

EXTENDED ABSTRACT

RISKS ON THE PROJECT INVESTMENT IN SRI LANKA

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Abstract

Risks must be managed to continue the project successfully. Objectives of this research were to identify risks in a project, measure probability of risk occurring, study the impact of risk and analyze responses for mitigating risks. 10 local projects were selected as the sample for data collection. The research was conducted through case study analysis by interviewing one team member from each project. As the conclusion, the possible risks were running out of materials (medium probability), natural disasters (high probability), objection of residents (high probability), running out of finance (medium probability), getting infected by diseases (high probability) and unawareness among beneficiaries (medium probability). Their impacts were delaying the activities, halting activities temporarily, stopping the project permanently, halting tasks until sufficient finance is gathered, halting tasks until team members recover from diseases and unable to get beneficiary support to continue the project respectively. Mitigation responses were having a flexible layout plan, establishing an early warning and monitoring system, conducting programmes to explain benefits, revising the financial plan, ensuring the beneficiaries are free of diseases and conducting awareness programmes for beneficiaries respectively.

Keywords: Risk, probability, impact, mitigation

1. Introduction

A risk consists of two components as exposure and uncertainty (Holton, 2004). Finance practitioners utilize subjective probabilities to define uncertainty and utility preferences to define exposure. Risk metrics such as variance of return and maximum credit exposure are used to identify specific features of professed risk. A project can be defined as a transitory attempt commenced to create an exceptional product, service or result (Rose, 2013). Its objective, commitment of top-level management, competent project team and user involvement highly affect the success of any project (Sudhakar, 2016).

The high complexity and vitality of construction projects have enacted considerable uncertainties and biases in the risk analysis process (Nieto-Morote & Ruz-Vila, 2011). By focusing on uncertainty, it was possible to improve project risk management with an improved concentration on opportunity management (Ward & Chapman, 2003). Risk management is essential in project management because of present business environment with international attention and competition (Ahmed et al., 2007).

Nowadays, all the construction companies utilize the project-based approach to continue their construction activities successfully. But there are numerous factors which may affect these projects

positively or negatively. Out of these factors, risk is a considerable one as a project cannot be continued without managing all the possible risks. Therefore, it is essential to identify the possible risky situations in Sri Lankan projects. Accordingly, this research aims to identify possible risks in various projects. And also, this research intends to measure probability of risk and the impact of risk on the projects. Finally, it analyzes responses required for mitigation of risks.

2. Literature Review

On construction projects, a variety of risk and risk-related concepts are used, and there are no standard definitions or methods for what constitutes a risk assessment. There are numerous definitions in the building sector. The risk is defined by the institute of civil engineers and the institute of actuaries in the United Kingdom (Ramp 1998) as the presence of prospective or existing treats or opportunities that influence the project's objectives during construction, commissioning, or use (RAMP). Al- Bahar (1990) defines risk as the exposure to the possibility of events having a negative or positive impact on project objectives as a result of uncertainty. Literatures include a plethora of comparable definitions.

3. Methodology

The research attempts to identify the possible risks in a project, measure probability of risk occurring during the project, study the impact of risk on the project and analyze responses required for mitigation of risks. Qualitative approach is used for data collection and analysis. There are certain reasons for selecting the qualitative approach. It helped to get a good understanding of meanings, contexts and processes (Maxwell, 2012). It was considered as meanings, a concept, a definition, metaphors, symbols and a description of things (Lune & Berg, 2017). Instruments in qualitative approach such as observation, open-ended questions, in-depth interview and field notes are utilized to gather data from respondents. Qualitative data collection provides a thorough explanation of the research with respect to respondents. Observation of respondents and focused group nature of qualitative approach create inclusive understanding of behavior.

The population includes all the local ongoing projects. Out of them, construction of the new Railway Operations Headquarters and Train Control Centre at Maradana, construction of Colombo-Kandy road (A1), reconstruction of Vavuniya-Mannar road (A30), construction of Ruwanpura expressway (Stage 1), EVERY ONE campaign of Save the Children, iLIVE project of World Vision, FRIENDS project of World Vision, Kelani Right Bank water supply project, Polgahawela, Pothuhera and Alawwa integrated water supply project and Jaffna city sanitation project are selected for the sample. Simple convenient sampling technique is utilized for selecting the sample. The research is conducted through case study analysis by interviewing one project team member from each project.

