

DEVELOPMENT OF RISK MANAGEMENT
FRAMEWORK FOR THE CONSTRUCTION
INDUSTRY IN YEMEN

RAMI ABDULLAH ALI BA HAMID

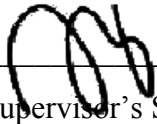
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UNIVERSITI MALAYSIA PAHANG



SUPERVISOR'S DECLARATION

I hereby declare that I have checked this thesis and in my opinion, this thesis is adequate in terms of scope and quality for the award of the degree of Doctor of Philosophy.

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(Supervisor's Signature)

Full Name : DOH SHU ING
Position : SENIOR LECTURER
Date : 17 May, 2023



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I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

A handwritten signature in black ink, appearing to read 'RAMI ABDULLAH ALI BA HAMID', is written over a horizontal line.

(Student's Signature)

Full Name : RAMI ABDULLAH ALI BA HAMID

ID Number : PAC17002

Date : 17 May 2023

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RAMI ABDULLAH ALI BA HAMID

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ABSTRAK

Yaman adalah salah satu daripada ekonomi termiskin yang sedang membangun di dunia, namun ia telah menyaksikan pertumbuhan luar biasa dalam pembinaan sejak beberapa dekad yang lalu. Sektor pembinaan dianggap sebagai sektor penting dalam ekonomi membangun dan menyumbang dengan ketara kepada peningkatan pertumbuhan ekonomi mana-mana negara, khususnya di negara membangun seperti Yaman. Projek pembinaan kerap mengalami tahap ketidakpastian yang tinggi disebabkan oleh Kerumitannya, yang pastinya mendedahkan mereka kepada risiko yang mengakibatkan kesan negatif terhadap objektif projek. Memandangkan kekangan sumber negara membangun berbanding dengan negara maju, adalah penting untuk mencapai projek pembinaan mengikut jadual, dalam bajet dan dengan kualiti tertinggi yang mungkin. Oleh itu, pengurusan risiko adalah komponen penting dalam proses membuat keputusan industri pembinaan, kerana ia menentukan kejayaan atau kegagalan projek pembinaan. Ketiadaan aplikasi dan pemahaman pengurusan risiko membawa kepada prestasi projek pembinaan yang lemah terutamanya di negara membangun. Pengurusan risiko dalam projek pembinaan di Yaman kurang diselidik berbanding dengan negara maju dan membangun, dan tidak mempunyai rangka kerja pengurusan risiko yang sesuai. Justeru, objektif utama penyelidikan ini adalah untuk membangunkan rangka kerja pengurusan risiko bagi meningkatkan prestasi projek pembinaan di Yaman. Bagi mencapai objektif kajian, pendekatan kaedah campuran telah digunakan, termasuk temu bual separa berstruktur dan soal selidik dengan peserta dalam projek pembinaan di Yaman. Melalui kajian literatur yang meluas, 56 faktor risiko yang mempengaruhi projek pembinaan di negara membangun daripada 43 kajian telah dikenal pasti dan dikategorikan. Temu bual separa berstruktur dengan pakar pembinaan di Yaman telah dijalankan dan 48 faktor risiko yang berkaitan dengan projek pembinaan Yaman telah dikenal pasti. Tinjauan soal selidik menggunakan kaedah persampelan bukan kebarangkalian menggunakan skala lima mata telah dijalankan di kalangan sektor pembinaan di Yaman untuk mengenal pasti faktor risiko paling ketara berdasarkan kemungkinan berlaku dan kesan ke atas objektif projek, dan untuk menilai amalan semasa. dan pengetahuan pengurusan risiko dalam projek pembinaan di Yaman,. 174 maklum balas telah disediakan dan dikumpul daripada sektor awam dan swasta. 17 risiko kritikal telah dikenal pasti menggunakan min, kaedah indeks relatif penting, dan analisis matriks kebolehterimaan risiko. Kebanyakan risiko diperuntukkan kepada kontraktor atau dikongsi antara pemilik dan kontraktor. Pengetahuan dan amalan semasa projek pembinaan di Yaman telah dinilai. Keputusan juga menunjukkan bahawa pengurusan risiko tidak dilaksanakan dalam kebanyakan projek, majoriti peserta dalam pembinaan tidak mempunyai pengetahuan yang mencukupi tentang pengurusan risiko, dan pengurusan risiko tidak digunakan secara sistematik dalam projek pembinaan. Berdasarkan penemuan daripada kajian literatur, dan analisis data rangka kerja pengurusan risiko telah dibangunkan untuk dijadikan sebagai garis panduan untuk menguruskan risiko dalam projek pembinaan di Yaman dan negara membangun. Rangka kerja ini dibangunkan berdasarkan prinsip termasuk membangunkan rangka kerja sedia ada; menggunakan alat pengurusan risiko yang telah dilaksanakan dengan jayanya di negara lain. Rangka kerja ini telah menyediakan teknik yang digabungkan untuk pengurusan risiko yang berdasarkan prinsip yang ditakrifkan dengan baik. Rangka kerja yang dibangunkan telah disahkan menggunakan temu bual separa berstruktur dengan 16 pakar pembinaan Yaman. Kajian ini akan menjadi garis panduan kepada peserta projek pembinaan di Yaman untuk meningkatkan prestasi projek pembinaan.

