certify that they have read, and recommended to the Institute of Engineering for acceptance, a thesis entitled " Assessing the Effectiveness of EoT Provisions in Nepal's PPR 2064 Amendments: A Project Based Study of DUDBC Projects " submitted by Kushal Bhandari (Thesis No: 079/MSCom/013) in partial fulfilment of the requirements for the degree of Master of Science in Construction Management.



.....
Supervisor, Asst. Prof. Mahendra Raj Dhital
Department of Civil Engineering
IOE, Pulchowk Campus



.....
External Examiner, Er. Subash Kumar Bhattarai
Visiting Faculty
Construction Management
Center for Post Graduate Studies
Nepal Engineering College (nec-CPS)



.....
Program Coordinator, Asst. Prof. Mahendra Raj Dhital
M.Sc. in Construction Management
Department of Civil Engineering
IOE, Pulchowk Campus

24 April 2026

ABSTRACT

Nepal's public construction sector regularly suffers from chronic time overruns and stalled contracts, leading to project incompleteness. In response, the Government of Nepal introduced the 12th, 13th, and 14th Amendments to the Public Procurement Regulations (PPR) 2064, each expanding the legal grounds and procedures for granting Extension of Time (EoT) to contractors. Despite the scale of these regulatory interventions, rigorous empirical evidence on their project-level effectiveness has remained scarce. This study addresses that gap by analyzing 80 public construction projects managed by the Department of Urban Development and Building Construction (DUDBC), all of which were subjected to EoT provisions under one or more of the three amendments. Employing a non-experimental, retrospective design, the research integrates secondary project records with structured Key Informant Interviews (KII) and applies non-parametric statistical methods including Chi-square tests and Spearman correlation analysis to examine associations between project characteristics and completion outcomes. The findings reveal that EoT provisions facilitated completion in 53 projects (66.3%), confirming their policy utility in recovering stalled contracts; however, 27 projects (33.8%) remained chronically unfinished despite multiple extensions, indicating the structural limitations of time-based interventions alone. The 12th Amendment was the most productive in absolute terms, predominantly completing small-budget road contracts, while the 13th and 14th Amendments completed fewer projects overall but showed a significant shift toward building project completions ($p = 0.006$). Project budget size and type emerged as statistically significant predictors of incompleteness, with large-budget building contracts being the most resistant to EoT-based intervention. Contractor default, inadequate site readiness, and unresolved land acquisition issues were identified as the primary causes of project failure, a finding validated by expert consensus through KII analysis. Recommendations include capacity-based contractor prequalification, mandatory pre-tendering site readiness certification, and the introduction of index-linked price adjustment provisions for large contracts.

Keywords: Extension of Time, PPR 2064, DUDBC, public construction, sick projects, project completion, Nepal, Chi-square, Spearman correlation, Key Informant Interview

ACKNOWLEDGEMENT

Firstly, I would like to express my sincere gratitude to my supervisor and the Program Coordinator of the MSc in Construction Management, Asst. Prof. Mahendra Raj Dhital, for his continuous guidance, motivation, and valuable suggestions throughout this research and thesis work.

I am grateful to Assoc. Prof. Nagendra Amatya from the Department of Applied Science and Chemical Engineering, for their valuable insights and constructive suggestions, which greatly improved the quality of this research. I would also like to thank the Department of Civil Engineering, Pulchowk Campus, and the faculty members of the MSc in Construction Management program for providing the academic environment and resources necessary for this study.

Likewise, I would like to thank the project managers and site engineers for their support during the data collection phase, and the experts for providing their valuable time and essential inputs to this research. I would like to acknowledge Er. Sarun Bhomi and Er. Abhash Acharya for their support in data collection and analysis for this study.

Finally, I am sincerely thankful to my family and friends for their continuous support and encouragement throughout the study period.

TABLE OF CONTENTS

COPYRIGHT	I
DECLARATION	II
CERTIFICATE OF THESIS APPROVAL	III
ABSTRACT	IV
ACKNOWLEDGEMENT	V
LIST OF TABLES	IX
LIST OF FIGURES	X
LIST OF SYMBOLS & ABBREVIATIONS	XI
CHAPTER 1: INTRODUCTION	1
1.1 Background.....	1
1.2 Problem statement.....	2
1.3 Objectives	2
1.4 Significance of the research.....	3
1.5 Scopes and limitations of study	3
CHAPTER 2: LITERATURE REVIEW	4
2.1 Theoretical framework.....	4
2.1.1 Public Procurement and Project Delivery	4
2.1.2 Public Procurement Framework in Nepal.....	5
i. Single-Stage Single-Envelope Procedure:	5
ii. Single-Stage Double-Envelope Procedure:.....	5
2.1.3 PPR 2064 Amendments and Extension of Time Provisions.....	6
2.1.4 Construction Project Delays: Global Perspectives	8
2.1.5 Construction Project Delays in Nepal: Context and Evidence	9
2.1.6 Effectiveness of Regulatory Amendments.....	10
2.1.7 Sick and Chronic Projects in Nepal	11
2.1.8 Research Gap	12
CHAPTER 3: METHODOLOGY	13
3.1 Research flow chart	13
3.2 Research matrix	14
3.3 Research design	14
3.4 Study Area and Implementing Agency Site selection	15
3.5 Sample Selection and Screening Process.....	16

3.6 Key Informant Interview (KII) Instrument.....	17
3.6.1 Section A — Reasons for Project Incompleteness and Likelihood Rating	17
3.6.2 Section B — Mitigation Effectiveness Rating.....	18
3.7 Data analysis.....	18
3.7.1 Qualitative analysis:.....	18
3.7.2 Quantitative analysis:.....	19
3.7.3 Data from expert consultation.....	19
3.8 Conceptual Framework.....	20
3.9 Validity, Reliability, and Ethical Considerations	20
3.9.1 Validity	20
3.9.2 Reliability.....	21
3.9.3 Ethical considerations	21
CHAPTER 4: RESULTS AND DISCUSSION	22
4.1 Results from secondary data collected from DUDBC project offices.....	22
4.1.1 Descriptive statistics	22
4.1.2 Box Plot Analysis	26
4.1.3 Inferential statistics	29
4.1.3.1 Test For Normality of Data.....	29
4.1.3.2 Spearman Correlation Analysis	30
4.1.3.3 Chi-Square Tests.....	31
4.2 Ranking of Reasons of Incompletion as captured from Project data.....	36
4.3 Results from expert consultation	37
4.3.1 Reliability of Expert Opinion.....	37
4.3.2 Causes of Project Incompletion	38
4.3.3 Validation of Expert Opinions	38
4.3.4 Mitigation Effectiveness Heatmap Analysis.....	39
4.4 Discussion of Key Findings.....	40
4.4.1 Effectiveness of EoT Amendments (12th, 13th & 14th)	41
4.4.2 Project Characteristics as Predictors of Completion.....	41
4.4.3 Reasons for Project Incompletion.....	42
4.4.4 Expert Validation & Mitigation Strategies (KII).....	42
CHAPTER 5: CONCLUSION AND RECOMMENDATIONS.....	43
5.1 Conclusions.....	43
5.2 Recommendations.....	45

5.2.1 Recommendations for Practice	45
5.2.2 Recommendations for Future research	46
CHAPTER 6: REFERENCES	48
APPENDIX 1: DATA COLLECTED FROM PROJECT OFFICES.....	50
APPENDIX 2: LIST OF INCOMPLETE PROJECTS.....	52
APPENDIX 3: KII FORM	53
APPENDIX 4: STATISTICAL ANALYSIS	54
APPENDIX 5: KII , RESPONSE FROM EXPERTS	58

LIST OF TABLES

<i>Table 1 PPR Amendments</i>	6
<i>Table 2: Provisions of PPR Amendments</i>	7
<i>Table 3 Research Matrix</i>	14
<i>Table 4: Sample Composition by various categories</i>	24
<i>Table 5: Comparison between actual and observed contract duration</i>	24
<i>Table 6 Chi-Square Test between Amendment Type and Project completion</i>	31
<i>Table 7 Chi-Square Test between Cost Estimate and Project Status</i>	33
<i>Table 8 Chi-Square Test between Project Type and Project Status</i>	34
<i>Table 9 Reasons for Project Incompleteness Among 27 Not completed Projects</i>	36
<i>Table 10 Descriptive Statistics of Expert Likelihood Ratings</i>	38
<i>Table 11 Pairwise Spearman's Test for Validation of Expert Opinion</i>	38
<i>Table 12 Mitigation Measures</i>	39

LIST OF FIGURES

<i>Figure 1 Research Workflow</i>	13
<i>Figure 2: Sampling Flowchart deriving the Final Eligible Projects</i>	16
<i>Figure 3: Conceptual Framework</i>	20
<i>Figure 4 Timeline showing Amendments Effective Date to Project Outcomes.</i>	23
<i>Figure 5 Clustered bar chart for project type and completion status</i>	26
<i>Figure 6 . Box plot of total number of time extensions by project type</i>	27
<i>Figure 7 Box plot of total number of time extensions by cost estimate</i>	28
<i>Figure 8 . Box plot of time overrun (days) by project status</i>	29
<i>Figure 9 Spearman Correlation between Project Cost Estimate and Time Overrun.</i>	30
<i>Figure 10 Spearman's Correlation Diagram</i>	31
<i>Figure 11 Frequency Distribution of Reasons for Project Not Completion</i>	36
<i>Figure 12 Heat map diagram showing mitigation strategies as per experts</i>	39

LIST OF SYMBOLS & ABBREVIATIONS

DUDBC	: Department of Urban Development and Building Construction
PPA	: Public Procurement Act
PPR	: Public Procurement Regulations
IQR	: Inter Quartile Range
SD	: Standard Deviation
EoT	: Extension of Time
GoN	: Government of Nepal
CoM	: Council of Ministers
LD	: Liquidated Damage
RCC	: Reinforced Concrete Structures
CIAA	: Commission for the Investigation of Abuse of Authority.

CHAPTER 1: INTRODUCTION

1.1 Background

In developing nations such as Nepal, government-funded construction works comprises of roads, bridges, public buildings, and various public infrastructure, which serves as the principal mechanism through which public expenditure is converted into measurable development outcomes for citizens. However, Nepal's public construction sector is characterized by a chronic and persistent pattern of project delay, cost escalation, and non-completion, hindering the Nations development aspirations.

The World Bank (World Bank, 2026) identified Nepal as having the longest public project procurement timelines in South Asia, attributing this to structural weaknesses in project selection, preparation, financing, and execution. The Kathmandu Post (Post 2020) reported that despite one-third of so-called 'sick' projects being technically revived through various provisions and amendments, most troubled government contracts continued to show marginal progress. These shortcomings reflect deeper systemic issues: unrealistic cost and duration estimates, low-bid contractor selection, inadequate pre-construction site preparation, poor monitoring, and recurring administrative bottlenecks.

Within this challenging operational environment, the Government of Nepal has introduced multiple amendments to its Public Procurement Regulation (PPR) 2064 as regulatory interventions intended to revive stalled contracts. The 12th, 13th, and 14th amendments enacted in 2079, 2080, and 2082 BS respectively each expanded or restructured the legal grounds and procedures for granting Extension of Time (EoT) to contractors. These amendments represented deliberate policy efforts to address the backlog of incomplete, stalled contracts, those that had exceeded their original or extended deadlines.

Despite the scale of these interventions, rigorous empirical evidence on their effectiveness in producing actual project completion particularly at the project level, disaggregated by project type and budget size remained scarce. This study was designed to fill that gap by examining public construction projects managed by the Department of Urban Development and Building Construction (DUDBC) across Nepal which were subjected to such amendments.

1.2 Problem statement

Despite the introduction of the 12th, 13th, and 14th amendments of PPR 2064, which collectively aimed at resolving the backlog of incomplete and sick construction projects through the provision of Extension of Time, the effectiveness of these regulatory interventions in achieving project completion has not been rigorously assessed at the project level. A significant number of projects remain uncompleted even after multiple rounds of EoT provisions, raising fundamental questions about whether EoT mechanisms as currently designed are achieving their intended outcomes.

Prior studies on Nepal's procurement framework have primarily focused on effects during procurement phases such as bidder participation, competition dynamics, and legal implications of frequent regulatory changes, rather than on outcomes after tendering and execution of contracts. Furthermore, while limited research exists on the 12th and 13th amendments, there has been no comprehensive empirical analysis extending to the 14th Amendment, nor a comparative examination of project outcomes across all three amendments with rigorous statistical testing. This gap is particularly significant because the profile of not completed projects appears to have evolved across amendment cycles — shifting from simpler, lower-budget road contracts toward larger, more complex building projects. Hence, systematic study is needed to:

- Quantify effectiveness of various amendments.
- Identify effectiveness across projects characteristics.
- Identify the major causes behind incompleteness and interventions to improve completion outcomes.

1.3 Objectives

The objectives of this study are:

- a. To analyse the number of construction projects completed under the 12th, 13th, and 14th amendments of PPR 2064 and assess the relative effectiveness of each amendment in achieving project completion.

- b. To examine the projects that received Extension of Time provisions under all three amendments, and to determine whether project characteristics are significantly associated with higher rates of project incompleteness despite such provisions.
- c. To investigate the primary reasons for project incompleteness among not completed projects and derive expert recommendations.

1.4 Significance of the research

This study contributes to the body of knowledge on public procurement effectiveness in developing countries, particularly in South Asian contexts characterized by administrative bottlenecks, frequent regulatory changes, and chronic project delays. By providing rigorous, project-level empirical analysis linking amendment-wise EoT exposure, project type, budget size, and completion outcomes, the study fills a gap that existing research has not addressed.

The findings carry direct policy relevance for the Government of Nepal, PPMO, DUDBC, and other implementing agencies engaged in public construction contract management. By identifying which types of projects and which budget categories are most vulnerable to incompleteness despite EoT provisions, the study provides actionable evidence for reforming contractor selection criteria, project monitoring, and future amendment considerations.

1.5 Scopes and limitations of study

This study focuses on public construction projects in Nepal that were subject to Extension of Time provisions under the 12th, 13th, and/or 14th amendments to PPR 2064. Data was collected from DUDBC project offices covering Road and Building project categories. The study covers projects from multiple provinces through DUDBC division offices. The project level data of various offices were collected from project records as maintained by respective engineers.

The study is limited by its reliance on secondary project records and using a binary project outcome classification (completed or not completed). The analysis does not address all relevant factors such as contractor financial capacity, political interference, administrative hinderances, or construction quality, all of which may independently influence completion outcomes. Furthermore, this study is limited in terms of project size 80 and no other ongoing projects which were awarded throughout the time of study were incorporated in analysis.

CHAPTER 2: LITERATURE REVIEW

Literature review section covers all the elaborate study of relevant theories and past studies which supports and sets the direction for the research. The chapter is classified into two parts. First is the theoretical framework that establishes the fundamental concepts and definitions relevant to the study based on existing theories. Second part focusses on a review of past studies and published papers that highlights the finding of similar studies and provides a basis for development of current study.

2.1 Theoretical framework

2.1.1 Public Procurement and Project Delivery

Public procurement represents one of the most significant mechanisms through which governments translate fiscal policy into visible development outcomes. Globally, procurement laws have evolved from narrow transactional frameworks toward comprehensive regulatory systems that balance efficiency, transparency, accountability, and value for money. The United Nations Commission on International Trade Law (UNCITRAL) Model Law on Public Procurement (2011) serve as guide to establish competitive bidding, fair evaluation criteria, and clear dispute resolution mechanisms.

