

**RISK MANAGEMENT IN HIGH VOLTAGE POWER
TRANSMISSION LINE CONSTRUCTION PROJECTS IN
SRI LANKA**

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Degree of Master of Science in Project Management

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DECLARATION

I declare that this is my own work and this thesis/dissertation does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any other University or Institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text. I retain the right to use this content in whole or part in future works (such as articles or books).

Name of Student: R.A.D.N. Priyashanka

Signature:

Date: 2024.02.16

The above candidate has carried out research for the PhD/MPhil/Master's thesis/dissertation under my supervision. I confirm that the declaration made above by the student is true and correct.

Name of Supervisor: Mr. Mahesh Abeynayake

Signature of the Supervisor:

Date: 2024.02.16

DEDICATION

Dedicated to the tireless efforts of unsung heroes who committed towards the complete electrification of our nation to light up countless lives.....

ACKNOWLEDGEMENT

A work of this nature would have never been succeeded without the support, guidance, assistance and encouragement of numerous individuals. I take this opportunity to express my sincere gratitude to all of them.

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Thank You

R.A.D.N. Priyashanka

ABSTRACT

Electricity is an essential element in economic growth and socio-economic development of a country. High Voltage Power Transmission Lines (HVPTL) are used to transmit the electric power in bulk from generating stations to substations. HVPTL construction projects are inherently riskier than most of the other types of construction projects. In Sri Lanka the knowledge, practice and application in the particular area is in minimum level. Therefore, this research aims to establish a systematic study on managing risks in HVPTL projects in Sri Lanka, which will ultimately help the project teams to manage risks effectively. The collected empirical data from expert interviews and two rounds of questionnaire surveys were analyzed using content analysis and descriptive statistics respectively.

The results of the study initially identified forty-eight (48) risk factors related to HVPTL projects, of which fourteen (14) risk factors were selected as the most significant risk factors. “Delay in project deadline” is the top most critical factor in HVPTL projects according to results. The risk factors are mainly allocated client and contractor or shared between them. The widely used risk response measures and most suitable risk response measures in order to manage those most significant risks were identified. The challenges against following the proper risk management process were checked and it was found out that the “lack of awareness” is at the prime reason. Finally, it is recommended to use more proactive approach in risk management for early identification of risks and for better responses and raise the awareness of stakeholders on the importance of the proper risk management practices.

Keywords: High Voltage Power Transmission Lines, Risk Factors, Risk Allocation, Risk Response Measures.

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LIST OF ABBREVIATIONS

Abbreviation	Description
PMI	Project Management Institute
GDP	Gross Domestic Product
HVPTL	High Voltage Power Transmission Line
CEB	Ceylon Electricity Board
RAMP	Risk Analysis and Management for Projects
PMBOK	Project Management Body of Knowledge
PRAM	Project Risk Analysis and Management Guide
HV	High Voltage
FMEA	Failure Mode and Effects Analysis
RBS	Risk Breakdown Structure
MWR	Mean Weighted Rating
RT	Risk Transfer
RA	Risk Avoidance
RAC	Risk Acceptance
RM	Risk Mitigation

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