

CONSTRUCTION SCHEDULE BASED DELAY ANALYSIS IN ROAD AND BUILDING PROJECTS

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TABLE OF CONTENTS

Table of Contents	ii
List of Tables	v
List of Figures	vi
Acknowledgement	vii
Declaration	viii
Abbreviations and Acronyms.....	ix
Abstract	x

CHAPTER ONE

1.0 Introduction to the Research	1
1.1 Background	1
1.2 Problem Statement & Research Question	3
1.3 Research Objectives	5
1.4 Problem Justification.....	5
1.5 Significance of the Research.....	6
1.6 Methodology	6
1.7 Limitations of the Study.....	7
1.8 Guide to the Report	8

CHAPTER TWO

2.0 Literature Review.....	9
2.1 Introduction.....	9
2.2 Delays in the Construction Industry.....	9
2.3 Types of Delay	10
2.3.1 Critical or Noncritical Delays	10
2.3.2 Excusable or Non Excusable Delays	11
2.3.2.1 Excusable Delays	11
2.3.2.2 Non Excusable Delays	12
2.3.3 Compensable or Non Compensable Delays	12
2.3.4 Concurrent Delays	14
2.4 Analysis of Delay	15
2.4.1 Reasons for Delay Analysis.....	15
2.4.2 Delay Analysis Methodologies.....	16
2.4.2.1 The Time Slice Analysis	17

2.4.2.2 The As Planned vs. As Built Analysis Method.....	17
2.4.2.3 The Impacted As Planned Analysis	18
2.4.2.4 The Time Impact Analysis	19
2.4.2.5 The Collapsed as-Built Method	19
2.4.2.6 Retrospective Longest Path Analysis Method	20
2.5 Claims Associated with Delays.....	20
2.5.1 Disruption Claims	22
2.5.2 Prolongation Claims	22
2.5.3 Liquidated Damages	23
2.5.4 Unabsorbed Overhead Claims	23
2.5.5 Acceleration Claims.....	24
2.5.6 Price Fluctuation Claims.....	24
2.5.7 Financial Claims	25
2.6 Required Materials to do the Delay Analysis	26
2.7 Construction Schedule	27
2.8 Summary	28

CHAPTER THREE

3.0 Research Methodology	30
3.1 Introduction.....	30
3.2 Research Process.....	31
3.2.1 Literature Review	31
3.2.2 Research Problem Statement	31
3.2.3 Research Design	31
3.2.3.1 Research Approach	31
3.2.3.2 Research Techniques.....	36
3.2.4 Data Collection	36
3.2.4.1 Semi Structured Interviews	36
3.2.4.2 Un Structured Interviews.....	37
3.2.4.3 Questionnaire Survey	38
3.2.5 Data Analysis.....	40
3.3 Summary	44

CHAPTER FOUR

4.0 Analysis and Results	45
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4.1 Introduction	45
4.2 Qualitative Data Analysis	45
4.2.1 Date Extraction	45
4.2.1.1 Building Projects	45
4.2.1.2 Road Projects	45
4.2.2 Data Analysis	72
4.3 Quantitative Data Analysis	81
4.3.1 Date Extraction	81
4.3.2 Data Analysis	81
4.4 Recommendations to Overcome the Most Severe Factors	82
CHAPTER FIVE	
5.0 Conclusion and Recommendations	86
5.1 Introduction	86
5.2 Summary of the Study	86
5.3 Limitations of the Research	87
5.4 Summary of the Findings	87
5.5 Conclusion	89
5.6 Recommendations	90
BIBLIOGRAPHY	92
ANNEXURES	
ANNEXURE – 1	97
ANNEXURE – 11	101