In Nepal, the enactment of the Public Procurement Act (PPA) 2063 and the Public Procurement Regulation (PPR) 2064 marked a historic moment in institutionalizing transparent procurement practices. These instruments established Nepal's procurement system on a formal statutory basis, replacing ad hoc administrative practices with systematized procedures. However, the frequent amendment of these instruments to the PPR 2064 has introduced regulatory uncertainty and challenges in consistent implementation. Furthermore, a growing concern regarding the extension of project completion time and costs due to amendments in PPR 2064, often without clear justifications has emerged.(Dahal 2024)

Research on procurement effectiveness in developing countries consistently highlights the tension between regulatory frameworks and practical execution capacity. Countries with strong legal frameworks but weak institutional implementation capacity often find that procurement rules are applied inconsistently, producing outcomes that diverge significantly from the intended policy output. Nepal's experience, as documented by the World Bank (2026), reflects this pattern: despite a well-structured legal framework,

Nepal exhibits the longest public procurement timelines in South Asia, driven by fragmented institutional coordination, rigid procedures, and overreliance on lowest-bid contract award (Bank 2026).

2.1.2 Public Procurement Framework in Nepal

Nepal's public procurement framework is anchored by two primary legal instruments: the Public Procurement Act (PPA) 2063 and the Public Procurement Regulation (PPR) 2064. The PPA 2063 established the Public Procurement Monitoring Office (PPMO) as the central regulatory authority, responsible for issuing guidelines, overseeing procurement practices across public entities, and ensuring compliance with transparency and value-for-money principles. The PPR 2064 operationalised the procedural details, including procurement methods, bidding documentation, contractor evaluation criteria, contract administration, and post-award management.

The regulation distinguishes between two primary procurement procedures based on estimated contract value:

- i. **Single-Stage Single-Envelope Procedure:** This method is applicable for construction works with cost estimates below NPR 20 million (2 Crore). Under this method, technical and financial information are submitted in a single envelope, and the evaluation process is simplified for procurement efficiency. This method is commonly associated with lower-value road, building, and local infrastructure works.
- ii. **Single-Stage Double-Envelope Procedure:** Applied for construction works with estimated costs above NPR 20 million (2 Crore). This procedure separates technical and financial bids, with technical proposals evaluated first and financial bids opened only for technically responsive bidders. This method is designed to reduce the risk of compromising technical quality in favour of price competition alone.

DUDBC is one of Nepal's primary implementing agencies for public building and infrastructure works, operating under the Ministry of Urban Development (MoUD). DUDBC manages a significant portfolio of projects across all seven provinces, including construction and maintenance of government buildings, urban roads, drainage, water supply, and sanitation infrastructure.

2.1.3 PPR 2064 Amendments and Extension of Time Provisions

Public Procurement Act 2063 (PPA 2063) and Public Procurement Regulation 2064 (PPR 2064) have been amended multiple times since their enactment. The PPA and PPR have been amended three times and fourteen times respectively.

The PPR 2064 was first published in Nepal Gazette in 2064/05/03. Since then, regular amendments have been done particularly changes to rule 120 of PPR. The table 2-3 shows amendments of PPR and date of its publication in Nepal Gazette.

Table 1 PPR Amendments

PPR Amendments	Date of publication in Nepal Gazette
1. Public Procurement (1st amendment) Regulation, 2065	2065/05/09
2. Public Procurement (2nd amendment) Regulation, 2065	2065/09/02
3. Public Procurement (3rd amendment) Regulation, 2068	2068/03/06
4. Public Procurement (4th amendment) Regulation, 2073	2073/09/04
5. Public Procurement (5th amendment) Regulation, 2073	2073/11/26
6. Public Procurement (6th amendment) Regulation, 2075	2076/01/30
7. Public Procurement (7th amendment) Regulation, 2076	2076/02/23
8. Public Procurement (8th amendment) Regulation, 2076	2076/04/16
9. Public Procurement (9th amendment) Regulation, 2076	2076/09/14
10. Public Procurement (10th amendment) Regulation, 2077	2077/01/15
11. Public Procurement (11th amendment) Regulation, 2078	2078/12/03
12. Public Procurement (12th amendment) Regulation, 2079	2079/03/20
13. Public Procurement (13th amendment) Regulation, 2080	2080/11/21
14. Public Procurement (13th amendment) Regulation, 2082	2082/01/15

Extension of Time (EoT) is a contractual mechanism that allows the original completion deadline of a construction contract to be legally extended under defined

circumstances. Under Nepal's procurement framework, EoT provisions are governed by Rule 120ka of the PPR 2064, which specifies the grounds for extension, the approval hierarchy, and the maximum permissible duration of extensions.

Under the original PPR 2064 framework, the PPMO could approve EoT of up to 15% of the initial project duration; the Departmental Chief could approve extensions exceeding 15% and up to 25%; and the Secretariat of the Concerned Ministry could approve extensions greater than 25% but not exceeding 50%. Extensions beyond 50% of the initial duration were prohibited, and contracts in such situations were to be cancelled.

The 12th Amendment (2079 BS) was introduced in the context of the post-COVID-19 recovery period, during which many public contracts had stalled due to pandemic-related disruptions including supply chain breakdowns, labour shortages, and material price escalations. The amendment opened a legal basis for extending contracts that had already crossed their original deadlines, providing a blanket, low-bureaucracy mechanism for revival of contracts. This amendment is widely seen as a relief-oriented provision designed to revive delayed works rather than strictly penalise defaulting contractors.

The 13th Amendment (2080 BS) continued and clarified the relief approach of the 12th Amendment, allowing contractors who had received EoT under the 12th Amendment to seek further extensions where completion remained unreachable. The amendment introduced additional documentation requirements and clarified the grounds for extension to include design changes, procurement-side delays, and site-related issues.

The 14th Amendment (2082 BS) represented a more structured approach, introducing explicit grounds for extension that acknowledged government-side causes of delay including delayed compensation, site handover failures, and inter-agency coordination breakdowns. The 14th Amendment also tightened documentation standards and introduced greater accountability mechanisms for public officials responsible for certifying project progress.

Table 2: Provisions of PPR Amendments

Dimension	12th Amendment (2079 BS)	13th Amendment (2080 BS)	14th Amendment (2082 BS)
Context	Post-COVID-19 recovery and blanket	Continuation of 12th; clarified grounds for	Structured accountability&

	relief for contracts expired by Ashad-end 2079	repeat extensions	government-side delays acknowledge.
Stated Grounds for EoT	Implicitly covers COVID-19 disruptions; general inability to complete within original period	<ul style="list-style-type: none"> • Design modifications • budget insufficient • non-availability of site • delayed payment • natural disasters • shortage of construction materials 	<ul style="list-style-type: none"> • Contract suspended by GoN/CoM for any reason • budget omitted from annual plan; • payment not made on time • compensation events listed in contract documents
Approval Time Frame	2080 Ashad End	As per delay analysis	As per delay analysis
Liquidated Damages / Financial Implications	No LD charged during extended period; LD applies if milestones not met	Pre-determined damages NOT charged for extended period; contractor commits to no additional financial claims	Pre-determined damages NOT charged; no price escalation claims allowed under extension period

2.1.4 Construction Project Delays: Global Perspectives

Project delay is one of the most globally documented characteristics in the construction industry. (Saiful Islam and Trigunarsyah 2017) conducted a comprehensive review of construction delays in developing countries and found that delays are endemic, cutting across different geographic contexts, project types, and procurement systems. They identified contractor underperformance, financial constraints, and poor supervision as the most consistently reported causes across multiple country contexts.

(Shrestha, Burns et al. 2013) analysed the magnitude of construction cost and schedule overruns in public works projects globally, establishing that time overruns are not exceptional events but structural features of public infrastructure delivery systems. Their findings showed that average time overruns in public works routinely exceed 50–100% of planned durations, with developing country contexts exhibiting considerably higher magnitudes.

(Akhund, Khoso et al. 2017) documented that developing countries suffer disproportionately high time overruns, which is directly linked to inadequate pre-construction planning, contractor capacity constraints, and weak institutional oversight. The research noted that Extension of Time provisions, while legally necessary, can lead contractor to remain passive when they are applied without corresponding performance monitoring or financial accountability mechanisms. The study emphasised that addressing these issues requires coordination from all stakeholders, including the government, contractors, and project owners.

(Pradhanang, Mishra et al. 2024) further documented the impact of utility relocation challenges on road construction projects, demonstrating that external coordination failures significantly compound execution delays.

2.1.5 Construction Project Delays in Nepal: Context and Evidence

Nepal's construction sector has been extensively studied for its chronic project delay problem. A review by Bhattarai (2023) identified inadequate planning, weak monitoring, design changes, shortage of materials, equipment and manpower, low bidding, unrealistic contract duration, poor coordination, insufficient budget allocation, and political or administrative issues as major causes of delay in Nepalese construction projects.

Koirala and Bhusal (2026) examined construction delays across Shukla Gandaki Municipality, documenting that 89.81% of construction projects encountered delays, with one project recording a 795% time overrun. They identified ineffective contract planning, COVID-19 effects, material shortages, and underbidding as the primary causes, and directly linked the lowest-bidder procurement strategy to project failures. Their research concluded that the reform of contractor selection criteria represents the single most impactful policy lever for improving project completion rates in Nepal's municipal construction sector.

Chaudhary (2023), in a study of RCC building projects in remote Kalikot district, found that contractor-related delay factors including lack of financing, improper construction methods, and poor resource management had the greatest impact on project timelines. The study emphasised that contractor capacity, particularly in remote and mountainous areas, is a critical determinant of project success.

Bhattarai, Rayamajhi, Lamichhane, and Aryal (2024) navigated delays in public building retrofitting projects in Kathmandu Valley, documenting that design changes, payment delays, and supply chain disruptions constitute the dominant delay drivers for complex urban building projects a finding directly relevant to the DUDBC building project context of the present study.

Suwal and Shrestha (2016) documented causes of delay in motorable bridge construction under postal highway projects, finding that equipment and material availability, contractor capability, and inter-agency coordination were consistently important across project types. Dhakal (2025) studied disputes in road construction contracts and found that contractual ambiguities and Time extension related disagreements generate significant arbitration costs that further delay project completion.

2.1.6 Effectiveness of Regulatory Amendments

Research on the effectiveness of regulatory amendments in resolving construction project delays is limited in the Nepali context. (Dahal 2024) study on the implications of PPR 2064 amendments documented the general regulatory landscape but did not provide project-level empirical evidence on whether amendments produced actual completion improvements.

(Ashmita Shakya 2023) conducted a comparative study of bidding trends before and after regulatory changes limiting the number of projects for which a contractor could simultaneously bid, documenting significant second-order effects on competition dynamics that influenced project execution quality beyond the direct regulatory intent. This research highlights the systemic nature of procurement reform effects in Nepal.

Existing work on the 12th Amendment, while acknowledging its relief-oriented intent, did not extend to systematic measurement of completion rates or statistical assessment of moderating factors such as project type and budget size.

International literature on the effectiveness of EoT mechanisms generally finds that time extension alone is insufficient to resolve structurally distressed contracts. (Ortiz, Pellicer et al. 2018) documented that in construction projects where fundamental causal factors such as contractor insolvency, land acquisition failures, or design deficiencies remain unresolved, time extension only serve primarily to prolong contract termination without improving completion prospects. This prolongation pattern is directly relevant

to the chronic incompleteness project phenomenon observed in Nepal's DUDBC portfolio.

(Eriksson and Westerberg 2011) found that procurement model choices, including contractor selection criteria, contract design, and relationship management approaches have a stronger influence on project outcome than post-award regulatory interventions such as EoT amendments. This suggests that earlier intervention to contractor selection and contract design may yield more sustainable completion improvements than later time-extension mechanisms.

(Rose and Manley 2011) demonstrated that financial incentive mechanisms within construction contracts, when properly designed, can significantly improve contractor motivation and project completion rates. Their findings imply that EoT provisions, by suspending liquidated damages during extended periods without introducing positive performance incentives, may reduce contractor motivation to accelerate completion a dynamic potentially observable in the declining amendment effectiveness pattern documented in the study specific to DUDBC.

2.1.7 Sick and Chronic Projects in Nepal

Nepal's concept of a 'sick project' refers to a public construction contract that has exceeded its original and extended deadlines without achieving completion, often despite receiving multiple EoT provisions. The categorization of projects as sick carries significant policy implications, as sick projects are typically frozen in terms of further procurement action, generate ongoing legal and financial liabilities, and represent sunk costs that may never be recovered.

(Nepal 2023) assessment of foreign aid effectiveness documented that foreign aid-funded construction projects in Nepal suffer from similar completion challenges, with implementation delays frequently attributed to land acquisition failures, community opposition, and contractor capacity gaps, the factors that external funding cannot directly address. The (CIAA 2019) report on abuse of authority in public procurement identified instances of fraudulent EoT applications where contractors obtained extensions without valid justification, highlighting the governance risks inherent in generous EoT provision frameworks.

(Bank 2025) Nepal capital expenditure bottlenecks analysis documented the systematic nature of the sick projects problem, estimating that the fiscal cost of incomplete and stalled projects runs into the billions of Nepalese Rupees annually, constituting a significant drain on public resources and undermining the developmental impact of capital expenditure.

2.1.8 Research Gap

The foregoing review identifies a clear and significant gap in the existing body of knowledge. Prior Nepal relevant studies have either focused on procurement-stage effects, including bidder competition dynamics(Ashmita Shakya 2023), amendments legal implications(Dahal 2024), or have examined construction delays from a causal factor perspective without linking the analysis to specific regulatory interventions and their measurable project-level outcomes. A few important limitations characterize existing literature:

1. No existing study has conducted a comprehensive empirical analysis regarding effectiveness of PPR Amendments with actual project data.
2. Existing research on the 12th and 13th amendments lacks formal statistical testing of associations between various project characteristics (Project type, budget band) and completion outcomes .
3. No comprehensive empirical analysis has yet extended to the 14th Amendment (2082 BS), enacted most recently among the three regulatory cycles examined in this study.

This study is specifically designed to address these gaps by providing project-level empirical evidence on which types of projects respond to EoT provisions, under which conditions projects remain permanently incompleted, and what statistical associations exist between project characteristics and completion outcomes across all three amendment cycles. The findings are intended to contribute directly to evidence-based reform of Nepal's public procurement, specially amendments related provisions.

CHAPTER 3: METHODOLOGY

3.1 Research flow chart



Figure 1 Research Workflow

3.2 Research matrix

Table 3 Research Matrix

Research Objective	Research Question	Data Required	Analysis Method	Source
To assess the relative effectiveness of each amendment in achieving project completion.	Which amendment completed the most projects?	Project status, amendment exposure, completion date	Descriptive statistics, frequency distribution	DUDBC project records
To Examine the relationship between project characteristics and project completion outcome	Is Project type and Project budget size significantly associated with incompleteness?	Project type, budget band along with their completion status	Chi-square test, Correlation Tests	DUDBC project records
Investigate primary reasons for project incompleteness	What causes projects to remain incomplete despite EoT?	Incompleteness reasons, KII expert data	Frequency analysis, KII Likert analysis	Project records + KII Expert survey
To develop expert recommendations based to improve amendment outcomes.	What is to be done to lessen the chances of incompleteness?	KII expert ranked data	Likert analysis, Heat Map Diagrams	KII Expert Survey

3.3 Research design

This study adopts both descriptive and analytical research design utilizing secondary data analysis. The research design is non-experimental and retrospective: it analyses completed and not completed project records to examine outcomes associated with amendments in the post award phase of construction. This design is appropriate for policy evaluation studies where controlled experimentation is not feasible and where the objective is to identify empirical patterns in actual project outcomes (Creswell 2009). In context of DUDBC , the projects which have already been awarded the contract and the results after the introduction of amendment have been studied.

The quantitative approach was selected for its capacity to provide statistically defensible, replicable, and generalized interpretations about the relationships between project characteristics, regulatory exposures, and completion outcomes. Both descriptive and inferential statistical methods were employed to characterise the dataset and test hypotheses about the relationships between project characteristics and

completion outcomes. The choice of statistical tests, which is specifically non-parametric methods was determined by the non-normal distribution of key outcome variables, as confirmed through formal normality testing (Shapiro-Wilk) conducted as an integral component of the analytical procedure.

