



**PREPARATION OF GUIDELINES TO HAVE  
SOPHISTICATED CONTRACTOR'S ALL RISK [CAR]  
INSURANCE POLICIES**

BY

W. P. G. D. R. SENANA YAKE

Supervised by

Dr. L. L. EKANAYAKE

The Dissertation was submitted to the Department of Civil Engineering of the University of Moratuwa in partial fulfillment of the requirement for the Degree of Master of Science.

DEPARTMENT OF CIVIL ENGINEERING  
UNIVERSITY OF MORATUWA  
MORATUWA SRI LANKA

2010

94865



## Abstract

Risk is the measure of likelihood of specific unwanted event and its negative consequences that gear to drawbacks of the project. When analyzing the risk, the probability of occurrence and its impacts are reviewed. Commonly used risk responsive measures are the Facing, Taking, Mitigating, Avoiding, Transferring and Sharing.

Construction industry is a sector wherein very poor attitude focused on risk management. The negative impacts of poor management of risks significantly affect time and cost overruns as well as the quality aspects also.

Construction risk and construction insurance run together as the possession of Contractor's All Risk (CAR) Insurance Policy has become a mandatory requirement according to the ICTAD and FIDIC CoC.

The insurance companies admit huge risks to a lower premium and in the mean time Contractors try to bring down the insurance premium as much as possible to increase their profit margin. Hence CAR insurance policies are embedded with many of the strict conditions that relieve the insurers from their liabilities in many instances and the issued CAR insurance policies are not project specific. Neither Employers nor Contractors thoroughly go through such ambiguous terms stipulated in the CAR insurance policies, before an official agreement is made with insurance companies.

The objective of this research is to establish the guidelines to have a sophisticated CAR insurance policy in Employer, Contractor and Project aspects in road projects based on the merits and demerits of the prevailing CAR insurance policies as well as the views of professionals, their knowledge and suggestions gathered through a questionnaire survey.



Twenty two nos. of CAR insurance policies of different major road projects located In different zones [*representative sample*] in Sri Lanka, were collected and analyzed. And one Hundred and Eighty Nine numbers of Questionnaires were also analyzed.

Based on the aforementioned analysis, guidelines were prepared and all achievements are depicted under the Clauses 5.2.1 and 5.2.2.

Key Words: CAR, Contractor, Employer, Insured, Insurer, Loss or Damage, Risk

## **Dedication**

---

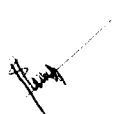
**This dissertation report is dedicated to my beloved parents who always backed me up from my birth to this moment.**



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

## 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 degree or diploma of a university or any other institution of higher education, or published by any other person or institution except where acknowledgment and references are made in the text.



Senanayake W. P. G. D. R.

Department of Civil Engineering

University of Moratuwa



December 2009

University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

I certify that the above statement is correct.

***UOM Verified Signature***

Dr. L. L. Ekanayake

Construction Management Unit

Department of Civil Engineering

14<sup>th</sup> December 2009

## Acknowledgement

---

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

It is my foremost duty to give special thanks to my supervisor Dr. Lesly Ekanayake for the valued guidance offered.

I pay my sincere thanks for the Construction Management Unit of Department of Civil Engineering, University of Moratuwa for organizing this sort of highly demanded CPM course by the industry and the panel of lectures; especially Dr. Asoka Perera, Dr. Rangika Halwatura, Dr. (Mrs.) Chintha Jayasingha and other industry professionals who shared their knowledge and experience with us.

I very much appreciate my Employer; Keangnam Enterprises LTD, for granting me official study leaves, despite the busy working schedule of the organization and monetary assistance, and further I convey my thanking to all employees who offered their dedication during my absence in my Employer organization.

I should pay special thanks on behalf of the cordial assistance granted by Mr. W. K. Kodituwakku [PD (NHSP)/RDA], Mr. W. A. S. Weerasingha [PD (ADB)/RDA], Mrs. Sandya Perera [CE (WB)/RDA] and Mr. K. P. I. U. Dharmapala [GM/CML-MTD Construction] during the data collection process.

Ultimately, I make this an opportunity to appreciate each and every person who gave their assistance in every mean to achieve successful completion of this research.