ABSTRACT

Yemen is one of the developing poorest economies in the world, yet it has seen extraordinary growth in construction over the last few decades. The construction sector is considered an important sector in developing economies and contributes significantly to the improvement of the economic growth of any country, particularly in developing countries like Yemen. Construction projects regularly experience a high level of uncertainty due to its Complexity, which definitely exposes them to risks that result a negative impact on the project's objectives. Given developing countries' resource constraints compared to developed countries, it is critical to accomplish construction projects on schedule, within budget, and with the highest possible quality. Thus, risk management is a critical component of the construction industry's decision-making process, as it determines the success or failure of construction projects. The absence of application and understanding of risk management leads to poor construction project performance particularly in developing countries. Risk management in construction projects in Yemen is under-researched compared to developed and developing countries, and lacking a suitable risk management framework. Hence, the main objective of this research is to develop a risk management framework in order to improve the performance of construction projects in Yemen. In order to achieve the research objectives, a mixed-method approach was used, which included semi-structured interviews and questionnaires with participants in a construction project in Yemen. Through an extensive literature review, 56 risk factors affecting construction projects in developing countries from 43 studies were identified and categorized. Semi-structured interviews with construction experts in Yemen were conducted and 48 risk factors related to the Yemeni construction projects have been identified. A questionnaire survey utilizing a nonprobability sampling method using a five-point scale was carried out among the construction sector in Yemen to identify the most significant risk factors based on the likelihood of occurrence and impact on the objectives of projects, and to evaluate the current practice and knowledge of risk management in construction projects in Yemen. 174 responses were completed and collected from the public and private sectors. 17 critical risks were identified using the mean, the relative important index method, and risk acceptability matrix analysis. War and political instability, inflation, and exchange rate fluctuations are identified as the most significant risks. Most of the risks are allocated to the contractor or shared between owner and contractor. The current knowledge and practice of the construction projects in Yemen have been evaluated. The results also show that risk management is not implemented in most projects, the majority of participants in construction don't have adequate knowledge of risk management, and risk management does not apply systematically in construction projects. Based on the findings from the literature reviews, and data analysis a risk management framework has been developed to be served as a guideline for managing risks in construction projects in Yemen and developing countries. The framework was developed based on the principles including developing the existing frameworks; utilizing risk management tools that have been implemented successfully in other countries. The framework has provided incorporated techniques for risk management that is based on well-defined principles. The developed framework has validated using a semi-structured interview with 16 Yemeni construction experts. Experts' feedback demonstrates that the developed framework is comprehensive and compatible with the Yemen environment, and does not involve complicated processes. This study will serve as a guideline for participants in construction projects in Yemen to improve the performance of construction projects.

TABLE OF CONTENT

DECLARATION	
TITLE PAGE	
ACKNOWLEDGEMENTS	ii
ABSTRAK	iii
ABSTRACT	iv
TABLE OF CONTENT	v
LIST OF TABLES	xi
LIST OF FIGURES	xiii
LIST OF ABBREVIATIONS	xiv
CHAPTER 1 INTRODUCTION	1
1.1 Background to The Research	1
1.2 Research Problem Statement	4
1.3 Research Motivation	6
1.4 Research Questions	6
1.5 Research Objectives	7
1.6 Research Scope	7
1.7 Research Contribution	8
1.8 Research Methods	9
1.9 Thesis Structure	11
1.10 Summary	13
CHAPTER 2 LITERATURE REVIEW	14

2.1	Introduction	14
2.2	Introduction to Yemen	14
2.3	An Overview of Yemen Construction Sector	15
2.4	Construction Industry in Developing Countries	20
2.5	The Overview of Risk Management	22
	2.5.1 Risk Definition	22
	2.5.2 Risk in Construction Projects	25
	2.5.3 Risk Management	27
2.6	Risk Management Process	30
	2.6.1 Risk Management Planning	37
	2.6.2 Risk Identification	39
	2.6.3 Risk Analysis	45
	2.6.4 Risk Response	50
	2.6.5 Risk Review and Monitoring	54
2.7	Risk Management Framework in Construction Projects	55
2.8	Risk Allocation	60
	2.8.1 Risk Allocation within Risk Management Process	62
	2.8.2 Risk Allocation in Various Countries	64
2.9	Risk Management in Construction in Yemen and Various Countries	64
	2.9.1 Risk Management in Construction Projects in Yemen	65
	2.9.2 Risk Management in Construction Projects in Various Countries	69
	2.9.3 Identification of Risks in Construction Projects in Developing Countries	81
	2.9.4 Classification of Risks in Construction projects in Developing Countries	95
	2.9.5 Developing A Risk Breakdown Structure	100