To supplement the quantitative secondary data analysis with expert knowledge on causal factors and mitigation effectiveness, a structured Key Informant Interview (KII) instrument was developed and administered. This instrument provides a qualitative depth layer that supports the interpretation of quantitative findings without constituting a separate, independent research strand.

3.4 Study Area and Implementing Agency Site selection

The study focuses on projects managed by the Department of Urban Development and Building Construction (DUDBC), a key implementing agency under the Government of Nepal's Ministry of Urban Development (MoUD). DUDBC is responsible for the planning, design, and construction supervision of public buildings, urban infrastructure, and related works across all seven provinces of Nepal, operating through a network of Division Offices at the provincial and district levels.

DUDBC's project portfolio is diverse in terms of project type, scale, and geographic distribution. Projects range from small, sub-crore community infrastructure works in rural municipalities to large multi-crore hospital, school, and government office building construction in urban centres. This diversity makes DUDBC an appropriate and rich study context for examining how project type, budget size, and regulatory mechanisms interact to produce different completion outcomes across a heterogeneous portfolio.

DUDBC was selected as the study context for the following reasons: (a) it is one of Nepal's principal implementing agencies for public construction, managing a substantial proportion of PPR 2064-governed contracts; (b) its portfolio spans both road and building project categories, enabling comparative analysis by project type; (c) DUDBC project records at its Division Offices contain the amendment-exposure data necessary for the study's analytical objectives; and (d) DUDBC's geographic reach across all seven provinces ensures that the dataset captures variation in provincial implementation contexts.

3.5 Sample Selection and Screening Process

Project-level secondary data were initially collected for 335 projects from DUDBC project offices across Nepal. The study required a sample of projects whose final completion status could be definitively determined and who had been exposed to at least one of the three regulatory amendments under study. A structured four-stage screening process was applied to derive the final eligible sample, as illustrated in the flowchart below:

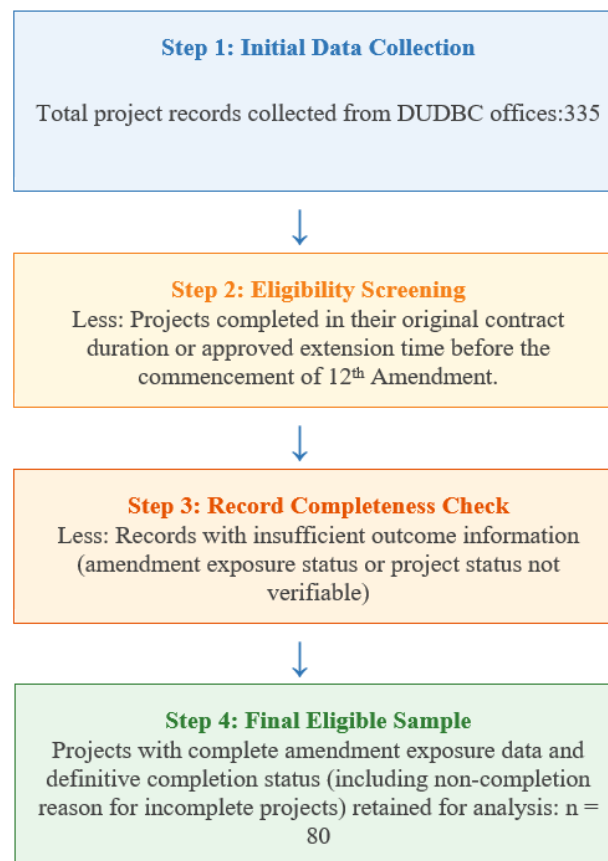


Figure 2: Sampling Flowchart deriving the Final Eligible Projects

The four-stage screening process is applied as follows:

- **Stage 1 (Initial Collection):** All available project records from DUDBC Division Offices across Nepal were collected, yielding an initial pool of 335 project records spanning both road and building categories.

- **Stage 2 (Eligibility Screening):** Projects completed within their original or PPMO approved extended completion periods were excluded. Only projects that had been classified as not completed were retained.
- **Stage 3 (Record Completeness):** Records with insufficient information on amendment exposure specifically those lacking documentation of which amendment(s) had been applied were excluded, as amendment-specific analysis requires complete exposure data.
- **Stage 4 (Final Sample):** Projects with complete data on amendment exposure, final project status, project type, budget estimate, planned duration, and actual duration (and in completeness reason, for incomplete projects) were retained for analysis, yielding a final eligible sample of $n = 80$ projects.

The study thus employed an outcome-based screened sample of eligible projects rather than a random or survey-based sample. This approach is consistent with a recent scoping review which found many studies using administrative datasets first identify full records, then apply staged screening criteria, then analyse only records with verifiable outcomes and sufficient data quality. (Connolly, Kirwan et al. 2024)

3.6 Key Informant Interview (KII) Instrument

To supplement the quantitative secondary data analysis with expert knowledge on causal factors and mitigation effectiveness, a structured Key Informant Interview (KII) instrument was developed. (Bryman 2016) The instrument was administered to construction management professionals, DUDBC officers, and procurement specialists with direct experience in public construction contract management in Nepal

3.6.1 Section A — Reasons for Project Incompleteness and Likelihood Rating

Section A of the KII instrument presents categorized reasons for project incompleteness derived from the literature review and the project offices incompleteness reason records. For each reason, expert respondents are asked to rate the likelihood of that reason causing project incompleteness on a five-point Likert scale ranging from 1 (Very Low) to 5 (Very High). The 20 reasons are organized under seven thematic categories: Contractor Default (CD), Site Issues/Land Acquisition (SI), Legal Disputes/Arbitration (LD), External/Political Issues (EP), Governance and Variation Management (GV), Budget and Financial Issues (BF), and Design and Engineering (DE).

3.6.2 Section B — Mitigation Effectiveness Rating

Section B of the KII instrument presents 11 mitigation strategies (M, plus additional measures AM as felt necessary by experts) and asks expert respondents to rate the percentage effectiveness of each mitigation strategy in addressing each category of incompleteness reason. The strategies range from pre-project site planning and land acquisition verification (M1), through enhanced contractor prequalification (M2), procurement planning and budgeting (M3), design finalization before tendering (M4), regular coordination mechanisms (M5), administrative dispute resolution (M6), risk monitoring systems (M7), capacity building (M8), legal framework reform (M9), force majeure and price escalation clause inclusion (M10), to additional implementation support measures (AM).

3.7 Data analysis

3.7.1 Qualitative analysis:

i. Descriptive statistics:

Descriptive statistics is used to summarise project duration, project completion status, project type and other relevant information from this data set. In this study, descriptive measures are computed for continuous variables. The various tools used under this section are:

Mean: This is used to compute the mean values of actual project duration and project extension.

$$\text{Mean} = \frac{\sum x_i}{n} \text{ (sum of all values divided by number of values)}$$

Median: The median is the middle value when observations are sorted in ascending order. It divides the distribution into two equal halves and is robust to outliers and skewness, making it particularly appropriate for this study where time overrun data is right-skewed.

Standard Deviation (SD): The standard deviation measures the spread or dispersion of a dataset around its mean. A larger standard deviation indicates greater variability among project durations or overruns.

$$SD = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n-1}} \text{ (average distance from the mean)}$$

Variance: The square of the standard deviation, showing variability.

Range: The difference between the highest and lowest values.

These statistics help understand the basic characteristics of the observed data before deeper analysis.

3.7.2 Quantitative analysis:

To analyse the DUDBC project dataset, inferential statistical tests were selected based on the type of variables and the distributional characteristics of the data. Since key continuous variables such as time overrun were found to be non-normally distributed, non-parametric methods were employed. The following tests were used in this study:

i. Shapiro-Wilk Normality Test

The Shapiro-Wilk (1965) test assesses whether a sample comes from a normally distributed population. In this study, it is applied to cost estimate data and time overrun data prior to selecting between parametric and non-parametric inferential tests.

ii. Spearman Rank Correlation (ρ)

Spearman's rank correlation coefficient (ρ , also written r_s) measures the strength and direction of the monotonic relationship between two continuous or ordinal variables without assuming normality in either variable. In this study, it is used to examine the monotonic association between project cost estimate (NPR Crore) and time overrun (days), where both variables exhibit non-normal distributions as confirmed by the Shapiro-Wilk test.

iii. Chi-Square Test of Independence (χ^2)

The Pearson Chi-square test of independence examines whether two categorical variables are statistically independent. In this study, three Chi-square analyses are conducted to examine associations between: (1) amendment type and project type; (2) project status and budget band; and (3) project status and project type.

3.7.3 Data from expert consultation

i. **Qualitative analysis:**

Responses obtained from KII were qualitatively analysed and checked for validation with actual project data and interventive measures were also suggested. Similar responses were grouped and organized into appropriate categories. The Weighted Mean

Score aggregates Likert responses across all respondents for a given item. It provides a single numeric summary of expert consensus on each factor's importance or likelihood.

3.8 Conceptual Framework

The conceptual framework of this study explains the outcomes of public construction projects under Nepal's EoT provisions through three interconnected dimensions, as illustrated in the Figure 3.2. The first dimension, Regulatory Input (independent variable), consists of the EoT provisions introduced by the 12th, 13th, and 14th amendments to PPR 2064. The second dimension comprises Project Characteristics (moderating variables) , specifically project type (road vs. building) and budget band (\leq NPR 2 crore vs. $>$ NPR 2 crore) , which operate to shape the extent to which projects can benefit from time-extension provisions. The third dimension is Project Outcome (dependent variable), expressed in terms of whether a project was completed under a particular amendment or remained incomplete.

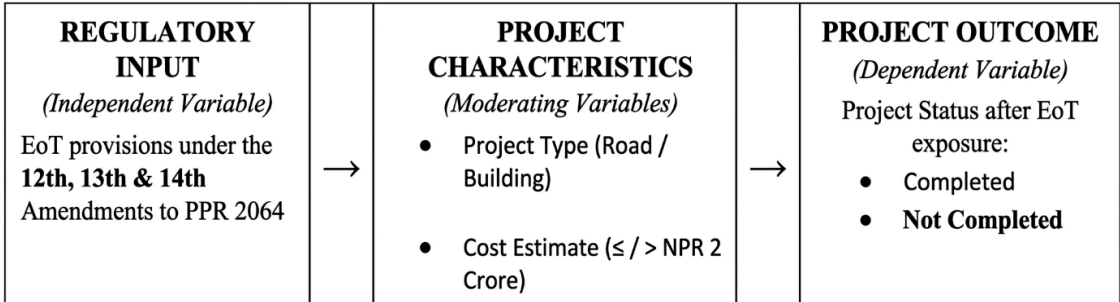


Figure 3: Conceptual Framework

3.9 Validity, Reliability, and Ethical Considerations

3.9.1 Validity

Internal validity is supported by the use of official DUDBC project records as the primary data source, supplemented by structured KII expert consultation. The use of multiple statistical methods such as Shapiro-Wilk normality testing, Mann-Whitney U, Spearman correlation, and Chi-square with effect size provides analytical triangulation that strengthens confidence in the reported findings. External validity is constrained by the focus on DUDBC projects; the findings may not be directly generalisable to other

implementing agencies with different portfolio compositions, institutional capacities, or geographic distributions.

3.9.2 Reliability

The reliability of secondary data was assessed through cross-referencing of project records where multiple sources were available. The binary classification of project outcomes (completed vs. not completed) was applied consistently based on DUDBC's official project status records. The KII Likert instrument was structured with clear operational definitions for each incompleteness reason category to minimize respondent interpretation variability.

3.9.3 Ethical considerations

Consent from project offices was obtained after providing a detailed explanation about the research prior to starting observation. Confidentiality of the projects which were under study is also maintained by presenting the results in an aggregated form of data without direct reference to a particular project or office.

Similarly, consent was obtained from all participating experts prior to distributing forms for the KII Interview. The purpose of the study and expected outcomes were clearly communicated. The participant identities are maintained by presenting the results in an aggregated form of data without direct reference to a particular expert.

CHAPTER 4: RESULTS AND DISCUSSION

This chapter presents the results obtained from project data and expert consultation, which is followed by a discussion of the findings. The results are organized into two main sections:

- Analysis of secondary data collected from DUDBC project offices.
- Analysis of expert opinions obtained through the KII method.

The findings are then integrated to identify key incompleteness factors and practical mitigation strategies.

4.1 Results from secondary data collected from DUDBC project offices

4.1.1 Descriptive statistics

This chapter presents a comprehensive descriptive analysis of the 80 public construction projects drawn from DUDBC project offices across Nepal. All projects were subject to Extension of Time (EoT) provisions under the 12th, 13th, and/or 14th amendments to the Public Procurement Regulation (PPR) 2064. The analysis covers sample composition, planned and actual duration, absolute and percentage time overrun, number of extensions received, bidding discount patterns, cost characteristics, and reasons for project incompleteness, disaggregated across relevant grouping variables.

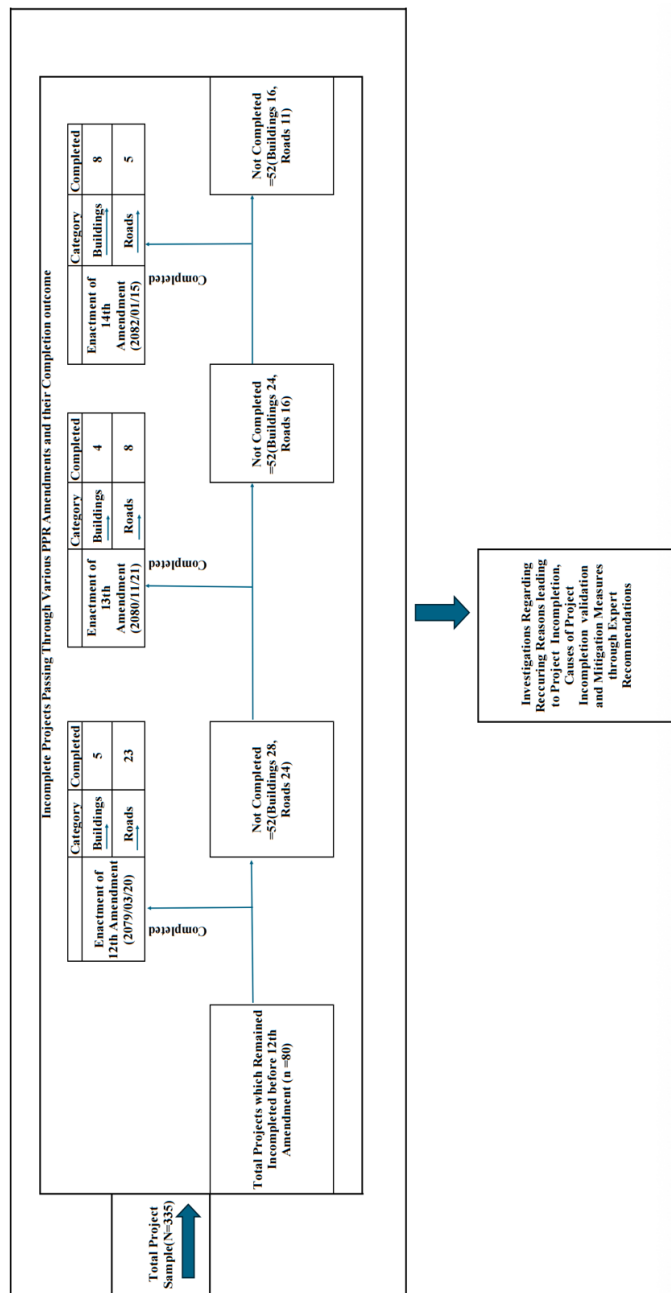


Figure 4 Timeline showing Amendments Effective Date to Project Outcomes

i. Sample Composition

The final eligible sample comprised 80 public construction projects. The table summarizes the distribution across key categorical variables.