LIST OF TABLES

Table 1.1 Distribution of Value of Work Done by Type of Construction Activity within the Year 2015	4
Table 2.1 Required Materials to do a Delay Analysis According to the Method.	27
Table 3.1 Categorization of the Construction Contractors According to the Financial Limit.	33
Table 3.2 Categorization of the Construction Contractors According to the Financial Limit.	39
Table 3.3 Determining Sample Size which is required to be generalized to a Given Population	40
Table 3.4 Objectives based for the Quantitative Analysis	43
Table 4.1 Significance of the Claims in Road and Building Projects and Applicability of a construction schedule	74
Table 4.2 Severity Index of the Identified Factors	82

LIST OF FIGURES

Figure 2.1 Classifications of Delays	10
Figure 2.2 Descriptions of Excusable, Non-Excusable, Compensable and Non-Excusable Delays.	13

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DECLARATION

I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university to the best of my knowledge and believe it does not contain any material previously published, written or orally communicated by another person or myself except where due reference is made in the text. I also hereby give consent for my dissertation, if accepted, to be made available for photocopying and inter library loans, and for the title and summary to be available to outside organization.

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Signature of Candidate

Date

The above particulars are correct, to the best of my knowledge.

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Signature of Supervisor

Date

ABBREVIATIONS AND ACRONYMS

BOQ	-	Bill of Quantities
CAPC	-	Cabinet Appointed Procurement Committee
CE	-	Chief Engineer
CIDA	-	Construction Industry Development Authority
CPM	-	Critical Path Method
DPC	-	Department Procurement Committee
EE	-	Executive Engineer
EOT	-	Extension of Time
GOSL	-	Government of Sri Lanka
HD	-	Head of the Department
ICTAD	-	Institute of Construction Training and Development
MPC	-	Ministry Procurement Committee
PD	-	Provincial Director / Project Director
PMBOK	-	Project Management Body of Knowledge
RDA	-	Road Development Authority
SBD	-	Standard Bidding document
TEC	-	Technical Evaluation Committee
VO	-	Variation Orders

ABSTRACT

The delays in the construction projects are a global phenomenon and are considered as a standout amongst the most tireless issues all through the world. Therefore, it is essential to analyze the delay accurately, and various delay analysis methods are used for quantifying the magnitude of the delay and it can be observed that the construction schedule plays a vital role for all these methods. With the advancement of the technology, various project management soft wares have been invented under different brand names to do the delay analysis processes and they have the potential to assist plan, prepare construction schedule, arrange and control resource tools and develop resource estimates.

Even though that there are so many project management softwares have been invented with the development of technology, the proper usage of a construction schedule is questionable. According to the survey carried out by the Department of Census and Statistics Srilanka, it has been revealed that the majority of the Srilankan construction industry comprises with the roads and building sector by the year 2015. Thus, this study was focused on improvement of the construction schedule-based delay analysis in Road and Building Construction sector in Sri Lanka.

Initially a literature survey was done in order to identify the currently used methods for analyzing delays and applicability of construction schedule for each method. Accordingly, it was revealed that the construction schedule is a mandatory item for each and every method. Thereafter a multiple case study and in-depth study was carried out on 26 past completed road and building projects separately to identify that how the delay has been established in these two sectors and the significance of the delay claim in each sector. The analysis reveals that the significance of the claims obtained from the road projects are very high and mostly a construction schedule has been used there. Having done that by doing an in-depth analysis on those projects it was identified that what are the reasons for the difference in significance of delay claims obtained road and building projects and under that 11 factors were identified. By doing a questionnaire survey on these identified factors, their severities were identified and to find out the solutions to overcome the top five factors among them, an expert interview process was carried out.

Finally, the findings can be concluded that the applicability of construction schedule-based delay analysis is vital in establishing claims in road and building projects. The significance of the delay claims established in road projects are much higher than the delay claims established in building projects. To bridge this gap in the building construction sector, it is required to have much more contribution from the professional bodies and the other relevant organizations related to the construction industry. In addition to that it is required to breakdown the monopoly which has been created some certain professions involved in the construction industry and avoid discriminations among the professionals involving in the building construction sector.

Key words: Claims, Delays, Delay Analysis, Construction Schedule