



جامعة الجميع الذكية
EVERYONE'S SMART UNIVERSITY

Everyone's Smart University

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Project Risk Management

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Title: Risks Management of School Construction Project

1. Introduction

The purpose of the project is to construct a school for over 400 underprivileged children hailing from the poorest families who cannot afford to pay for quality education in other schools. The school will consist of 6 primary and 6 secondary classrooms.

Project risk is an uncertainty event or condition that if it occurs may have a negative or, less frequently, a positive impact on meeting project objectives. **Risk management** is the practice of identifying, analyzing, describing potential risks and preventing or mitigating risks to a project that have the potential to impact on the project objective or the desired outcomes during project execution. The objective of the project is to identify the risk, assess the risk, and diagnose the mitigants to eliminate the risk that may arise in the project while constructing a school. As a project manager of the project my role is to be responsible for overseeing the risk management process and to respond to any risk that arises over the life cycle of the project to help the project remain on track and meet its goal. Successful project managers recognize that risk management is important, because achieving a project's goals depends on planning, preparation, results and evaluation that contribute to achieving strategic goals. Effective risk management strategies allow us to identify our project's strengths, weaknesses, opportunities and threats. By planning for unexpected events, we can be ready to respond if they arise and to ensure our project's success, define how we will handle potential risks so we can identify, mitigate or avoid problems when we need to do.

Literature Review

The development of designs and plans for a facility that will satisfy business expectations and owner requirements is the first step in the design process for a construction project. A risk management plan determines the number of risks that may occur in the approved project. Construction is a risky project whereas each construction is unique. There are a set of challenges associated with each construction project. However, if these risks are handled carefully with planning and execution then they will

be reduced or eliminated (Mills, 2001). Risk is not always negative, if effectively identified and managed positive risk, the risk may also increase the profits.

Being the project manager of a school construction project, the most challenging part is to complete the project on time and within budget by managing all risks. However, project risk estimation or projection usually exceeds the level or intensity of risk decided at the start (Banaitiene, & Banaitis, 2012). Therefore, it is important to collect the data/information regarding each risk.

For proper construction risk management, the project manager needs to know the types of risks inherent in construction projects. These can be financial, contractual, operational, and environmental and can be caused by both internal and external sources.

2. Methodology

The report studies risk management techniques by collecting data from previous studies and literature. The descriptive methodology is adopted to highlight the risk in the construction project.

3. Risk of Implementation of Construction Project

The risk of the construction project was identified through interviews with stakeholders and using brainstorming, problem identification and risk profiling techniques, we have generated list of possible risks that could affect the project. We have developed a Risk log-based of risk associated with to project. The risk log contains the following points:

4.1 Identify Risk in the project

There are several risks associated with the construction project. We will only concentrate and discuss 7 major risks that need to be focused on for the implementation of the construction project.

Risk #	Identification of Risk	Description
1	<i>Safety hazards</i>	<i>Safety hazards that lead to work accidents and injuries.</i>
2	<i>Project Schedule</i>	<i>The project schedule is not communicated or understood properly</i>
3	<i>Labor shortages</i>	<i>Lack of technical staff or unable to find skilled labor.</i>
4	<i>Unavailability of construction materials</i>	<i>Shortage of construction materials in the market.</i>
5	<i>Increase in Cost</i>	<i>Unexpected increases in material costs, labor cost, direct cost, and indirect cost.</i>
6	<i>Poorly defined scope</i>	<i>Incomplete drawings and poorly defined scope</i>
7	<i>Theft of materials</i>	<i>Theft of materials, intellectual property, or equipment.</i>

4.2 Risk Probability Matrix

The risk probability matrix contains the rating for probability and severity for each risk (Garvey, & Lansdowne, 1998) as shown in the below tables:

Risk Matrix		Risk severity				
		Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Risk probability	Frequent 5	5A	5B	5C	5D	5E
	Occasional 4	4A	4B	4C	4D	4E
	Remote 3	3A	3B	3C	3D	3E
	Improbable 2	2A	2B	2C	2D	2E
	Extremely Improbable 1	1A	1B	1C	1D	1E

4.3 Expected Monetary Value

Risk #	Risk Description	P	I	EMV
1	<i>Safety hazards</i>	80%	5000	4000
2	<i>Project Schedule</i>	80%	3000	2400
3	<i>Labor shortages</i>	100%	4000	4000
4	<i>Unavailability of construction materials</i>	60%	3000	1800
5	<i>Increase in Cost</i>	80%	3000	2400
6	<i>Poorly defined scope</i>	40%	1000	400
7	<i>Theft of material</i>	40%	2000	800
			Total EMV	15,800