Table 4: Sample Composition by various categories

Variable	Category	Frequency (n)	Percentage (%)
Project Type	Road	47	58.8
	Building	33	41.3
Budget Band	≤ NPR 2 Crore (Small)	47	58.8
	> NPR 2 Crore (Large)	33	41.3
Final Status	Completed	53	66.3
	Not completed	27	33.8

ii. Comparative analysis with standard values

A fundamental measure of project performance in construction management is the degree to which actual project duration deviates from planned (contractual) duration. The table presents the descriptive statistics for planned duration, actual duration, and derived time overrun across the full sample and disaggregated by project type.

Table 5: Comparison between actual and observed contract duration

Variable / Group	n	Mean	Median	SD	Min	Max
Planned Duration						
All	80	335.1	223.5	288.2	21	1291
Roads	47	224.2	119.0	224.6	21	1057
Buildings	33	492.9	456.0	295.1	31	1291
Actual Duration						
All	80	1057.0	764.0	829.6	118	3550
Road	47	864.0	443.0	800.3	118	3106
Building	33	1331.7	1295.0	792.4	164	3550

The mean planned duration across all 80 projects was 335 days (approximately 11.2 months), with a standard deviation of 288 days, indicating considerable variability in the planned scope of sampled projects. The minimum planned duration was 21 days (a very short-duration road contract) and the maximum was 1291 days (approximately 3.5 years), reflecting the diverse scale of projects in the dataset.

By contrast, the mean actual duration was 1057 days, representing a ratio of 3.15 times the planned duration on average. This ratio of actual-to-planned duration is a stark indicator of the severity of the delay problem in Nepal's DUDBC portfolio. Building projects recorded a higher mean actual duration (1332 days) compared to road projects (864 days).

iii. Distribution of Projects by Type and Completion Status

Of the 80 projects under review, 47 (58.8%) were classified as road projects and 33 (41.3%) as building projects, indicating a majority representation of road infrastructure in the sample. With respect to project completion status, 53 projects (66.3%) were recorded as completed, whereas 27 projects (33.8%) were classified as "not completed" – a designation denoting projects that have stalled or failed to achieve execution within the stipulated timeframe and budgetary provisions.

Figure presents the distribution of completed and not completed projects disaggregated by project type. A notable discrepancy is observed: among completed projects, road projects (n = 36, 67.9%) considerably outnumbered building projects (n = 17, 32.1%). Conversely, among not completed projects, building projects (n = 16, 59.3%) were more prevalent than road projects (n = 11, 40.7%). This preliminary pattern suggests a differential propensity for project abandonment or stagnation between the two infrastructure categories.

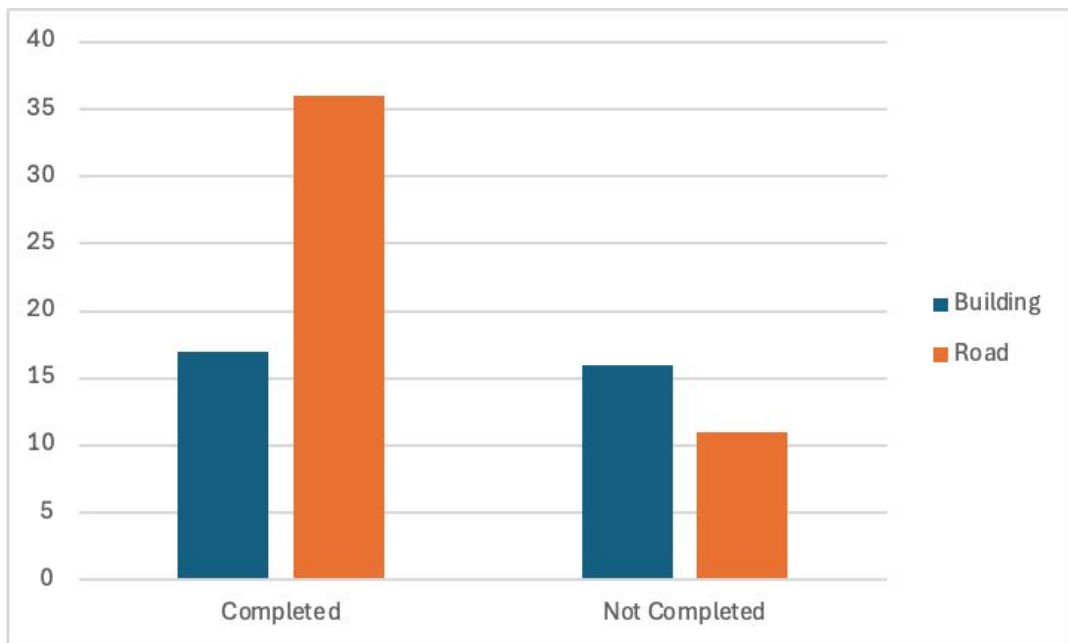


Figure 5 Clustered bar chart for project type and completion status

4.1.2 Box Plot Analysis

i. Time Extensions by Project Type

Figure depicts the distribution of the total number of time extensions by project type. Building projects exhibited a median of approximately 3 extensions (IQR: 2–4), whereas road projects demonstrated a slightly lower median of approximately 2.5 extensions (IQR: 2–3). Critically, the finding that building projects receive more extensions does not translate into equivalent completion rates. Building projects are simultaneously over-represented among sick projects. Thus, buildings receiving more extensions yet completing at lower rates also confirm that extensions are a symptom of structural project distress, not a reliable pathway to resolution. Accumulating extensions reflects the persistent non-resolution of underlying implementation barriers, not incremental progress toward completion.

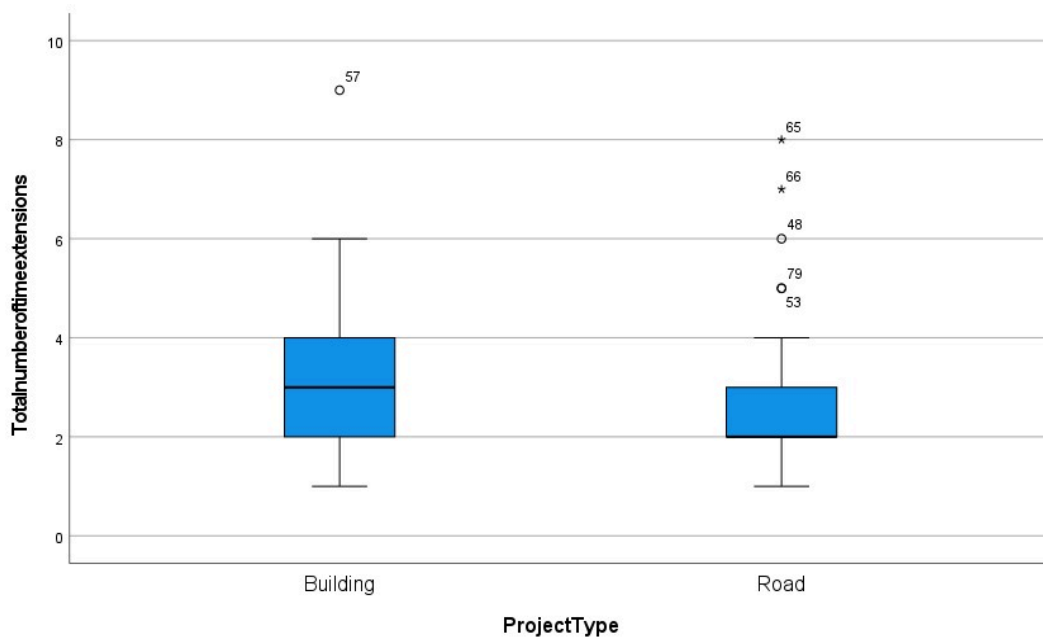


Figure 6 . Box plot of total number of time extensions by project type

ii. Time Extensions by Budget Band

The budget-band comparison provides strong graphical evidence of the disproportionate extension burden carried by large-budget projects. Projects exceeding Cost Estimates Greater than NPR 2 crore recorded a median of approximately 3 extensions (IQR: 2.5–5, upper whisker reaching 9), compared to approximately 1.5 (IQR: 1–2) for small-budget projects.. Larger contracts involve greater technical complexity, more stakeholders, and higher contractor financial exposure — all of which increase the probability of disruption at any stage and reduce the likelihood that a single

extension period resolves the underlying barrier.

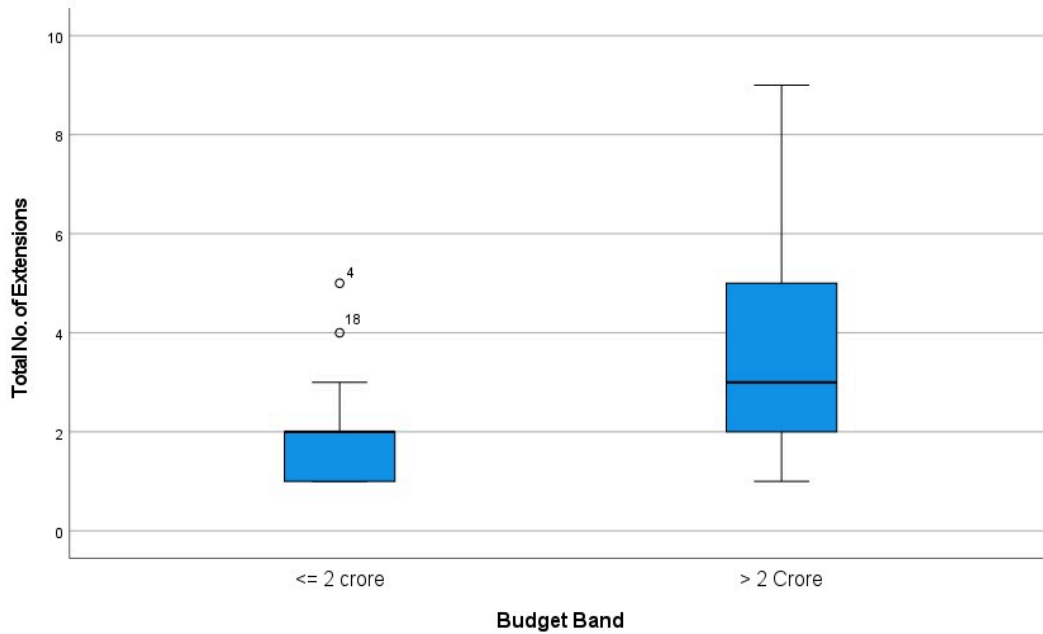


Figure 7 Box plot of total number of time extensions by cost estimate

iii. Time Overrun by Project Status

The time overrun comparison between completed and sick projects reveals a marked difference in delay magnitude. Sick projects recorded a median time overrun of approximately 1,100 days more than three times the median of approximately 350 days for completed projects. This large separation in provides strong descriptive evidence that project status is meaningfully associated with the magnitude of deviation from original schedules. The completed project distribution also exhibits substantial positive skew with extreme outliers approaching 2,800 days for cases 57 and 66, projects that were technically classified as completed but experienced extraordinary delays in doing

so. These outliers highlight that the binary completed/not completed classification compresses meaningful variation within the completed category quality.

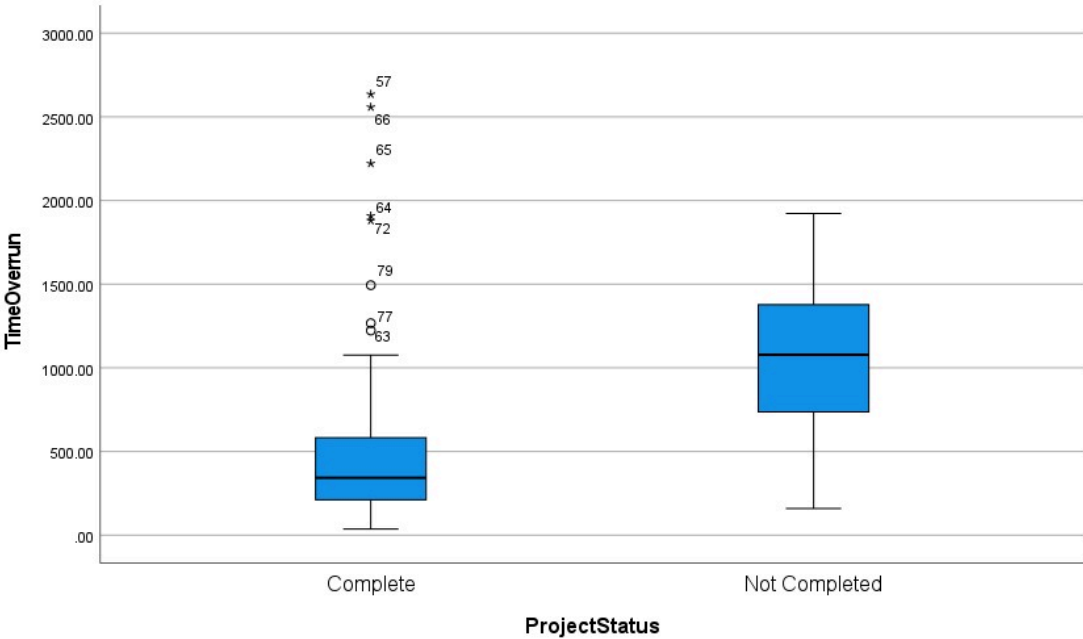


Figure 8 . Box plot of time overrun (days) by project status

4.1.3 Inferential statistics

This chapter presents the results of inferential statistical analyses conducted to test hypotheses about the relationships between project characteristics and completion outcomes. All analyses were conducted using IBM SPSS Statistics.

4.1.3.1 Test For Normality of Data

The Shapiro-Wilk test was applied to assess the normality of time overrun and Estimated Cost. The Rejection of H_0 ($p < 0.05$) indicates non-normality and justifies the use of non-parametric methods.

4.1.3.2 Spearman Correlation Analysis

Spearman's rank correlation was applied to examine the relationship between project cost estimate (in NPR Crore) and time overrun (in days). Spearman's ρ was chosen over Pearson's r given the non-normal distribution of both variables.

- H_0 : There is no monotonic relationship between project cost estimate and time overrun ($\rho = 0$)
- H_1 : There is a significant monotonic relationship between project cost estimate and time overrun ($\rho \neq 0$)

Variables	n	Spearman (ρ)	p-value	Interpretation
Cost Estimate (NPR Cr.) ↔ Time Overrun (days)	80	0.6605	< 0.001	Moderate positive correlation

Figure 9 Spearman Correlation between Project Cost Estimate and Time Overrun

The Spearman correlation analysis yields $\rho = 0.6605$ ($p < 0.001$), indicating a statistically significant moderate positive correlation between project cost estimate and time overrun. This means that larger projects as measured by cost estimate in this study, tends to experience greater absolute time overruns. H_0 is rejected at the 0.001 significance level.

