## STUDY ON PERFORMANCE OF CONSTRUCTION INSURANCE IN MANAGING CONSTRUCTION PROJECT RISK

Habarakadage Shyamalie Thanuja Abeywardena

(158950 V)

Degree of Master of Science in Construction Project Management

Department of Civil Engineering

University of Moratuwa Sri Lanka

December 2019

# STUDY ON PERFORMANCE OF CONSTRUCTION INSURANCE IN MANAGING CONSTRUCTION PROJECT RISK

Habarakadage Shyamalie Thanuja Abeywardena

(158950 V)

Degree of Master of Science in Construction Project Management

Thesis/Dissertation submitted in partial fulfillment of the requirements for the degree

Master of Science

Department of Civil Engineering

University of Moratuwa Sri Lanka

December 2019

#### **Declaration**

I hereby affirm that this dissertation report is an outcome of my own effort for the best of my knowledge and it contains my own work done for the fulfillment of requirement for the higher degree of Master of Science in Construction Project Management. It does not include any written material previously submitted for the award of any preliminary degree, higher education or published by any other person or institution except where acknowledgement and references are made in the text.

Also, I hereby grant to University of Moratuwa the non-exclusive right to reproduce and distribute my thesis/dissertation, in whole or in part in print, electronic or other medium. I retain the right to use this content in whole or part in future works (such as articles or books).

Signature	Date
H.S.T Abeywardena	
Department of Civil Engineering	
University of Moratuwa	
December 2019	
The above candidate has carried out research	for the Masters under my supervision.
Signature	Date
Dr. L.L Ekanayake	
Senior lecturer	
Department of Civil Engineering	
University of Moratuwa	

#### **Abstract**

Due to some of inherent characteristics of construction projects it is exposed to an extremely large amount of hazards and thus to risks. As construction projects increase in size, the risk inherent in its planning, design and execution do not multiplied in proportions. Instead new risks emerge which need to be identified and taken special care. Construction insurance is widely used by means of a risk transfer option in construction industry. Hence performance of construction insurance is very much important in successful construction project risk management.

The construction industry is benefitted with a range of insurance covers available in the insurance market. Out of that Contractor's All Risk insurance and Workmen's Compensation insurance are frequently used in construction industry in Sri Lanka. It was found that although there is variety of insurance covers available in the market only a few of insurance covers are adequately acquired by project stakeholders.

In Sri Lankan construction industry risk and insurance are affected by the clauses related to risk and responsibility and insurance in FIDC and CIDA from of contract. CIDA and FIDIC forms of contract are covering range of possible risks in construction.

It was understood that the basic mechanism behind the insurance concept is risk transferring from one party to another at an affordable cost. Due to limitations in insurance policies, it is not guaranteed that loss will be covered in full amount.

Upon careful review on prevailing insurance policies it can be seen that there are various exclusions, deductibles, policy limits etc. to limit insured's liability. In practical situation most minor impacts on projects have less chances of receiving expected insurance benefits. Lager losses are having better chances being benefitted if a policy was taken with careful risk analysis and negotiation.

From the analysis it can be concluded that insurance is an important requirement in Construction Contracts. In sudden and unforeseen situations there should be way to recover the loss or damage. Insurance is the best available option for risk transfer. Comprehensive risk analysis at initial project stages and due attention of contractors on insurable risk are important measures that can be taken in effective performance of insurance.

**Keywords:** Construction, Insurance, Risk Management, Contractor, Employer

#### Acknowledgement

May this be a gratitude for those who offered me encouragement, valued cooperation, advices and assistance for achieving my objectives.

It is my foremost duty to give special thanks to my supervisor Dr.L.LEkanayake for the valued guidance and support offered.

After that, I pay my sincere thanks to the Construction Management Unit of Department of Civil Engineering, University of Moratuwa for introducing the course on Construction Project Management which is very useful in the emerging construction projects in Sri Lanka. And also, I would like to thank the staff of the Construction Project Management Unit and all who motivated and helped in many ways to conduct my research.

Specially, I would like to thank Eng. Srimal Munasinghe, Deputy General Manager, and Central Engineering Consultancy Bureau for permitting me to collect data from the CECB. In addition to that, I appreciate the staff in Central Engineering Consultancy Bureau, who assisted me in collecting data and in conducting interviews.

Ultimately, I make this an opportunity to appreciate each and every person who gave their assistance for achievement of a successful completion of this research.

### **Table of Contents**

Abstract	ii
Acknowledgement	iii
Table of Content	iv
List of Tables	vii
List of Figures	viii
Appendices	ix
Abbreviations	x
1 Introduction	1
1.1 Background	1
1.2 Objectives	
1.3 Methodology	
1.4 Main Findings	
1.5 Arrangement of the Report	4
2 Literature Review	5
2.1 General	5
2.2 Definition of Risk and Uncertainty	5
2.3 Risk response strategies	6
2.4 Construction Project Risk	
2.5 Construction Project Risk Management	
2.6 Risk Allocation and Transferring in ConstructionContracts	
2.7 Construction Insurance	
2.8 Principles of Insurance	13
2.8.1 Insurable Interest.	