4.4 Risk grading and risk mitigation actions

Risk Matrix	Grading Risk	
	Qualitative Rating	Quantitative Value
1B, 1C, 1D, 2D, 1E, 2E, 3E	Low	0 - 0.20
2A, 1A, 2B, 3B, 2C, 3C, 4C, 3D, 4D, 5D, 5E, 4E	Medium	0.21 - 0.5
5A, 5B, 5C, 4A, 4B, 3A	High	0.51 - 1.00

3.5 Responsibility for mitigation actions

Table A: Risk register of Project					
Risk #	Identification Of Risk	Probability	Severity	Grade	Mitigation Actions
1	Safety hazards	4	A	H	Ensure that all safety and precautionary measures strictly comply.
2	Project Schedule	4	C	M	Ensure that all team members follow the scheduled turnaround time (TAT) and tick on project schedule forms daily.
3	Labor shortages	5	B	H	Ensure that technical staff contains desired skill sets and their skill sets are up to date.
4	Unavailability of construction materials	3	C	M	The procurement manager should ensure that material purchase in advance or adopt the JIT technique.
5	Increase in Cost	4	C	M	Keep a check on balance on material cost/ budget limits and reduce the operational cost
6	Poorly defined scope	2	E	L	Define the scope in detail via design workshops with input from subject matter experts.
7	Theft of material	2	D	L	Follow security procedures, ensure Non-Disclosure Agreements (NDAs), & compliance certificates are in place. Verify all physical security measures in place.

5. Risk Analysis

After completion of the risk matrix, now we conduct the risk analysis for the selected risk that includes:

- A description of already identified risk on the project,

- Indicators or triggers for identifying the risk, and specific risk response strategies (contingency) to take into account for mitigation of the risks.

The contingency plan against each risk is described in Table B.

5.1 Risk Response Strategy

Table B: Risk Triggers, Mitigation action, and Contingency plan			
Risk #	Triggers / Indicators	Risk Response Strategy	
		Mitigation	Contingency
1	Causing abnormal incidents that compromise the safety of workers and the workplace.	Ensure that all safety and precautionary measures strictly comply.	Keep the thorough check and balance of enforced safety mechanism.
2	The project schedule is not clearly defined or understood	<i>Hold scheduling workshops with the project team so they understand the plan and the likelihood of missed tasks are reduced.</i>	<i>Provide online alerts before the due dates so that team members achieve the turnaround time without delay.</i>
3	The productivity rate of labor is going down due to inadequate skillset or availability of labor	<i>Hire new staff and ensure that technical staff contains desired skill sets and their skill sets are up to date.</i>	<i>Consult to outsource technical staff required at time of need</i>
4	Delay in fulfilling the desired outcome or supply of product.	<i>The procurement manager should ensure that material purchase in advance or adopt the JIT technique.</i>	<i>Deliver the materials and resources on time. Make weekly reports of stock at hand and make an advance request for stock.</i>
5	Cross in pre-defined budget limits or decline in profit.	Keep a check on balance on material cost/ budget limits and reduce the operational cost	<i>Booking of raw material at a low price for future dates.</i>
6	All aspects of the project are not well defined which causes delay and unclear activities in the project.	<i>Define the scope in detail via design workshops with input from subject matter experts</i>	<i>Document every point in the project. No matter how small is a change and get authorization from the project board.</i>
7	Reporting of unavailability of material from workplace premises.	<i>Follow security procedures, ensure Non-Disclosure Agreements (NDAs), & compliance certificates are in place. Verify all physical security measures in place.</i>	<i>Notify appropriate authorities e.g. police, project board, and initiate internal investigations.</i>

4. Conclusion

Risk management is very important to any business organization with or without facing risks. An effective risk management plan should have early and aggressive identification of risks through involvement and collaboration of relevant stakeholders. Risk management describes organization decisions on how they deal or will face various risks if they occur. It also helps to determine different ways and measures to control those risks and providing assurance to the organization that it can create and implement an effective management plan to minimize or prevent losses occurrence. A good risk management plan should state clearly strategies techniques to be used to recognize and confront threats and vulnerabilities facing the company and provide possible solution to the problems (Peter Simon, 1997). The project manager is responsible to develop the risk management plan, create a risk register, understand the risk events, and act proactively instead of reactive toward risk.

References

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