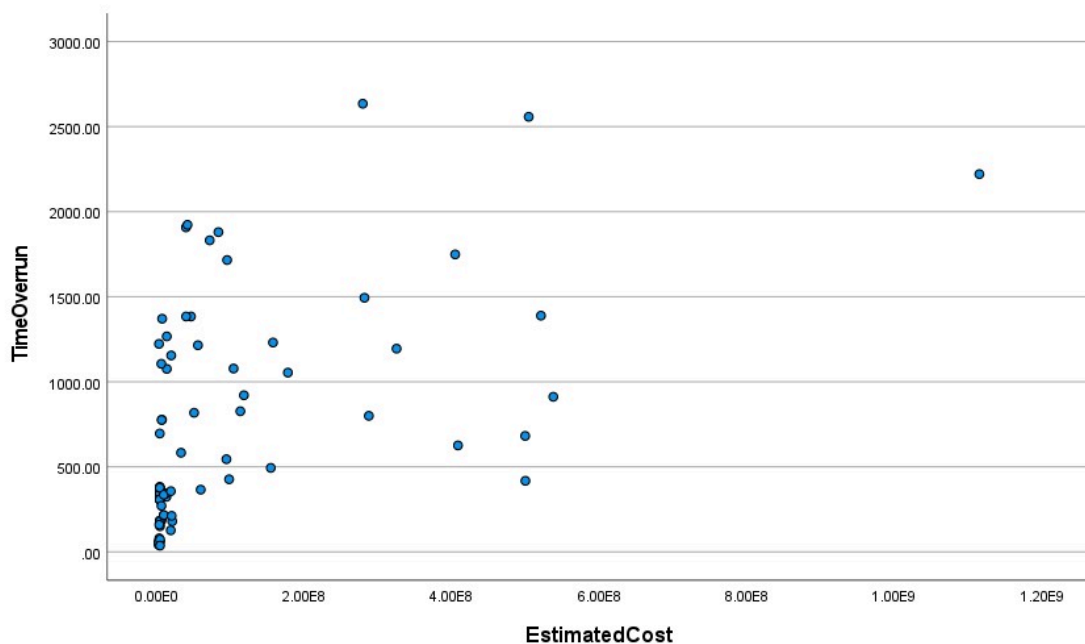


Figure 10 Spearman's Correlation Diagram

The moderate strength of the correlation suggests that while cost size is a meaningful predictor of delay severity, it is not the sole determinant. Other factors such as project type, site conditions, contractor capacity, and governance quality can also contribute to time overrun outcomes. The observed correlation is consistent with the theoretical expectation that larger projects involve greater coordination demands, higher complexity, more stakeholders, and consequently higher susceptibility to implementation challenges.

4.1.3.3 Chi-Square Tests

Three Chi-square analyses were conducted to examine associations between categorical project characteristics and completion outcomes.

i. Amendment Type and Project completion

Table 6 Chi-Square Test between Amendment Type and Project completion

Amendment Period	Completed Building Projects (N1)	Road Projects Completed (N2)	Total Projects Completed (N)	(%) Building Completed	(%) Road Completed
12th Amendment	5	23	28	17.9	82.1
13th Amendment	4	8	12	33.3	66.7
14th Amendment	8	5	13	61.5	38.5

Chi-Square Test Result		
Pearson (χ^2)	12.454	
p-value	0.006 which is ($p < 0.05$)	

The provided data indicates a statistically significant shift in the distribution of completed building and road projects across three different policy amendment periods. The results of the Chi-Square test Pearson (χ^2) and p-value demonstrate that the type of infrastructure completed is not independent of the amendment period in effect.

The 12th Amendment Period: This amendment was heavily dominated by road infrastructure, which accounted for 82.1% of total completions (23 out of 28 projects). The 13th Amendment despite total volume decreased, a shift toward building projects began to emerge, with buildings representing 33.3% of the portfolio of completion. The 14th Amendment Period reflects a total reversal of the initial trend, with building projects completion becoming the majority at 61.5%, while road completions dropped to 38.5%.

The p-value of 0.006 is well below the standard significance threshold ($p < 0.05$), confirming a strong statistical association between the amendment periods and the sector-wise completion rates. These results suggest that the changes introduced in the 14th Amendment may have been particularly conducive to building project execution, or conversely, that the 12th Amendment framework was more aligned with the completion of road infrastructure. The transition from a more road completion output to a building completion output over these three periods highlights a significant change in the operational or regulatory environment affecting project close-out. Also, while the 12th Amendment achieved the highest quantity of completions, the 14th Amendment represents a significant qualitative shift in departmental output priority of completed projects.

Another Interesting Find regarding the effectiveness of amendment is presented as below:

Mann Whitney Test($U=320$) was used due to the non-normal data and the ranks table tells us the difference between the two groups of projects classified as projects of duration less than a year and projects of duration greater than a year.

- **Group 1 (Short Duration): Mean Rank = 30.11**

- **Group 2 (Long Duration):** Mean Rank = **53.86**

The Mean Rank for Long Duration projects is substantially higher than for Short Duration projects. This indicates that long-duration projects tend to be associated with higher frequency of amendment exposure. In other words, long-duration projects required more amendments (moving toward the 13th and 14th) compared to short-duration projects. Since the p-value ($p < .001$) is much smaller than the standard threshold of **0.05**, the result is **statistically highly significant**. There is a definitive relationship between the initial project duration and which amendment the project was completed under.

ii. **Project Status and Cost Estimate**

Table 7 Chi-Square Test between Cost Estimate and Project Status

Cost Estimate Band	Completed (n1)	Not complete (n2)	Total (N)
≤ NPR 2 Crore (Single Envelope)	39	8	47
> NPR 2 Crore (Double Envelope)	14	19	33
Total	53	27	80
Chi-Square Test Result			
Pearson χ^2	14.261		
p-value	< 0.001 which is ($p < 0.05$)		

The statistical analysis of project completion relative to budget thresholds reveals a highly significant association (Pearson $\chi^2= 14.261$, $p < 0.001$). The data suggests that the complexity of the procurement method which is dictated by the cost estimate serves as a primary predictor of project success.

The completion rates vary drastically between the two budget categories:

- Single Envelope System (\leq NPR 2 Crore): This category demonstrates a high success rate, with 83% of projects (39 out of 47) reaching completion. The streamlined nature of the single envelope process appears highly effective for smaller-scale infrastructure.
- Double Envelope System ($>$ NPR 2 Crore): Projects in this higher value band face a significantly higher risk of incompleteness. Only 42% (14 out of 33) were completed, while 58% remained incomplete. This indicates that as project value and procurement complexity increases, the likelihood of project incompleteness or delay more than doubles.

The p-value (< 0.001) confirms that the difference in completion rates between these two bands is not due to chance but is statistically linked to the project's scale and procurement requirements. The transition from Single Envelope to Double Envelope procurement introduces more rigorous technical and financial evaluation stages. The data suggests that while these measures are designed to ensure quality, they are also associated with a sharp decline in completion rates. This may be due to the increased administrative burden, higher contractor requirements, or the inherent complexities of larger-scale work.

iii. Project Type and Project Status

Table 8 Chi-Square Test between Project Type and Project Status

Project Status	Building (n)	Road (n)	Total (n)
Completed	17	36	53
Not completed	16	11	27
Total	33	47	80
Chi-Square Test Result			
Pearson χ^2	5.454		
p-value	0.020 which is ($p < 0.05$)		

The statistical comparison between project types (Building vs. Road) and their completion status reveals a significant association (Pearson χ^2 , $p = 0.020$). The data

suggests that the sector of infrastructure plays a measurable role in the likelihood of a project becoming incomplete.

The completion and not completeness rates diverge notably between the two sectors:

Road Projects: This sector shows a higher resilience or completion efficiency. Approximately 76.6% of road projects (36 out of 47) were successfully completed, with a relatively low incompleteness rate of 23.4%.

Building Projects: In contrast, building projects exhibit a much higher vulnerability to delays and incompleteness. Nearly half of the building projects (48.5%) are categorized as incomplete while only 51.5% reached completion.

With a **p-value of 0.020**, the null hypothesis: project status is independent of project type is rejected. This finding carries several implications: The data identifies building projects as significantly higher risk than road projects within the current procurement practices. While roads often involve linear construction that may allow for more flexible management, building projects are typically more complex, involving multi-disciplinary trades (electrical, plumbing, structural) that increase the risk of coordination-related incompleteness as well as more susceptible to contractor default. The higher success rate in the road sector (76.6%) suggests that the Department's current procurement, supervision, and technical standards may be better optimized for road infrastructure. The building sector's high incompleteness rate indicates a need for targeted interventions in design clarity, scope management, or contractor selection specific to building structures. Since buildings are nearly twice as likely to become not completed as roads as per this dataset, these findings support a recommendation for more intensive monitoring, contractor selection and pre procurement planning specifically for building contracts.

In summary, the statistical evidence confirms that project type is a significant predictor of status. This highlights that a one-dimensional project management approach is likely insufficient, and that the building sector requires specific reforms to bridge the gap in completion performance compared to road projects.

4.2 Ranking of Reasons of Incompletion as captured from Project data

Among the 27 not completed projects, detailed reasons for incompletion were recorded and categorised. This analysis provides qualitative depth to the quantitative completion status findings.

Table 9 Reasons for Project Incompleteness Among 27 Not completed Projects

Rank	Reason for Incompleteness	Number of Not Completed Projects	Percentage of Not Completed Projects
1	Contractor Default	13	48.1
2	Site Issue / Land Acquisition	5	18.5
3	Design Change	3	11.1
4	Lack of Coordination	3	11.1
5	Dispute / Arbitration	1	3.7
6	Delayed Material Supply	1	3.7
7	Force Majeure	1	3.7
	Total	27	100.0

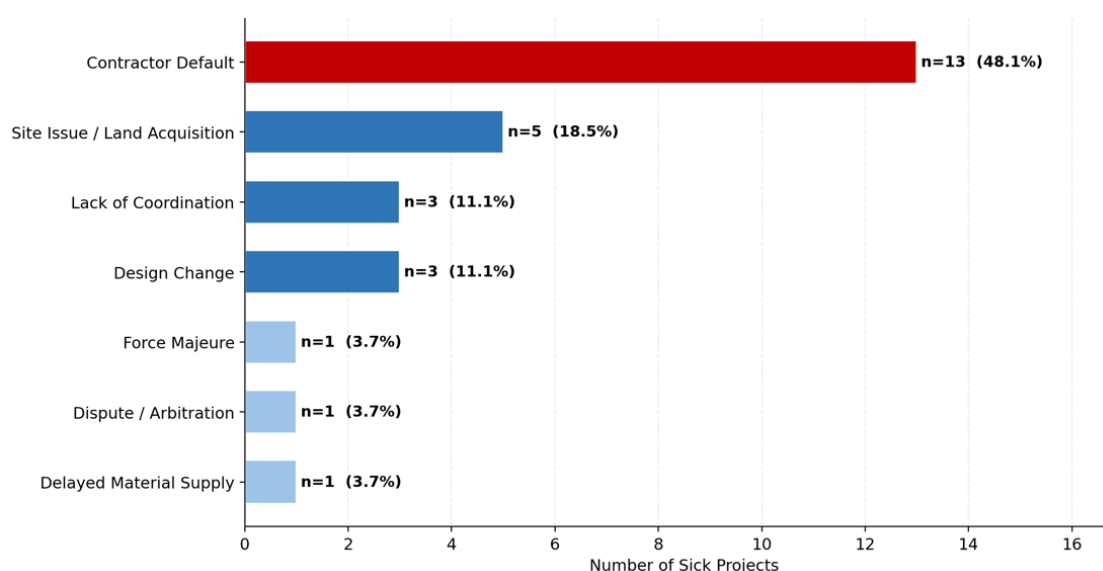


Figure 11 Frequency Distribution of Reasons for Project Not Completion

Contractor default is the dominant cause of project incompleteness, accounting for 13 out of 27 not completed projects (at 48.1%). This finding is striking nearly half of all projects that failed to complete despite three rounds of EoT provisions did so because the contractor was the primary point of failure. Specific manifestations of contractor default recorded in the dataset include ignoring repeated written and verbal notices; no contact with the implementing office; internal disputes among JV partners; poor management and planning; and failure to mobilize manpower and machinery and financial incapability.

Site issue and land acquisition problems represent the second most common cause (5 projects; 18.5%), including cases where locals obstructed construction activities, compensation disputes remained unresolved, or the full site could not be handed over to the contractor. Design change issues (3 projects; 11.1%) and lack of coordination (3 projects; 11.1%) together account for a further 22.2% of not completed projects, pointing to pre-construction planning gaps and inter-institutional communication failures as significant contributing factors.

4.3 Results from expert consultation

The identification and validation of reasons for construction project incompleteness in Nepal's DUDBC project profile requires triangulation of project-level data with highly experienced experts. To validate the causes of project incompleteness identified from secondary project records, a Key Informant Interview (KII) survey was conducted with five independent experts having experience in public infrastructure planning, procurement, contract management, and project implementation. The experts were requested to rate the significance of identified causes of project non-completion using a five-point Likert scale, where 1 = Very Low Significance, 2 = Low, 3 = Moderate, 4 = High, and 5 = Very High. They were also asked to assess the effectiveness of possible mitigation measures.

4.3.1 Reliability of Expert Opinion

To examine the degree of agreement among experts, Pairwise Spearman's Test for Validation of was applied. The test result showed $\rho = 0.564$ and p value < 0.05 . The result indicates a moderate and statistically significant level of agreement among the experts regarding the ranking of causes of project incompleteness. Since the p -value is

less than 0.05, the expert responses can be considered reliable for analytical interpretation.

4.3.2 Causes of Project Incompletion

Table 10 Descriptive Statistics of Expert Likelihood Ratings

Reason for Incompletion	E1	E2	E3	E4	E5	Sum (Σw)	Mean (\bar{x})	Std Dev (σ)
Contractor Default	4	5	4	5	2	20	4.00	1.10
Site Acquisition	3	3	3	4	5	18	3.60	0.80
Legal Dispute	1	2	2	2	2	9	1.80	0.40
Governance	2	4	2	3	4	15	3.00	0.89
Budgetary and Finance	3	4	2	3	5	17	3.40	1.02
Technical / Design	2	3	2	4	4	15	3.00	0.89
Natural Hazard	2	2	1	2	3	10	2.00	0.63
Administrative Constraints	2	4	2	4	4	16	3.20	0.98

Reason for Incompletion	Sum (Σw)	A × N	RII = $\Sigma w / (A \times N)$	Mean	Rank
Contractor Default	20	25	0.800	4.00	1
Site Acquisition	18	25	0.720	3.60	2
Budgetary and Finance	17	25	0.680	3.40	3
Administrative Constraints	16	25	0.640	3.20	4
Governance	15	25	0.600	3.00	5
Technical / Design	15	25	0.600	3.00	6
Natural Hazard	10	25	0.400	2.00	7
Legal Dispute	9	25	0.360	1.80	8

4.3.3 Validation of Expert Opinions

Table 11 Pairwise Spearman's Test for Validation of Expert Opinion

Test	Statistic	Value	p-value	Interpretation
Spearman's ρ (mean)	ρ	0.564	<0.05	Moderate Agreement

The highest rated factor was contractor negligence and poor manpower and material mobilization (Mean = 4.0), indicating that delays caused by contractors, inadequate manpower deployment, poor planning, and weak execution capacity are considered the most significant contributors to incomplete projects. The second most significant cause was failure to handover construction site or unresolved land issues (Mean = 3.6). Material price escalation ranked third (Mean = 3.4). Moderately significant causes included weak monitoring, budget omission, and design changes.

The expert were also asked to suggest recommendations, which were further applied to identify and prioritize potential interventions aimed at improving amendment outcomes.

4.3.4 Mitigation Effectiveness Heatmap Analysis

. The mitigation effectiveness heatmap presents the mean expert effectiveness scores for all 96 reason-mitigation combinations. Scores range from 0 (no contribution) to 5 (maximum comprehensive contribution). Yellow borders highlight the single highest-scoring mitigation for each noncompletion reason.

Reason for Project Incompletion	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
R1: Contractor Default	2.2	4.4	0.4	2.4	2.8	2.3	2.4	2.2	2.2	3.4	3.2	1.7
R2: Site Acquisition	4.8	0.4	5	3.2	3.8	0.4	1.2	2.2	1.8	1.4	2.6	2
R3: Legal Dispute	1.6	1.6	2.2	4.4	1.8	1.6	0.6	1.8	1.8	1.4	3.6	1.4
R4: Governance	3	1.2	1.4	3	3.4	4.2	3.4	2.8	2.4	1.8	3.4	0.4
R5: Budgetary/Finance	2.2	1.6	0	2	2.6	1.6	4.6	1.8	2.2	1	2.6	3.2
R6: Technical/Design	4.2	0.2	1	1.6	2.2	4.2	2	1.4	2.4	2.4	2	0.2
R7: Natural Hazard	2.4	0.4	2	1.4	1.8	0.6	1.4	0.8	3	1	2	4.6
R8: Admin. Constraints	2	1	1	2	1.8	3	1.4	2.6	1.6	2.6	4.2	0.2

Figure 12 Heat map diagram showing mitigation strategies as per experts.