2.8.2 Utmost Good Faith.	14
2.8.3 Fortuity Doctrine	14
2.8.4 Non-Disclosure.	15
2.8.5 Subrogation.	15
2.8.6 Contribution	15
2.8.7 Proximate Cause.	16
2.8.8 Warranties.	16
2.9 The Insurability of Risks	16
2.10 The Un-insurability of Risks	17
2.11 Types of Insurance Policies Used in Construction	18
2.11.1 Property insurance	18
2.11.2 Liability insurance.	19
2.12 Benefits of Insurance	19
2.12.1 Business Risk	19
2.12.2 Safety by Awareness	19
2.12.3 Providing Security.	19
2.12.4 Spreading Risk	20
2.12.5 Investment.	20
2.13 Perspective on Risk and Insurance from Client's, Contractors	20
2.13.1 Clients	21
2.13.2 Contractors	21
Research Methodology and Data Collection	23
3.1 General	23
3.2 Research Methodology	24
3.3 Data Collection for Questionnaire Survey	24
3.4 Data Collection under Prevailing Insurance Policies	25
3.5 Data Collection on Insurance Claims	26
Data Analysis and Discussion	30
4.1 Introduction	30
4 1 10000000000000	311

	4.2 Analysis of Responses Received to Questionnaire Survey	30
	4.3 Analysis of Prevailing Insurance Policies	38
	4.3.1 Contractor's All Risk (CAR) Insurance	39
	4.3.2Workmen's Compensation insurance	43
	4.3.3Professional Indemnity Insurance.	44
	4.3.4Public Liability Insurance Policy	45
	4.3.5Premium of Insurance Policies.	45
	4.3.6Deductibles under insurance policies.	47
	4.3.7Additional Risks covered and restrictions under insurance policies	48
	4.3.8 Insurance Clauses in Standard Forms of Contracts	50
	4.3.9 Analysis of Insurance Policies with SBD Guidelines:	53
	4.4 Analysis on Insurance Claims	56
	4.4.1 Reasons for Rejection and Under Settlement of Claims	60
	4.4.2 Remaining Cost of Claims after rejection or under settlement	62
5	Conclusion and Recommendations	64
	5.1Conclusions	64
	5.2Recommendations	66
Re	eferences	.66

## **List of Figures**

Figure 2.1: The Risk Management Framework (Flanagan and Norman, 1993)
Figure 2.2: Risk Response Strategies, (Source: Flanagan and Norman, 1993)7
Figure 2.3: Project Risk Management – Flow Diagram
Figure 2.4: Risk on construction projects
Figure 3.1: Flow Chart of Research Methodology
Figure 4.1 : purpose of providing insurance covers in construction
Figure 4.2 : problems or concerns are faced with respect to insurance
Figure 4.3 : Idea on contractual clauses on insurance in FIDIC and CIDA Conditions of
Contracts
Figure 4.4 : Idea on following statements 1-8 regarding Insurance
Figure 4.5 : Difficulties encounter when making a claim against a loss or damage 36
Figure 4.6: Reasonableness of premium amounts charged by insurance companies
when purchasing insurance policies
Figure 4.7 : Effectiveness of premium and manage the risk by themselves37
Figure 4.8: any other better solutions other than Construction Insurance to transfer
construction project risk
Figure 4.9 : Composition of claims based on type of risk covered
Figure 4.10: proportion of rejected claims against settled claims
Figure 4.11:Reasons for claims rejection or undersettlement

### **List of Tables**

Table 3.1: Summary of Collected Insurance Claims from insurers and contractors.	27
Table 4.1: Respondents level of use of insurance covers	31
Table 4.2: Schedule IV of the Workmen's compensation ordinance as amended by	y
the workmen's Compensation (Amendment) Act .No.10 of 2005	43
Table 4.3: Premium amounts charged against insured sum for CAR policies	45
Table 4.4: Premium amounts charged against insured sum for WCI policies	46
Table 4.5: Deductible amounts for material damages and third party damages	47
Table 4.6: Relevant Risk & Responsibility and Insurance clauses in FIDIC and	50
CIDA/ SBD 02 guidelines.	. 50
Table 4.7: Summary of Insurance Claims.	57
Table 5.1: Recommendations for Contractors and Employers for gap no.01	. 67
Table 5.2: Recommendations for Contractors and Employers for gap no.02	. 68
Table 5.3:Recommendations for Contractors and Employers for gap no.03	68
Table 5.4: Recommendations for Contractors and Employers for gap no.04	69
Table 5.5: Recommendations for Contractors and Employers for gap no.05	69
Table 5.6: Recommendations for Contractors and Employers for gap no.06	70
Table 5.7: Recommendations for Contractors and Employers for gap no 07	71

## Appendices

Appendix 1 - Questionnaire Survey

Appendix 2 - Proposed Schedule: Employer's Requirement on Insurance

### **Abbreviations**

FIDIC International Federation of Consulting Engineers

CIDA Construction Industry Development Authority

SBD Standard Bidding Document

BOQ Bill of Quantity

CAR Contractor's All Risk

WCI Workmen's Compensation Insurance

PLI Public Liability Insurance

PII Professional Indemnity Insurance