# Contents

List of Tables.....	viii
List of Figures. ....	ix
List of Appendices.....	x
Abbreviations .....	xi

## **Chapter 01 - Introduction.....1**

1.1 Background .....	1
1.2 Problem Definition.....	3
1.3 Objective .....	3
1.4 Framework/ Scope Limitations .....	4
1.5 Structure of the Report .....	4



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
www.ho.mru.ac.lk

## **Chapter 02 - Literature Review.....5**

2.1 Introduction .....	5
2.2 Risk management in construction industry .....	5
2.2.1 The Benefits of Systematic Risk Management.....	8
2.2.2 Systematic Approach on risk management.....	8
2.2.2.1 Risk Identification.....	10
2.2.2.2 Risk Analysis .....	12
2.2.2.3 Risk Response.....	13
2.2.3 Risk transferring or sharing through the Contract .....	15
2.2.4 Risk transferring or sharing through Sub Contractors .....	15
2.2.5 Risk transferring or sharing through Insurance .....	16
2.3 Construction Insurance.....	16

# Contents

List of Tables ..... viii

List of Figures. .... ix

List of Appendices..... x

Abbreviations ..... xi

## **Chapter 01 - Introduction.....1**

1.1 Background ..... 1

1.2 Problem Definition ..... 3

1.3 Objective ..... 3

1.4 Framework/ Scope Limitations ..... 4

1.5 Structure of the Report ..... 4



University of Moratuwa, Sri Lanka.  
 Electronic Theses & Dissertations  
[www.ho.mrt.ac.lk](http://www.ho.mrt.ac.lk)

## **Chapter 02 - Literature Review.....5**

2.1 Introduction ..... 5

2.2 Risk management in construction industry ..... 5

    2.2.1 The Benefits of Systematic Risk Management..... 8

    2.2.2 Systematic Approach on risk management..... 8

        2.2.2.1 Risk Identification..... 10

        2.2.2.2 Risk Analysis ..... 12

        2.2.2.3 Risk Response..... 13

    2.2.3 Risk transferring or sharing through the Contract ..... 15

    2.2.4 Risk transferring or sharing through Sub Contractors ..... 15

    2.2.5 Risk transferring or sharing through Insurance ..... 16

2.3 Construction Insurance..... 16



2.3.1	General Covers under the CAR Insurance Policy.....	17
2.3.1.1	Contract Works .....	17
2.3.1.2	Removal of Debris, Dismantling and Demolishing.....	17
2.3.1.3	Third Party Insurance.....	18
2.3.2	Workman Compensation Insurance (WCI) Policy .....	18
2.3.3	Construction Plant, Machinery and Equipment Policy.....	18
2.3.4	Development of CAR Insurance Policy.....	19
2.3.5	Contractor’s All Risk Insurance Policy .....	19
2.3.6	Employer arranged CAR Insurance Policies .....	20
2.3.7	Overview of Key Definitions of CAR Insurance Policies.....	21
2.3.7.1	The Insured .....	21
2.3.7.2	Period of Insurance .....	21
2.3.7.3	Sum Insured .....	21
2.3.7.4	Policy Excess/ Deductible.....	22
2.3.8	Premium Calculations.....	22
2.3.9	Insured Obligations.....	23
2.3.10	Intimation of Loss or Damage .....	24
2.3.11	Assessment of Loss/ Damage .....	25
2.3.12	Minimum Conditions to be fulfilled by Claims.....	25
2.3.13	Exemptions of CAR Insurance Policies.....	26
2.3.13.1	Physical Risks Exempted.....	26
2.3.13.2	Other General Exemptions.....	26
2.3.14	Change in risk .....	27
2.3.15	Insurance after the Defect Liability Period.....	27
2.4	Summary .....	28

<b>Chapter 03 - Methodology of Study.....</b>	<b>29</b>
3.1 Introduction .....	29
3.2 Analysis of Prevailing CAR Insurance Policies.....	29
3.3 Analysis of Questionnaire Survey .....	30
3.4 Summary .....	31
<b>Chapter 04 - Analysis of Data.....</b>	<b>32</b>
4.1 Introduction .....	32
4.2 Analysis of Prevailing CAR Insurance Policies.....	32
4.2.1 Premium of CAR Insurance Policies .....	32
4.2.2 Analysis of Common Clauses of Insurance Policies and General Risks Covered.....	33
4.2.3 Other Special Additional Risks Common in CAR Insurance Policies .....	34
4.2.3.1 Warranty Concerning Camps and Stores.....	34
4.2.3.2 Warranty Concerning Sections .....	35
4.2.3.3 Special Conditions Concerning Removal of Debris from Land Slides .....	36
4.2.3.4 Loss or Damage to Crops, Forest and Cultures .....	36
4.2.3.5 Overtopping of Cofferdams .....	37
4.2.3.6 Vibration, Removal of Weakening of Support .....	37
4.2.3.7 Contract Documents.....	39
4.2.3.8 Inland Transit.....	39
4.2.3.9 Property in Offsite Storage .....	40
4.2.3.10 Special Conditions Concerning Underground Cables, Pipes and Other Facilities.....	40
4.2.3.11 Serial Losses .....	41
4.2.3.12 Strike Riot and Civil Commotion Endorsement.....	42