The table below highlights the most effective strategies identified by the expert panel to address the primary drivers of project delays and failure.

Table 12 Mitigation Measures

R	Reason for Incompleteness	M	Top Mitigation Measure (Highest Mean Score)	Mean Score
R1	Contractor Default	M2	Contractor prequalification based on capacity and past performance	4.4
R2	Site Handover / Land Acquisition.	M3	Ensure land availability /site clearance before tendering	5
R3	Legal Dispute & Court Orders	M4	Proper Contract Administration & Clear Dispute handling mechanism	4.4
R4	Governance & Budget Omission	M6	Multi-year committed budgeting for ongoing projects	4.2
R5	Material Price / Finance	M7	Provision of realistic price adjustment and contingency	4.6

			budget	
R6	Design Errors & Scope Changes	M1	Complete DPR/design before procurement	4.2
R7	Natural Disasters & Hazards	M12	Force Majeure Clauses Revisions need	4.6
R8	Administrative Constraints	M11	M11: Legal Framework & PPR Reform	4.2

Mitigation strategy with respect to reason of non-completion is calculated based on the mean score as provided by the experts. The expert consensus identifies Contractor Default (R1) as a foundational risk to project stability. To mitigate this, the panel assigned a high mean score of 4.4 to Contractor Prequalification (M2), emphasizing that incompleteness is often attributed to contractor related factors. The data also suggests that shifting from a "lowest-bidder" model to a capacity-based selection process is essential. By ensuring that contractors possess the verified technical bandwidth and financial health required for the specific scope of work, agencies can neutralize the risk of abandonment or insolvency before the contract is even awarded.

Following contractor reliability, Site Handover and Land Acquisition (R2) emerge as the second highly ranked reason for project incompleteness. Notably, the mitigation measure M3 (Ensuring land availability and site clearance before tendering) achieved a perfect mean score of 5.0, representing the highest level of expert agreement in the study. This indicates that R2 is a definitive prerequisite for project completion. The results argue that project incompleteness is frequently rooted in premature procurement process. The expert suggests that project completion requires site clearance before issuing work order, and also addressing land acquisition and land availability from client side is crucial in project completion.

In summary, the findings suggest a hierarchical approach to project incompleteness and expert consensus to mitigate them.

4.4 Discussion of Key Findings

A total of 80 DUDBC public construction projects subjected to EoT provisions under the 12th, 13th, and/or 14th Amendments to PPR 2064 were analyzed. The sample comprised 47 road projects and 33 building projects. Of these, 53 projects reached completion, while 27 projects remained chronically unfinished despite repeated

regulatory interventions. The mean actual duration across the portfolio was 1,057 days, representing 3.15 times the mean planned duration of 335 days, underscoring the severity of the delay problem in Nepal's public construction sector. Building projects recorded an even higher mean actual duration of 1,332 days against a planned duration of 493 days.

4.4.1 Effectiveness of EoT Amendments (12th, 13th & 14th)

A statistically significant shift in sector-wise completion rates across the three amendment periods was confirmed (Chi-Square $\chi^2 = 12.454$, $p = 0.006$). Key patterns include:

- 12th Amendment: Most productive in absolute terms, completing 28 projects; 82.1% of these were road projects. Its blanket, low-bureaucracy design enabled rapid recovery of temporarily disrupted but structurally sound contracts.
- 13th Amendment: Completed 12 projects with a modest shift toward building completions (33.3% of completions). The decline in total reflects a progressively harder residual pool of distressed contracts.
- 14th Amendment: Completed 13 projects; a full reversal occurred, with building projects constituting 61.5% of completions. This signals that later amendments were better suited to resolving building-related barriers, or that the residual pool had become dominated by building contracts.

A Mann-Whitney test ($U = 320$, $p < 0.001$) further confirmed that long-duration projects were significantly more likely to require later amendments (13th/14th), while short-duration projects were resolved earlier under the 12th Amendment.

4.4.2 Project Characteristics as Predictors of Completion

- a) **Budget/Cost Estimate Size:** Large-budget projects exceeding NPR 2 crore (double-envelope procurement) had a completion rate of only 42%, compared to 83% for small-budget single-envelope contracts. Despite constituting just 41.3% of the sample, large-budget projects accounted for 70.4% of all sick (uncompleted) projects. A Spearman correlation ($\rho = 0.6605$, $p < 0.001$) confirmed a significant positive relationship between project cost estimate and absolute time overrun, suggesting that higher financial complexity systematically worsens delay outcomes.

b) **Project Type: Road** projects achieved a 76.6% completion rate, whereas building projects completed at only 51.5%. Building projects represented 59.3% of all sick projects despite comprising 41.3% of the sample. Buildings carry compounding vulnerabilities: multi-disciplinary coordination, longer implementation sequences, sensitivity to design changes, and greater financial fragility at higher contract values.

Together, budget size and project type constitute a bivariate risk profile: large-budget building contracts are both the most structurally vulnerable category and the least responsive to time-extension provisions.

4.4.3 Reasons for Project Incompletion

Among the 27 chronically sick projects, the following causes were identified and ranked:

1. **Contractor Default:** The dominant cause by a large margin. reasons included abandoned sites, negligence, JV partner disputes, poor manpower mobilization, and financial incapacity.
2. **Site Clearance / Land Acquisition:** Unresolved compensation disputes, local obstructions, and incomplete site clearance.
3. **Design Change & Lack of Coordination:** Pre-construction planning gaps and inter-institutional communication failures.

4.4.4 Expert Validation & Mitigation Strategies (KII)

Five senior experts in public procurement and contract management validated causes and mitigation measures through a Key Informant Interview. Expert-ranked causes mirrored project data findings including contractor negligence rated highest (Mean = 4.0), followed by site acquisition/ clearance issues (Mean = 3.6) and material price escalation (Mean = 3.4). The highest-scoring mitigation includes pre-tendering site clearance received a perfect consensus score of 5.0, indicating unanimous expert agreement that it is a non-negotiable prerequisite for project success. Contractor prequalification based on capacity and track record (Mean = 4.4) and realistic price adjustment provisions (Mean = 4.6) were also prioritized.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1 Conclusions

This chapter presents the conclusions of the study, derived from integration of the descriptive, quantitative secondary data analysis and the KII expert panel findings. Conclusions are organized by research objective. Recommendations are proposed for the Public Procurement Monitoring Office (PPMO), DUDBC, and the Government of Nepal. The chapter concludes with a discussion of the study's limitations and directions for future research.

Objective 1: Effectiveness of the 12th, 13th, and 14th Amendments in Achieving Project Completion

Conclusion 1: The three-amendment EoT framework delivered meaningful but ultimately bound remedial outcomes. Collectively, the amendments enabled completion of 66.3% of sampled DUDBC projects, confirming genuine policy utility in recovering stalled contracts. However, one-third of projects remained chronically unfinished after three rounds of regulatory intervention, establishing that time-extension provisions alone are structurally insufficient for deeply distressed contracts.

The 12th Amendment was the most effective in absolute completion volume (28 projects), owing to its low-bureaucracy design suited to smaller, structurally sound contracts. Successive amendments completed fewer projects not due to regulatory inadequacy, but because each confronted a residual pool of progressively more complex and financially fragile contracts. The statistically significant shift from road completions (12th) to building completions (14th) indicates that later amendments increasingly addressed building-sector barriers. The study concludes that future EoT rounds, without accompanying structural reforms, are predicted to yield only marginal additional gains from the remaining chronic sick pool.

Objective 2: Association Between Project Characteristics and Project Completion

Conclusion 2: Two project characteristics are statistically and substantively associated with EoT effectiveness: project budget size and project type.

- Budget size ($p < 0.001$): Large-budget projects are grossly over-represented in the pool. The no-additional-claims EoT condition creates financial irrationality for large contractors whose original prices cannot absorb material cost inflation, directly driving abandonment risk. EoT amendments are substantially more effective for small, single-envelope contracts.

- Project type ($p = 0.020$): Building projects are disproportionately vulnerable, nearly twice as likely to remain incomplete as road projects. Greater technical complexity, multi-trade coordination requirements, and higher contractor financial exposure explain this differential performance.

Together, large-budget building contracts represent the category most resistant to time-extension-based policy intervention. This finding directly implies that PPMO and DUDBC must adopt differentiated monitoring, prequalification, and financial compensation strategies for building versus road contracts, and for large versus small contracts.

Objective 3: Primary Reasons for Project Sickness and Expert Recommendations

Conclusion: Contractor default is the single most significant cause of project incompleteness (48.1%), followed by site handover and land acquisition failures (18.5%), design changes, and coordination gaps. Expert consensus independently validates this hierarchy, with contractor negligence rated highest (RII = 0.800) and site acquisition second (RII = 0.720).

The analysis yields a hierarchy of prioritised interventions:

- Mandatory capacity-based contractor prequalification (replacing lowest-bid selection above NPR 2 crore) to eliminate the primary driver of abandonment before contract award.

- Pre-tendering site readiness jointly suggested by experts with a perfect score of 5.0; no contract should be tendered without confirmed land acquisition and site clearance.

- Redesign of EoT financial conditions for large contracts by introducing transparent, index-linked price adjustment provisions to remove the financial irrationality that drives large-contractor default.

- Completion of Detailed Project Reports (DPR) and design freeze before procurement, to prevent mid-contract design changes that cascade into delays and disputes.
- Realistic Force Majeure clause revisions (Mean = 4.6) and multi-year committed budgeting (Mean = 4.2) to address natural hazard and governance-related failures.

The overall conclusion across all three objectives is that the EoT amendment framework has served as a necessary but insufficient policy instrument. Sustained improvement in public construction outcomes in Nepal requires a complementary package of procurement reforms targeting contractor selection, site readiness, financial contract design, and pre-construction planning reforms that address the structural roots of project sickness rather than merely extending time

5.2 Recommendations

5.2.1 Recommendations for Practice

1. Reform Contractor Selection to Capacity-Based Procurement

- Replace lowest-bid criterion: For contracts above NPR 2 crore, supplement or replace the lowest-bid evaluation with a capacity-based framework assessing financial standing, past completion history, bond adequacy, qualified personnel, and equipment availability.
- Performance bond enforcement: Strengthen mandatory performance bonds as financial instruments that transfer completion risk to the contractor before work begins.
- Contractor performance registry: Establish a PPMO-maintained registry recording extension history, completion rates, default incidents, and blacklisting status, accessible to all procuring entities.

2. Mandate Pre-Contract Site Readiness Certification

- Site Readiness Certificate: No contract should be awarded without formal certification confirming land acquisition, compensation settlement, physical site handover, and absence of legal implications.
- Budget pre-requisite: Pre-tendering site clearance must be a mandatory prerequisite for project inclusion in the national development budget.

3. Redesign EoT Financial Conditions for Large Contracts

- Index-linked price adjustment: For contracts above NPR 2 crore, introduce transparent price adjustment provisions allowing partial recovery of verified

material cost escalation. The current no-additional-claims condition creates financial irrationality and directly drives the 70.4% concentration of large-budget projects in the incompleteness pool.

- Milestone-based enforcement: Complement liquidated damage suspension with clear milestone-based completion requirements to distinguish genuine progress from administrative delay deferral.

4. Complete DPR and Freeze Design Before Tendering

- Mandatory design freeze: No construction contract should be tendered until Detailed Project Reports (DPR) include full structural drawings, BOQs, geotechnical assessments, and environmental clearances are formally approved by a design review committee.
- Change management process: Establish a formal mid-construction design modification process with defined timelines, financial impact assessments, and accountable decision authority.

5. Implement Early Warning & Monitoring Systems

- Independent technical review: Projects whose extension duration exceeds the original contract duration should trigger a mandatory independent review to determine whether continuation or rebidding is more feasible.
- Multi-year budget assurance: Contracts above NPR 2 crore should require assured multi-year budget commitments prior to award to eliminate funding-driven stalls.

6. Pursue Long-Term PPR Framework Reform

- Evidence-based amendments: Future PPR amendments should be grounded in empirical impact assessments rather than ad hoc decisions, ensuring policy stability.
- Differentiated EoT provisions: Introduce separate time-extension provisions for large contracts above a defined threshold, reflecting their higher complexity and financial risk profile.

5.2.2 Recommendations for Future research

- Future research should develop multivariate models to predict project completion risk using key contractual and project variables, enabling early monitoring and targeted intervention.
- Similar studies should be extended to other implementing agencies, provincial agencies, and local governments to assess whether observed patterns are system-wide or institution-specific.

- Qualitative studies with defaulting contractors are needed to identify the financial and institutional causes of project abandonment.
- Further research should examine cost overruns and construction quality in repeatedly extended projects to provide a comprehensive value-for-money assessment.

CHAPTER 6: REFERENCES

Akhund, M. A., et al. (2017). "Time Overrun in Construction Projects of Developing Countries." "Imperial Journal of Interdisciplinary Research (IJIR) 3.

Ashmita Shakya , K. R. P. (2023). "A comparative study on bidding trends and competition analysis before and after limiting number of Project for Bidders Qualification in Procurement of Works in Nepal."

Bank, W. (2025). "Nepal Capital Expenditure Bottleneck Analysis ".

Bank, W. (2026). "Why Nepal struggles to build infrastructure – and what can be done about it?". from <https://www.worldbank.org/en/news/feature/2026/03/13/why-nepal-struggles-to-build-infrastructure-and-what-can-be-done-about-it>.

Bryman, A. (2016). Social Research Methods, Oxford University Press.

CIAA (2019) CIAA Annual Report 2075/76

Connolly, A., et al. (2024). "A scoping review of the methodological approaches used in retrospective chart reviews to validate adverse event rates in administrative data." International journal for quality in health care : journal of the International Society for Quality in Health Care 36.

Creswell, J. (2009). Research Design: Qualitative, Quantitative, and Mixed-Method Approaches.

Dahal, A. (2024). "Amendment of Public Procurement Act 2063 and Regulation 2064: Implications on Development Projects in Nepal." Apex Journal of Business and Management 2: 9-20.

Eriksson, P. E. and M. Westerberg (2011). "Effects of Cooperative Procurement Procedures on Construction Project Performance: A Conceptual Framework." International Journal of Project Management 29: 197-208.

Nepal, A. A. (2023). "An Assesment of Foreign Aid Effectivness ".

Ortiz, J., et al. (2018). "MANAGEMENT OF TIME AND COST CONTINGENCIES IN CONSTRUCTION PROJECTS: A CONTRACTOR PERSPECTIVE." Journal of Civil Engineering and Management 24: 254-264.

Post, T. K. (2020). Despite completion of one third of sick projects, progress in troubled government contracts remains dismal

Pradhanang, B., et al. (2024). "Impact Assessment of Utility Relocation on Road Construction Projects: A Case Study Analysis." Journal of Lumbini Engineering College **6**: 23-36.

Rose, T. and K. Manley (2011). "Motivation toward financial incentive goals on construction projects." Journal of Business Research **64**: 765-773.

Saiful Islam, M. and B. Trigunaryah (2017). "Construction Delays in Developing Countries: A Review." Journal of construction engineering and project management **7**.

Shrestha, P., et al. (2013). "Magnitude of Construction Cost and Schedule Overruns in Public Work Projects." Journal of Construction Engineering **2013**: 1-9.