2.10	Construction Performance in Various Countries	103
2.11	Gap Analysis of The Literature Review	107
2.12	Summary	109
CHAPTER 3 METHODOLOGY		110
3.1	Introduction	110
3.2	Research Strategy	110
3.3	Research Methodology	113
3.4	Phase 1: Preliminary Study and Literature Review	115
3.4.1	Literature Review	115
3.4.2	Expert's Interviews	117
3.5	Phase 2: Questionnaire Design and Analysis	120
3.5.1	Questionnaire Design	121
3.5.2	Questionnaire Piloting	123
3.5.3	Redesign Questionnaire	123
3.5.4	Questionnaire Sampling Design	125
3.5.4.1	Questionnaire Target Population	125
3.5.4.2	Questionnaire Target Population Selection Criteria	126
3.5.4.3	Questionnaire Sample Size	126
3.5.5	Questionnaire Distribution and Data Collection	128
3.5.6	Questionnaire's Data Analysis	129
3.5.6.1	Descriptive Statistics Analysis	129
3.5.6.2	Mean Ranking	130
3.5.6.3	Relative Important Index (RII)	130
3.5.6.4	Risk Acceptability Matrix (RAM)	130
3.6	Phase3: Framework Development and Validation	133

3.7	Phase 4: Conclusion and Recommendations	135
3.8	Summary	136
CHAPTER 4 ANALYSIS OF RESEARCH FINDINGS		137
4.1	Introduction	137
4.2	Risk Factors Extraction	138
4.3	Analysis of Expert's Interviews	139
4.4	Analysis of The Questionnaire	142
4.4.1	Section 1: General Background Information	142
4.4.2	Section 2: Assessment of Current Practices and Knowledge of Risk Management in Construction Projects of Yemen	151
4.4.3	Section 3: Identification, Analysis, and Allocation of Risk Factors in Construction Projects in Yemen	165
4.5	The Most Significant Risk Factors in Construction Project of Yemen	180
4.6	Summary	187
CHAPTER 5 FRAMEWORK DEVELOPMENT AND VALIDATION		188
5.1	Introduction	188
5.2	Justification for The establishment of A Risk Management Framework for The Yemeni Construction Project	188
5.3	Developing A Risk Management Framework for Yemeni Construction Project	189
5.4	Guidelines for The Framework's Application	191
5.4.1	Risk Planning of Construction Projects	191
5.4.2	Risk Identification of Construction Projects	192
5.4.3	Risk Analysis of Construction Projects	193
5.4.4	Risk Response for Construction Project	193

5.4.5	Risks Monitoring of Construction Projects	195
5.5	Expert's Interviews	196
5.5.1	Validation of Questionnaire Results	196
5.5.2	Impact of Risk Factors on Projects' Objectives	202
5.5.3	Management of The Most Significant Risk Factors in Construction Projects of Yemen	204
5.5.4	Validation of Developed Framework	209
5.6	Summary	211
CHAPTER 6 CONCLUSION AND RECOMMENDATION		212
6.1	Introduction	212
6.2	Research Achievements	212
6.2.1	RO1: To carry out a comprehensive literature review of construction project risks to identify the common risk factors affecting construction projects in developing countries.	212
6.2.2	RO2: To identify and analyse the most significant risk factors that affect the construction projects in Yemen and manage them effectively while meeting project objectives.	214
6.2.3	RO3: To assessment the current practice and knowledge of the risk management process and techniques used in construction projects in Yemen.	215
6.2.4	RO4: To develop a refined risk management framework to be served as a guideline for managing and mitigating the risks in construction projects in Yemen and developing countries.	216
6.3	Research Contributions and Implications	217
6.4	Limitations of Research	218
6.5	Directions for Future Work	219
6.6	Recommendations	219

6.7	Summary	220
	REFERENCES	221
	APPENDIX A EXPERT'S INTERVIEW	252
	APPENDIX B THE QUESTIONNAIRE SURVEY	269
	APPENDIX C EXPERT'S INTERVIEW	278
	APPENDIX D SPSS OUTPUT	290
	APPENDIX E GUIDELINE FOR FRAMEWORK APPLICATION	298

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