4.3	Analysis of Responses Received to Questionnaire Survey .....	43
4.3.1	Analysis of Results .....	43
4.4	Summary .....	72
<b>Chapter 05 - Conclusion and Recommendations.....</b>		<b>73</b>
5.1	Conclusion.....	73
5.2	Recommendations .....	75
5.2.1	Guidelines to be followed at bidding stage.....	75
5.2.2	Guidelines to be followed at pre-construction stage; at the time insurance agreement is made.....	75
5.3	Recommendations for Future Research .....	78
References.....	.....	79



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

## **List of Tables**

---

Table 1	-	Typical risk allocation in construction projects	page 11
Table 2	-	Analysis of premium charged	page 33
Table 3	-	Reponses received for Questionnaire Survey	page 46



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

## List of Figures

Figure 01	-	Illustration of responses received for Query 1	page 47
Figure 02	-	Illustration of responses received for Query 2	page 48
Figure 03	-	Illustration of responses received for Query 3	page 49
Figure 04	-	Illustration of responses received for Query 4	page 50
Figure 05	-	Illustration of responses received for Query 5	page 51
Figure 06	-	Illustration of responses received for Query 6	page 52
Figure 07	-	Illustration of responses received for Query 7	page 53
Figure 08	-	Illustration of responses received for Query 8	page 54
Figure 09	-	Illustration of responses received for Query 9	page 55
Figure 10	-	Illustration of responses received for Query 10	page 56
Figure 11	-	Illustration of responses received for Query 11	page 57
Figure 12	-	Illustration of responses received for Query 12	page 58
Figure 13	-	Illustration of responses received for Query 13	page 59
Figure 14	-	Illustration of responses received for Query 14	page 60
Figure 15	-	Illustration of responses received for Query 15	page 61
Figure 16	-	Illustration of responses received for Query 16	page 62
Figure 17	-	Illustration of responses received for Query 17	page 63
Figure 18	-	Illustration of responses received for Query 18	page 64
Figure 19	-	Illustration of responses received for Query 19	page 65
Figure 20	-	Illustration of responses received for Query 20	page 66
Figure 21	-	Illustration of responses received for Query 21	page 67
Figure 22	-	Illustration of responses received for Query 22	page 68
Figure 23	-	Illustration of responses received for Query 23	page 69
Figure 24	-	Illustration of responses received for Query 24	page 70
Figure 25	-	Illustration of responses received for Query 25	page 71

## **List of Appendices**

---

- Appendix 1 - Questionnaire Form
- Appendix 2 - Sample Analysis Sheet of a CAR Insurance Policy



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

## Abbreviations

ADB	-	Asian Development Bank
ASCE	-	American Society of Civil Engineers
BoQ	-	Bill of Quantity
CE	-	Chief Engineer
CEB	-	Ceylon Electricity Board
CoC	-	Conditions of Contract
CPD	-	Continuing Professional Development
DAB	-	Dispute Adjudication Board
DLP	-	Defect Liability Period
FIDIC	-	International Federation of Consulting Engineers
GCC	-	General Conditions of Contract
GoSL	-	Government of Sri Lanka
ICTAD	-	Institute of Construction Training and Development
ILA	-	Independent Loss Adjuster
JICA	-	Japan International Corporation Agency
LS	-	Lump Sum
MDB	-	Multilateral Development Bank
N/A	-	Not Available
NHSP	-	National Highways Sector Projects
OH	-	Over Heads
PCC	-	Particular Conditions of Contract
PD	-	Project Director
PII	-	Professional Indemnity Insurance
PS	-	Provisional Sum
RDA	-	Road Development Authority

RoW	-	Right of Way
RRM	-	Random Rubble Masonry
SBD	-	Standard Bidding Document
SRCC	-	Strike Riot and Civil Commotion
WB	-	World Bank
WCI	-	Workmen Compensation Insurance



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)