APPENDIX 1: DATA COLLECTED FROM PROJECT OFFICES

S.N.	Project Type	Total number of time extensions	Planned Duration	Actual Duration	Estimated Cost	Contract Amount	Project Status	Reasonforsickness	Detailreason
1	Road	4	21	363	4499961.13	2251579.47	Sick	Force Majeure	Landslide eroded away completed wall , insurance claim was not given . Also contractor was out of contact for a long time .
2	Road	2	364	730	60000000	35668075.15	Completed		
3	Road	3	90	433	9995804.84	4899999.99	Completed		
4	Building	5	31	1107	13995673.78	9660364.1	Completed		
5	Road	1	58	429	4347835.25	3108460.85	Completed		
6	Road	2	90	422	4499793.26	2634118.91	Completed		
7	Road	3	90	464	4499849.46	2453921.34	Completed		
8	Road	2	150	516	4497650.1	2534025.87	Completed		
9	Building	1	423	770	4499011.03	2499151.57	Completed		
10	Road	1	424	748	8999052.56	4223927.35	Completed		
11	Road	3	48	369	4347304.68	3599817.23	Completed		
12	Road	2	119	443	13492259.18	7795973.85	Completed		
13	Road	1	112	296	6762949.33	6266887.71	Completed		
14	Road	2	90	405	4499765.7	3232041.97	Completed		
15	Road	3	123	429	4497876.34	2604539.14	Completed		
16	Road	1	119	303	4347637.33	2348424.44	Completed		
17	Road	2	58	405	4499501.33	4051825.75	Completed		
18	Road	4	119	815	4495092.1	2538163.09	Sick	Contractor Default	Contractor not response and out of contact
19	Road	2	90	435	4498618.53	3072054.42	Completed		
20	Building	2	90	433	13035527.04	7978777.75	Completed		
21	Road	2	90	398	4499387.84	2798348.83	Completed		
22	Road	2	90	473	4499999.91	2578555.54	Completed		
23	Road	1	150	211	4497763.84	2544059.68	Completed		
24	Road	2	59	118	4499914.97	2252872.23	Completed		
25	Road	3	90	467	4499797.89	2930390.43	Completed		
26	Road	2	59	239	4498607.94	2262726.01	Completed		
27	Road	2	90	467	4499797.89	2930390.43	Completed		
28	Road	2	90	398	4347886.56	2798286.85	Completed		
29	Road	2	183	310	19398344.69	12844594.54	Completed		
30	Road	2	148	362	9699660.28	6351958.02	Completed		
31	Road	1	91	427	9998989.88	6067824.99	Completed		
32	Building	2	120	391	6760233.93	5245745.57	Sick	Design Change	Certain boq items missing , and contractor not able to do the updated boq in current market price
33	Road	2	121	201	3857609.45	3487210.67	Completed		
34	Building	1	122	164	2896079.78	2797502.27	Completed		
35	Road	2	90	241	4830312.69	3279199.43	Completed		
36	Road	1	91	152	2897036.12	2063036.81	Completed		
37	Road	1	121	194	4828676.93	3951548.83	Completed		
38	Building	1	152	189	4835405.6	2960127.55	Completed		
39	Building	2	91	251	3853065.83	3773848.74	Sick	Site Issue / Land Acquisition	Locals hindered the project saying this was century old temple , which cannot be modernized.
40	Building	3	92	309	9950257	6775043.18	Completed		
41	Building	3	365	545	21372096.24	17097676.99	Completed		
42	Building	1	546	758	20550979	17262822.36	Completed		
43	Building	1	365	722	19512441.34	16260367.78	Completed		
44	Building	2	456	1039	33354649.45	29004043	Completed		
45	Building	2	456	1001	94807513.6	75846010.88	Completed		
46	Building	3	447	1662	56223600	44978880	Sick	Contractor Default	Contractor not response and out of contact
47	Building	5	1291	2680	521094906.1	416875924.9	Sick	Site Issue / Land Acquisition	Site couldnot be provided
48	Road	6	457	951	154944972.4	122232751.7	Sick	Site Issue / Land Acquisition	Locals didn't give their land away , so desired width was not achieved
49	Building	3	971	1597	408606986.4	314313066.4	Completed		
50	Building	5	915	1597	499699619.2	356928299.4	Completed	Site Issue / Land Acquisition	

51	Building	4	546	1458	537831657.5	401366908.6	Sick	Site Issue / Land Acquisition	Obstruction due to locals in construction works
52	Building	3	926	2121	325409994	237525543	Sick	Dispute / Arbitration	also supreme court order for halt in construction.
53	Road	5	731	2447	95759062.6	66964379.44	Sick	Delayed Material Supply	Monsoon, War, Inflation in petroleum,
54	Building	4	607	1661	178116242.3	143642130.9	Sick	Contractor Default	Contractor not in contact despite regular letters and followup , negligence of contractor
55	Road	3	730	1530	287841951.8	214807426.7	Sick	Contractor Default	Negligence of contractor despite regular followups. Regular follow-ups have been carried out to ensure completion of the remaining construction works. If the work is not completed within the stipulated timeframe, necessary action will be initiated in accordance with prevailing regulations.
56	Building	2	468	1295	113713381.3	86146501	Sick	Contractor Default	Due to delays by contractor , the program was obstructured . Legal action to be taken
57	Building	9	915	3550	279668289.9	215129453.8	Completed	Contractor Default	
58	Building	6	730	2479	404822896.1	295491165	Sick	Contractor Default	Due to delays by contractor , the program was obstructured . Legal action to be taken
59	Road	2	380	1751	7722964.6	5940742	Sick	Lack of Coordination	Contractor out of contact and recently came in touch , commitment to complete
60	Road	1	367	1751	46771666.86	34904229	Sick	Contractor Default	Poor quality workmanship , not meeting specifications leading to repetition of works and subsequent delay.
61	Road	1	367	1751	40134349.2	30404810	Sick	Contractor Default	Internal disputes among JV partners
62	Building	4	651	2483	72157073.21	63855817	Sick	Contractor Default	Ignoring repeated written / verbal notices . No contact with office
63	Building	2	454	1721	13979384.1	12708531	Completed		
64	Building	6	464	2344	83983589.93	74321761	Completed		
65	Road	8	731	2952	1115215318	857857937	Completed		
66	Road	7	548	3106	504490768.3	376485648	Completed		
67	Road	2	116	893	7523128.2	5373663	Sick	Lack of Coordination	Limited communication between both parties
68	Road	2	306	1412	6628636.3	5098951	Sick	Contractor Default	Ignoring repeated written / verbal notices . No contact with office
69	Building	3	426	1657	157963030.9	119668962.8	Sick	Design Change	Plinth height was increased as per requirement of site , contractor didn't respond properly
70	Building	3	548	1626	104510809.4	80392930.29	Sick	Contractor Default	Poor management and planning and failure to mobilize manpower and machinery
71	Building	2	638	1056	499993342.8	336323920.8	Sick	Site Issue / Land Acquisition	Disputes over land ownership and usage rights have obstructed construction.
72	Road	4	408	2316	39960140	29821000	Completed		
73	Road	3	403	2326	42054600	30039000	Sick	Contractor Default	Minimal or no progress despite repeated instructions and warnings.
74	Building	2	444	871	98463571.5	70331122.5	Sick	Lack of Coordination	Contract not in contact
75	Building	3	264	1419	19998908	16223638	Sick	Design Change	Geographical difficulties, inconvenience of material supply, Overestimated
76	Road	2	117	893	7039498.53	5373663	Completed		
77	Road	3	93	1316	3456914.75	2618874.81	Completed		
78	Building	3	861	1782	118513158.5	92588405.06	Sick	Contractor Default	The annual program for the fiscal year 2080/081 could not be implemented as planned. The delay was caused by unseasonal rainfall, the impact of the Russia/Ukraine War leading to increased petroleum prices, and the resulting rise in the cost of construction materials. Additionally, the local authorities were unable to arrange timely contracts for riverbed materials, resulting in the unavailability of stone, aggregates, and sand when needed. Consequently, the construction work could not be completed within the timeframe.
79	Road	5	1057	2551	281876966	159908424.6	Completed		
80	Building	3	391	1209	51020596.48	39859841	Completed	Force Majeure	

APPENDIX 2: LIST OF INCOMPLETE PROJECTS

S.N.	Project Type	number of time extension	Amendment 12	Amendment 13	Amendment 14	Planned Duration	Actual Duration	Estimated Cost	Budget Band	Contract Amount	Final Cost	Project Status	Reasonforsickness	DetaiReason	Time Overrun
1	Road	1	1	0	0	21	363	4499961.13	<=2 Crore	2251579.47	1378775	Not Completed	Force Majeure	insurance claim was not given. Also contractor was out of contact for a	342
18	Road	4	1	1	1	119	815	4495092.1	<=2 Crore	2538163.09	2396130	Not Completed	Contractor Default	Contractor not response and out of	686
32	Building	2	1	1	1	120	391	6760233.93	<=2 Crore	5245745.57	3372028	Not Completed	Design Change	Certain boq items missing, and contractor not able to do the updated boq in current market price	271
39	Building	2	1	1	1	91	251	3853065.83	<=2 Crore	3773848.74	474618	Not Completed	Site Issue / Land Acquisition	Locals hindered the project saying this was century old temple, which cannot be modernized.	160
46	Building	3	1	1	1	447	1662	56223600	> 2 Crore	44978680	35863104	Not Completed	Contractor Default	Contractor not response and out of contact	1215
47	Building	5	1	1	1	1291	2680	521094906.1	> 2 Crore	416875924.9	146365137	Not Completed	Site Issue / Land Acquisition	Site couldnot be provided	1389
48	Road	6	1	1	1	457	951	154944972.4	> 2 Crore	122232751.7	73339651	Not Completed	Site Issue / Land Acquisition	Locals didn't give their land away, so desired width was not achieved	494
51	Building	4	1	1	1	546	1458	537831657.5	> 2 Crore	401366908.6	349189211	Not Completed	Site Issue / Land Acquisition	Obstruction due to locals in construction works	912
52	Building	3	1	1	1	926	2121	325409994	<=2 Crore	237525543	111637005	Not Completed	Dispute / Arbitration	Land acquisition problem from beginning, also supreme court order for halt in construction.	1195
53	Road	5	1	1	1	731	2447	95759062.6	> 2 Crore	66964379.44	41370593.6	Not Completed	Delayed Material Supply	Monsoon,War, Inflation in petroleum,	1716
54	Building	4	1	1	1	607	1661	178116242.3	> 2 Crore	143642130.9	64157054	Not Completed	Contractor Default	Contractor not in contact despite regular letters and followup, negligence of contractor	1054
55	Road	3	1	1	1	730	1530	287841951.8	> 2 Crore	214807426.7	101235014	Not Completed	Contractor Default	regular followups. Regular follow-ups have been carried out to ensure completion of the remaining construction works. If the work is not completed within the stipulated	800
56	Building	2	1	1	1	468	1295	113713381.3	> 2 Crore	96146501	30837148.4	Not Completed	Contractor Default	Due to delays by contractor, the program was obstructured. Legal action to be taken	827
58	Building	6	1	1	1	730	2479	404822896.1	> 2 Crore	295491165	233884809	Not Completed	Contractor Default	Due to delays by contractor, the program was obstructured. Legal action to be taken	1749
59	Road	2	1	1	1	380	1751	7222964.6	<=2 Crore	5940742	1720420	Not Completed	Lack of Coordination	Contractor out of contact and recently came in touch, commitment to complete	1371
60	Road	1	1	1	1	367	1751	46771666.86	> 2 Crore	34904229	18977684	Not Completed	Contractor Default	Poor quality workmanship, not meeting specifications leading to repetition of works and subsequent delay.	1384
61	Road	1	1	1	1	367	1751	40134349.2	> 2 Crore	30404810	6420853	Not Completed	Contractor Default	Internal disputes among JV partners	1384
62	Building	4	1	1	1	651	2483	72157073.21	> 2 Crore	63855817	35515572	Not Completed	Contractor Default	Ignoring repeated written / verbal notices. No contact with office	1832
67	Road	2	1	1	1	116	893	7523128.2	<=2 Crore	5373663	2712267	Not Completed	Lack of Coordination	Limited communication between both parties	777
68	Road	2	1	1	1	306	1412	6628636.3	<=2 Crore	5098951	2804423.05	Not Completed	Contractor Default	Ignoring repeated written / verbal notices. No contact with office	1106
69	Building	3	1	1	1	426	1657	157963030.9	> 2 Crore	119668962.8	73341737	Not Completed	Design Change	Plinth height was increased as per requirement of site, contractor didn't respond properly	1231
70	Building	3	1	1	1	548	1626	104510809.4	> 2 Crore	80392930.29	73341737	Not Completed	Contractor Default	Poor management and planning and failure to mobilize manpower and machinery	1078
71	Building	2	1	1	1	638	1056	499993342.8	> 2 Crore	336323920.8	71552079.9	Not Completed	Site Issue / Land Acquisition	Disputes over land ownership and usage rights have obstructed construction.	418
73	Road	3	1	1	1	403	2326	42054600	> 2 Crore	30039000	22679445	Not Completed	Contractor Default	Minimal or no progress despite repeated instructions and warnings.	1923
74	Building	2	1	1	1	444	871	98463571.5	> 2 Crore	70331122.5	45996554.1	Not Completed	Lack of Coordination	Contract not in contact	427
75	Building	3	1	1	1	264	1419	19998908	<=2 Crore	16223638	12411083.1	Not Completed	Design Change	Geographical difficulties, inconvenience of material supply,Overestimated	1155
78	Building	3	1	1	1	861	1782	118513158.5	> 2 Crore	92588405.06	56478927.1	Not Completed	Contractor Default	The annual program for the fiscal year 2020/2021 could not be implemented as planned. The delay was caused by unseasonal rainfall, the impact of the Russia-Ukraine War leading to increased petroleum prices, and the	921

APPENDIX 3: KII FORM

KEY INFORMANT INTERVIEW – SECTION A & B: Sickness Reasons & Mitigation Effectiveness Matrix

SECTION A – Reasons for Sickness & Likelihood Rating				SECTION B – Mitigation Effectiveness (%) per Reason [0-100%]													
SN	Reason for Project Sickness (Based on DUDBC Sick Project Data)	Category Code	Likelihood (1 = Very Low 5 = Very High)	Expert Notes / Observations	M1 Pre-Project Planning	M2 Contractor Prequalification	M3 Site Handover & Land Acquisition	M4 Contract Admin & Dispute Resolution	M5 Procurement Planning	M6 Timely Design & Variation approval	M7 Proper Budgeting & Cost Control	M8 Regular Coordination Meetings	M9 Risk Monitoring	M10 Capacity Building	M11 Legal Framework & PPR Reform	M14 Force Majeure & Escalation Clause	
1	Contractor negligence, default, and poor mobilization of resources	Contractor Default															
2	Contractor insolvency or abandonment of work mid-way																
3	Failure to handover construction site / non-availability of land	Site Acquisition															
4	Community opposition and local obstruction to construction activities																
5	Land acquisition disputes and unresolved compensation issues	Legal Dispute															
6	Court orders (Supreme Court/ High Court) suspending construction																
7	Arbitration proceedings between contractor and client																
8	Joint Venture (JV) partner disputes leading to frozen bank accounts	Governance															
11	Annual budget omission – program missing from fiscal year budget																
12	Inter-agency coordination failure (local, provincial, federal bodies)																
13	Delayed approval of Variation Orders (VO) and Revised Estimates																
14	Non-compliance with PPR Amendment documentation requirements	Budgetary and Finance															
15	Material price escalation (fuel, aggregates, cement, steel)																
16	Unrealistic initial cost estimates and inadequate contingency provision	Technical / Design															
17	Delayed payment / bill settlement causing contractor demobilization																
18	Design errors, omissions, and frequent scope changes mid-construction																
19	Poor initial site investigation and inadequate feasibility study	Natural Hazard															
20	Natural disasters – floods, landslides, seismic events affecting sites																
21	Geographical remoteness and difficult terrain hindering access	Institutional Capacity															
22	Inadequate project monitoring, oversight, and supervision by client																
23	Weak capacity of project management unit and technical staff																