During the interview, first of all, the details about possible risks of the project are gathered. Then, probability of occurrence of those risks is gathered. After that, details about the impact of those risks on the project are collected. Finally, responses for mitigating those risks are identified.

4. Results and Discussion

Results of the data analysis process are indicated in the following table.

Table 1. Results of Data Collection

Project Name	Possible Risk	Probability of Occurrence	Impact on the project	Response for mitigation
Construction of the new railway Operations Train Control Centre at Maradana.	Running out of materials	Medium	Project activities will have to be delayed until materials are gathered.	Having a flexible layout plan for the headquarters and Train Control Centre.
Construction of Colombo-Kandy road (A1)	Landslide warning	High	Project activities need to be halted temporarily until the warning is removed	Constructing the part that belongs to Kegalle district during the dry session
Reconstruction of Vavuniya-Mannar road (A30)	Running out of materials	Medium	Project activities will have to be delayed until sufficient quantity of materials are gathered	having a flexible layout plan for the reconstructed road
Construction of Ruwanpura Expressway (Stage 01)	Objection of the residents from Kahathuduwa to Pelmadulla	High	Project will have to be stopped if objection of residents grows up to an unmanageable level	Conducting programmes for the residents from Kahathuduwa to Pelmadulla about benefits of the expressway
EVERYONE Campaign of save the children	Getting infected by diseases	High	Project will have to be halted temporarily until the team members recover from diseases	Ensuring the selected children are free of diseases
iLIVE project of world vision	Running out of finance	Medium	It will be impossible to launch the project without sufficient finance	Revising the financial plan
FRIENDS project of world vision	Unawareness within parents about the benefits of the project	Medium	Project will have Parents would not send their children to the drop-in centre to be well educated	Conducting awareness programmes for the parents

Project Name	Possible Risk	Probability of Occurrence	Impact on the project	Response for mitigation
Kelani Right Bank water supply project	Flooding during rainy season benefits of the project	High	Project will be a would not total failure with flooding	Establishing an early warning and monitoring system
Polgahawela, Pothuhera and Alawwa integrated water supply project	Objection of residents due to misconception of environmental pollution	High	Project activities cannot be continued with the objection of residents	Conducting programmes for residents to settle down their misconception
Jaffna City Sanitation Project	Running out of finance	Medium	Project activities will be stopped temporarily until sufficient finance is gathered	Ensuring the sanitation system is flexible for the allocated budget

5. Conclusion

According to the research, the most possible risks on any project are running out of materials, natural disasters, objection of residents, running out of finance, getting infected by diseases and unawareness among beneficiaries. Risks of natural disasters, objection of residents and getting infected by diseases have high probability. Risks of running out of materials, running out of finance and unawareness among beneficiaries have medium probability. Under the risk of running out of materials, project activities need to be delayed. Under the risk of natural disasters, project activities need to be halted temporarily. Under the risk of objection of residents, the entire project needs to be stopped permanently. Under the risk of running out of finance, project tasks need to be halted until sufficient finance is gathered. Under the risk of getting infected by diseases, project tasks need to be halted until the team members recover from the disease. Under the risk of unawareness among beneficiaries, the beneficiaries would not support to continue the project. In order to mitigate the risk of running out of materials, the project team can have a flexible layout plan. For the risk of natural disasters, the project team can perform activities in the disaster area during the season in which the disaster may not occur or establish an early warning and monitoring system. For the risk of objection of residents, the project team can conduct programmes for residents to explain benefits of the project. For the risk of running out of finance, the project team can revise the financial plan or have a flexible project plan. For the risk of getting infected by diseases, the project team needs to ensure the beneficiaries are free of diseases. For the risk of unawareness among beneficiaries, the project team can conduct awareness programmes for them.

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