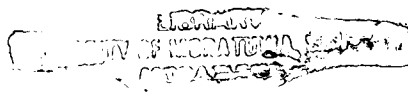


LB/Don/34/06

**IMPROVING ROAD SAFETY
BY IMPROVED MANAGEMENT OF
ROAD INFRASTRUCTURE**



**MASTER OF BUSINESS ADMINISTRATION
IN INFRASTRUCTURE**



University of Moratuwa, Sri Lanka
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

S.U.L.Abdul Rasheed

Department of Civil Engineering

University of Moratuwa

December 2005

University of Moratuwa



85992

85992

624 05
351(043)

85992

IMPROVING ROAD SAFETY BY IMPROVED MANAGEMENT OF ROAD INFRASTRUCTURE

By

S.U.L.Abdul Rasheed

Supervised by
 University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
Prof. Amal S. Kumarage

This dissertation was submitted to the Department of Civil Engineering of the University of Moratuwa in partial fulfilment of the requirements for the degree of Master of Business Administration in Infrastructure

Department of Civil Engineering

University of Moratuwa

December 2005

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 belief 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 for interlibrary loans, and for the title and summary to be made available to outside organizations"

.....
Signature of the Candidate

..... 25.01.2006
Date



University of Moratuwa, Sri Lanka
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

To the best of my knowledge, the above particulars are correct.

UOM Verified Signature

Supervisor

Acknowledgment

My sincere foremost appreciation goes to the Road Development Authority for providing this valuable opportunity to pursue this post graduate study leading to Master of Business Administration in Infrastructure at the university of Moratuwa.

I wish to express my grateful thanks to Prof. Amal S. Kumarage who supervised and provided all supports to complete this study successfully.

I also wish to express my sincere thanks to all the lecturers of the University of Moratuwa who contributed towards my success in this academic achievement.

Finally, I would like to express my thanks to Mr.R.M. Amarasekera, Director Planning RDA, Mr. A.M. Jawzi, Director Maintenance RDA, Mr. Ganesan, Deputy Director RSEU of RDA, Mr. T.L.M. Fernando, Provincial Director, RDA, , Mr. M.S.M. Iqbal Deputy Director ADB Division of RDA. and all my colleagues in the regions who provided all valuable information and supports for the success of this study.

Handwritten signature or mark in the bottom right corner.

Abstract

Road accidents put a heavy burden on the economy as well as on the society. It is also said to be responsible for critical social problems, such as disease, injuries, and loss of income. Economic and social costs of accidents are enormous so that a concerted effort to reduce the number of accidents is needed very urgently.

The number and severity of accidents could be brought down by proper management process and by identifying the causes and taking proactive and remedial measures. This requires a road safety management system within the infrastructure organizations.

Road environment is one of the major factors that contribute to road accidents. The intrinsic safety of the road system can be improved by engineering safety measures and improved management of the infrastructure. The engineering counter measures will be effective only when an organized management approach is pursued for road safety.

This study focuses to improve the road safety by improving the management of the road infrastructure. It has been revealed by this study that the current management practices of road infrastructure organizations have many deficiencies in the areas related to institution and operation. Many areas and elements of management, such as strategy, policies, standards and guidelines, technology, funding, management capability, have been identified below performing level. Suggestions have been made to improve these elements by various measures, such as strengthening institutional issues and means for procuring additional resources.

It is expected that the out come of this study will be helpful to the future researchers to study further into specific areas to improve effectiveness and efficiency of the management of the infrastructure.

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

1.1	Background.....	01
1.2	Road Factor Involved in Accident.....	02
1.3	Road Safety Engineering.....	02
1.4	Management of Road Safety.....	03
1.4.1	Institutional Framework.....	03
1.4.2	Expertise and Skills	04
1.4.3	Procedures, Techniques, Standards and guidelines.....	04
1.4.4	Resources	04
1.5	Road Accidents in Sri Lanka	05
1.6	Economic Costs of Road Accidents.....	06
1.7	Management of Road Safety in Sri Lanka.....	07
1.8	Problem Statement.....	08
1.9	Objectives of the Study.....	08

CHAPTER 2

LITERATURE REVIEW

2.1	Management of road infrastructure	10
2.1.1	Institutional Issues.....	10
2.1.2	Implementation and Operational Issues.....	11
2.2	Management of Road Safety	12
2.2.1	Road Safety Institution	12
2.2.2	Standards, Manuals and Guidelines	16
2.2.2.1	Standards, Manuals and Guidelines for Sri Lanka Road organization	20
2.2.3	Expertise.....	22
2.2.4	Funding	25
2.2.5	Techniques	25

CHAPTER 3

METHODOLOGY AND DATA COLLECTION

3.1	Scope of the Study.....	26
3.1.1	Management Model for Road Infrastructure organizations.....	26
3.2	Data Collection.....	28
3.2.1	Primary Data.....	28
3.2.1.1	Questionnaire for Interview.....	28
3.2.1.2	Interviews.....	29
3.2.1.3	Interview Data.....	29

CHAPTER 4

DATA ANALYSIS

4.1	Summarizing data.....	30
4.2	Assigning Weightages.....	37
4.3	Ranking Elements According to Importance.....	40
4.4	Status of Elements by Weighted Average.....	41
4.5	Analysis of Deficiencies in the Current Management Practice.....	43
4.5.1	Overall status of Infrastructure Management.....	43
4.6	Analysis of Qualitative Data.....	46
4.7	Identification of Deficiencies in the Current Management Practice.....	47
4.8	Comparison with International Best practice.....	51

CHAPTER 5

CONCLUSION AND RECOMMENDATION.....	53
------------------------------------	----

REFERENCES.....	58
-----------------	----

BIBLIOGRAPHY.....	59
-------------------	----

APPENDICES

Appendix A: Questionnaire for interview

Appendix B: Scopes of questions in the questionnaire

LIST OF TABLES

1.1	Estimated Cost of Accidents	2
1.2	Accident data for the whole country from 2000-2004	6
2.1.	List of areas that require standards and guidelines-I	17
2.2	Areas of safety management system that require standards and guidelines	18
2.3	Areas that require standards and guidelines	21
2.4.1	Description of competence level	23
2.4.2	List of required level of expertise	23
3.1	Road Distribution in the Western Province	28
4.1.1	Summary of Interview Response by 6 categories	31
4.1.2	Summary of Interview Responses by 5 categories	32
4.1.3	Summary of Interview responses Standards and Guidelines	33
4.1.4	Summary of Interview Responses Policies and Techniques	34
4.1.5	Status of Expertise of the road organizations in Sri Lanka	35
4.2.1	Weightages assigned to data of 6 categories	37
4.2.2	Weightages assigned to data of 5 categories	37
4.2.3	Status of management by element I	38
4.2.4	Status of management by element II	39
4.3.1	Expert opinion - Organization capacity	40
4.3.2	Expert opinion - Management system	41

4.3.3	Expert opinion - Infrastructure Management	41
4.5.1	Weighted Average of Elements	44
4.5.2	Overall status of management	45

LIST OF FIGURES

2.1	Safety Management System frame work for road authorities	14
3.1	Road infrastructure management framework	27