APPENDIX 4: STATISTICAL ANALYSIS

1.PROJECT TYPE AND PROJECT STATUS

ProjectType * ProjectStatus Crosstabulation

		ProjectStatus			
		Completed	Not Completed	Total	
ProjectType	Building	Count	17	16	33
		% within ProjectType	51.5%	48.5%	100.0%
		% within ProjectStatus	32.1%	59.3%	41.3%
		Standardized Residual	-1.0	1.5	
	Road	Count	36	11	47
		% within ProjectType	76.6%	23.4%	100.0%
		% within ProjectStatus	67.9%	40.7%	58.8%
		Standardized Residual	.9	-1.2	
Total	Count	53	27	80	
	% within ProjectType	66.3%	33.8%	100.0%	
	% within ProjectStatus	100.0%	100.0%	100.0%	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.454 ^a	1	.020		
Continuity Correction ^b	4.390	1	.036		
Likelihood Ratio	5.434	1	.020		
Fisher's Exact Test				.030	.018
N of Valid Cases	80				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 11.14.

b. Computed only for a 2x2 table

2.BUDGET BAND AND PROJECT STATUS

BudgetBand * ProjectStatus Crosstabulation

		ProjectStatus			
		Completed	Not Completed	Total	
BudgetBand	<=2 Crore	Count	39	8	47
		% within BudgetBand	83.0%	17.0%	100.0%
		% within ProjectStatus	73.6%	29.6%	58.8%
		Standardized Residual	1.4	-2.0	
	> 2 Crore	Count	14	19	33
		% within BudgetBand	42.4%	57.6%	100.0%
		% within ProjectStatus	26.4%	70.4%	41.3%
		Standardized Residual	-1.7	2.4	
Total	Count	53	27	80	
	% within BudgetBand	66.3%	33.8%	100.0%	
	% within ProjectStatus	100.0%	100.0%	100.0%	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	14.261 ^a	1	<.001		
Continuity Correction ^b	12.505	1	<.001		
Likelihood Ratio	14.426	1	<.001		
Fisher's Exact Test				<.001	<.001
N of Valid Cases	80				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 11.14.

b. Computed only for a 2x2 table

3.PROJECT COMPLETED BY EACH AMENDMENT AND PROJECT TYPE

projectcompeltdbyeachamendment * ProjectType Crosstabulation

		ProjectType			
		Building	Road	Total	
projectcompeltdbyeachamendment	1	Count	5	23	28
		% within projectcompeltdbyeachamendment	17.9%	82.1%	100.0%
		% within ProjectType	15.2%	48.9%	35.0%
		Standardized Residual	-1.9	1.6	
	2	Count	4	8	12
		% within projectcompeltdbyeachamendment	33.3%	66.7%	100.0%
		% within ProjectType	12.1%	17.0%	15.0%
		Standardized Residual	-.4	.4	
	3	Count	8	5	13
		% within projectcompeltdbyeachamendment	61.5%	38.5%	100.0%
		% within ProjectType	24.2%	10.6%	16.3%
		Standardized Residual	1.1	-1.0	
4	Count	16	11	27	
	% within projectcompeltdbyeachamendment	59.3%	40.7%	100.0%	
	% within ProjectType	48.5%	23.4%	33.8%	
	Standardized Residual	1.5	-1.2		
Total	Count	33	47	80	
	% within projectcompeltdbyeachamendment	41.3%	58.8%	100.0%	
	% within ProjectType	100.0%	100.0%	100.0%	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.454 ^a	3	.006
Likelihood Ratio	13.066	3	.004
N of Valid Cases	80		

a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 4.95.

4.SPEARMANS CORELATION

Correlations

		EstimatedCost		TimeOverrun
Spearman's rho	EstimatedCost	Correlation Coefficient	1.000	.661**
		Sig. (2-tailed)	.	<.001
		N	80	80
	TimeOverrun	Correlation Coefficient	.661**	1.000
		Sig. (2-tailed)	<.001	.
		N	80	80

** Correlation is significant at the 0.01 level (2-tailed).

5

5.TEST OF NORMALITY

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
EstimatedCost	.307	80	<.001	.562	80	<.001
TimeOverrun	.219	80	<.001	.860	80	<.001

a. Lilliefors Significance Correction

APPENDIX 5: KII, RESPONSE FROM EXPERTS

S/N	Reason for Project Sickness (Based on DUESS Sick Project Data)	SECTION A - Reasons for Sickness & Likelihood Rating										SECTION B - Mitigation Effectiveness Matrix									
		Category Code	Likelihood (1 = Very Low, 5 = Very High)	M1 Pre-Project Planning	M2 Construction	M3 Site Handover & Land Acquisition	M4 Contract Admin & Dispute Resolution	M5 Procurement Planning	M6 Timely Design & Variation approval	M7 Project Budget & Cost Control	M8 Regular Communication Meetings	M9 Risk Monitoring	M10 Capacity Building	M11 Legal Framework & PPR Reform	M14 Force Majeure & Escalation Clause	AMT Additional Measure #1	AMZ Additional Measure #2				
1	Contractor negligence, default, and poor mobilization of resources	Contractor Default	5	10	100	30	60	20	30	20	30	50	20	20							
2	Contractor insolvency or abandonment of work mid-way	Contractor Default	5	10	100	10	60	30	30	20	30	50	20	30							
3	Failure to handover construction site / non-availability of land	Site Acquisition	4	100	0	80	70	60	0	0	50	40	10	10							
4	Community opposition and local obstruction to construction activities	Site Acquisition	4	100	0	80	70	60	0	0	50	40	10	10							
5	Land acquisition disputes and unresolved compensation issues	Site Acquisition	4	100	0	80	70	60	0	0	50	40	10	10							
6	Court orders (Supreme Court / High Court) suspending construction	Legal Dispute	2	90	30	20	100	20	70	30	60	40	50	20							
7	Arbitration proceedings between contractor and client	Legal Dispute	3	60	30	20	100	10	70	20	80	40	60	10							
8	Joint Venture (JV) partner disputes leading to frozen bank accounts	Legal Dispute	4	60	100	20	60	20	30	10	80	70	90	10							
11	Annual budget omission - program missing from fiscal year budget	Governance	3	100	10	20	30	80	30	90	60	50	40	30							
12	Inter-agency coordination failure (local/provincial/federal bodies)	Governance	3	90	10	60	20	50	10	10	40	30	20	10							
13	Delayed approval of Variation Orders (VO) and Revised Estimates	Governance	3	80	10	10	50	20	100	30	60	60	40	20							
14	Non-compliance with PPR Amendment documentation requirements	Governance	3	80	10	10	70	90	20	10	40	30	100	10							
15	Material price escalation (fuel, aggregates, cement, steel)	Budgetary and Finance	3	30	10	10	80	70	10	60	40	50	90	100							
16	Unrealistic initial cost estimates and inadequate contingency provision	Budgetary and Finance	2	100	10	10	80	90	70	80	40	50	20	10							
17	Delayed payment / bill settlement causing contractor demobilization	Budgetary and Finance	3	60	60	10	100	80	70	90	30	50	20	10							
18	Design errors, omissions, and frequent scope changes mid-construction	Technical / Design	3	100	10	10	60	20	90	30	80	30	10								
19	Poor initial site investigation and inadequate feasibility study	Technical / Design	3	100	10	10	60	20	90	30	80	30	10								
20	Natural disasters - floods, landslides, seismic events affecting site	Natural Hazard	2	70	10	10	80	20	100	30	40	30	10								
21	Very high rainfall remoteness and difficult terrain	Natural Hazard	2	70	10	10	80	20	100	30	40	30	10								
22	Inadequate project monitoring, oversight, and supervision by client	Institutional Capacity	3	20	20	10	50	60	40	20	80	70	10								
23	Weak capacity of project management unit and technical staff	Institutional Capacity	3	20	20	10	50	60	40	20	80	70	10								
24	Additional Reason #1 Specify in Notes (column)	-	-																		
25	Additional Reason #2 Specify in Notes (column)	-	-																		

KEY INFORMANT INTERVIEW – SECTION A & B: Sickness Reasons & Mitigation Effectiveness Matrix																		
SECTION A – Reasons for Sickness & Likelihood Rating			SECTION B – Mitigation Effectiveness (%) per Reason (0-100%)															
S/N	Reason for Project Sickness (Based on DUOBIC Sick Project Data)	Category Code	Likelihood (1 = Very Low 5 = Very High)	Expert Notes / Observations	M1 Pre-Project Planning	M2 Contractor Preparation	M3 Site Handover & Land Acquisition	M4 Contract Admin & Dispute Resolution	M5 Procurement Planning	M6 Timely Design & Variation Approval	M7 Proper Budgeting & Cost Control	M8 Regular Communication Meetings	M9 Risk Monitoring	M10 Capacity Building	M11 Legal Framework & PPR Reform	M14 Force Majeure & Escalation Clause	AM1 Additional Measure #1	AM2 Additional Measure #2
1	Contractor negligence, default, and poor mobilization of resources	Contractor Default	4	write proposal subcontract	M	H	-	L	-	M	L	L	M	M	M	M		
2	Contractor insolvency or abandonment of work mid-way	Contractor Default	4	write proposal subcontract	M	H	-	M	-	-	M	L	-	M	L	-		
3	Failure to handover construction site / non-availability of land	Site Acquisition	3	unavailable site selection	H	-	VH	M	-	-	L	-	L	-	M	-		
4	Community opposition and local obstruction to construction activities	Site Acquisition	3	unavailable site selection	H	-	H	M	M	-	-	M	-	M	M	M		
5	Land acquisition disputes and unresolved compensation issues	Site Acquisition	3	unavailable site selection	H	-	H	M	M	-	-	M	-	M	M	M		
6	Court orders (Supreme Court / High Court) suspending construction	Legal Dispute	2	avoidance by owner	H	L	M	M	M	M	M	H	L	L	M	-		
7	Arbitration proceedings between contractor and client	Legal Dispute	2	avoidance by owner	L	H	-	VH	M	H	-	M	L	L	M	-		
8	Joint Venture (JV) partner disputes leading to frozen bank accounts	Legal Dispute	2	avoidance by owner	L	H	-	-	-	-	M	M	L	L	M	-		
11	Annual budget omission – program missing from fiscal year budget	Governance	2	lose arrangements	-	-	-	-	H	M	VH	L	L	-	M	-		
12	Inter-agency coordination failure (local, provincial, federal bodies)	Governance	2	lose arrangements	H	-	M	-	M	-	H	M	M	M	M	M		
13	Delayed approval of Variation Orders (VO) and Revised Estimates	Governance	2	lose arrangements	-	-	-	-	M	-	M	M	L	L	H	-		
14	Non-compliance with PPR Amendment documentation requirements	Governance	2	lose arrangements	-	M	-	M	-	M	M	M	L	L	H	-		
15	Material price escalation (fuel, aggregates, cement, steel)	Budgetary and Finance	2	volatile market	M	L	-	L	M	L	L	M	H	-	M	H		
16	Unrealistic initial cost estimates and inadequate contingency provision	Budgetary and Finance	2	volatile market	H	-	-	M	H	H	M	-	L	M	H	-		
17	Delayed payment / bill settlement causing contractor demobilization	Budgetary and Finance	2	volatile market	M	L	-	M	M	-	VH	M	L	L	-	-		
18	Design errors, omissions, and frequent scope changes mid-construction	Technical / Design	2	Design team needed	VH	-	-	-	H	M	-	M	H	M	M	-		
19	Poor initial site investigation and inadequate feasibility study	Technical / Design	2	Design team needed	VH	-	L	-	-	H	M	-	M	M	M	-		
20	Natural disasters – floods, landslides, seismic events affecting sites	Natural Hazard	1	pre-qualification	H	M	L	-	M	M	-	-	H	M	M	M		
21	Geographical remoteness and difficult terrain hindering access	Natural Hazard	1	pre-qualification	M	M	L	-	M	M	-	-	H	M	M	M		
22	Inadequate project monitoring, oversight, and supervision by client	Institutional Capacity	2	non-participative	H	L	M	M	L	H	-	H	-	M	M	-		
23	Weak capacity of project management unit and technical staff	Institutional Capacity	2	non-participative	H	L	M	M	L	H	-	H	-	M	M	-		
24	Additional Reason #1 (Specify in Notes column)	-	-															
25	Additional Reason #2 (Specify in Notes column)	-	-															

KEY INFORMANT INTERVIEW – SECTION A & B: Sickness Reasons & Mitigation Effectiveness Matrix						
SECTION A – Reasons for Sickness & Likelihood Rating						
S/N	Category Code	Likelihood (1 = Very Low 5 = Very High)	Likelihood (1 = Very Low 5 = Very High)	Likelihood (1 = Very Low 5 = Very High)	Likelihood (1 = Very Low 5 = Very High)	Likelihood (1 = Very Low 5 = Very High)
1	Contractor Default	4	4	5	5	2
2						
3	Site Acquisition	3	3	4	3	5
4						
6	Legal Dispute	1	2	2	2	2
7						
11	Governance	2	2	3	4	4
12						
15	Budgetary and Finance	3	2	3	4	5
16						
18	Technical / Design	2	2	4	3	4
19						
20	Natural Hazard	2	1	2	2	3
21						
22	Administrative Constraints	2	2	4	4	4
23						

APPENDIX 6: ACCEPTANCE FOR 18TH IOE - GRADUATE CONFERENCE

Notifications ×

[IOEGC18] Editor Decision

2026-04-27 09:33 PM


Kushal Bhandari, Mahendra Raj Dhital:

We have reached a decision regarding your submission to 18th IOE Graduate Conference, "Assessing the Effectiveness of EoT Provisions in Nepal's PPR 2064 Amendments".

Our decision is to: Accept Submission

With Warm Regards,
IOEGC-18 Editorial Team

APPENDIX 9: ORIGINALITY REPORT

Similarity Report ID: oid:3117:584565853

PAPER NAME	AUTHOR
Assessing the Effectiveness of EoT Provisions in Nepal's PPR 2064 Amendments: A Project Based Study of DUDBC Projects	Kushal Bhandari

WORD COUNT	CHARACTER COUNT
11881 Words	72752 Characters
PAGE COUNT	FILE SIZE
52 Pages	1.3MB
SUBMISSION DATE	REPORT DATE
Apr 29, 2026 10:37 PM GMT+5:45	Apr 29, 2026 10:37 PM GMT+5:45

● 3% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

- 2% Internet database
- 1% Publications database
- Crossref database
- Crossref Posted Content database
- 0% Submitted Works database

● Excluded from Similarity Report

- Bibliographic material
- Quoted material
- Cited material
- Small Matches (Less than 10 words)

● **3% Overall Similarity**

Top sources found in the following databases:

- 2% Internet database
- 1% Publications database
- Crossref database
- Crossref Posted Content database
- 0% Submitted Works database

TOP SOURCES

The sources with the highest number of matches within the submission. Overlapping sources will not be displayed.

1	elibrary.tucl.edu.np Internet	<1%
2	elibrary.tucl.edu.np:8080 Internet	<1%
3	quanthub.com Internet	<1%
4	coursehero.com Internet	<1%
5	Lucé Pretorius, Alida Glaudina Herbst. "Understanding client violence t... Crossref	<1%
6	Mkhize, Sibusiso. "Factors Influencing Cart Abandonment in South Afri... Publication	<1%
7	cipmlk.org Internet	<1%
8	d.lib.msu.edu Internet	<1%

Source overview

9	thelawbrigade.com Internet	<1%
10	ir-library.ku.ac.ke Internet	<1%
11	ijarsct.co.in Internet	<1%
12	nta.gov.np Internet	<1%
13	ijirms.org Internet	<1%
14	aepec.gov.np Internet	<1%
15	conference.ioe.edu.np Internet	<1%
16	assets-eu.researchsquare.com Internet	<1%
17	pwi1.wildapricot.org Internet	<1%