

Report on
Risk Management: A study on Program for Supporting Rural Bridges
(SupRB) Project

By

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20382019

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Development (BIGD), BRAC University, in partial fulfillment of the
requirements for the degree of
'Masters in Procurement and Supply Management'

BRAC Institute of Governance and Development (BIGD)

BRAC University

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Declaration

It is hereby declared that

1. The internship report submitted is my/our own original work while completing degree at BRAC University.
2. The report does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The report does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

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Letter of Transmittal

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Subject: “Risk Management: A Study on Program for Supporting Rural Bridges (SupRB) Project”

Dear Sir,

I Md. Mehedi Hasan Bappy would like to submit this report with the title “Risk Management: A Study on “Program for Supporting Rural Bridges (SupRB) Project” as partial requirement to fulfillment of my master’s degree in Procurement and Supply Management (MPSM), BIGD, BRAC University.

I have attempted my best to finish the report with the essential data and recommended proposition in a significant compact and comprehensive manner as possible. I trust that the report will meet the desires.

Sincerely yours,

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Non-Disclosure Agreement

This agreement is made and entered into by the Local Government Engineering Department and the undersigned student, Md. Mehedi Hasan Bappy is from BRAC University. Since I am currently employed by the organization, I have access to information that is confidential. I understand that I will keep all the information strictly confidential and will not share it with anyone outside of the organization.

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I have the pleasure of presenting this report as an integral part of my study on Masters in Procurement & Supply Management. I am very glad for doing this study under the BRAC Institute of Governance and Development (BIGD), BRAC University.

First, I would like to express my thanks and gratefulness to the Almighty Allah for ability given me to complete this great job. I would like to express sincere thanks and deep gratitude to my honorable supervisor Mir Mehbubur Rahman, MCIPS, FIEB, Faculty, BIGD, BRAC University for his ingenious help, scholastic guidance, valuable suggestions, encouragement for preparation questionnaire and constructive criticism throughout the work as well as reviewing the manuscript. His briefed but very significant to the point advice made me courageous to complete the report. Directly or behind the screen, always his eyes were tracing my activities to reach the goal. Without his keen assistance and persuasion this task would not be a successful one.

I am very grateful to Mr. Md. Emdad Haque, Bridge Management specialist (International) (SupRB) at Local Government Engineering Department (LGED) for his valuable suggestions and support for completing the study.

Executive Summary

Program for supporting Rural Bridges (SupRB) is one of the largest and most important programs of the Local Government Engineering Department (LGED) and the success of the project is closely linked to how the uncertainty or risk associated with the outcome is managed. For this project to succeed, different people and organizations need to share their knowledge and experience to achieve the project's goals. If properly managed, the risk will achieve the project and possibly not exceed those objectives and cause the project to fail. There is a framework for what risk management should look like. Use qualitative methods based on literature and interviews. This study explores potential problems in risk management practices and suggests strategies to address them. In addition, risk opportunities are managed in the same system that is less likely to manage risk and exploit opportunities. Today, most work focuses on how projects perform on budget and schedule, making risk management reactive rather than proactive.

Key words: Risk Management, Iron Triangle, Risk Management Strategies, Labor Management Plan, users department, Risk Management Framework.

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List of Acronyms

SupRB- Program for Supporting Rural Bridges

LGED-Local Government Engineering Department

LGD- Local Government Division

DLI- Disbursement Link Indicator

LMP- Labor Management Plan

XEN- Executive Engineer

AE- Assistant Engineer

UZR-Upazila Roads

UNR-Union Roads

IPF-Investment Program Financing

P for R-Program for Result

IDA-international Development Association

PMI-Project Management Institute

EMP-Environmental Management Plan

OHS- Occupational Health and safety

CHAPTER-1

1 Introduction

1.1 Background

Risk management involves understanding and analyzing the nature of risk. By calculating the probability of a dangerous event (by analyzing the frequency of similar events in the past), it can quantify the impact or consequences of a dangerous event. Develop options to reduce or mitigate the risk. In other words, risk management is a negligent discipline. Process of systematic risk assessment in all types of activities and in all activities of an organization to obtain sustainable benefits from them (Institute of Risk Management). The local Government Engineering Department is one of the largest government agencies implementing a variety of rural and urban infrastructure programs. This includes the construction of roads, bridges, waterways and buildings (including classrooms, functional and residential buildings, educational institutions, cyclone bunkers, hospitals, markets, etc.). LGED currently operates over 100 programs nationwide. LGED is responsible for the construction and maintenance of rural bridges and canals. Currently, there are over 50,000 rural bridges (approximately 930,000 m total length) with a length between 6 and 900 m. However, there are over 21,000 rural areas (approximately 550,000 m²) that still need bridges.

The Government of Bangladesh has led this program to create boreholes for new rural bridges and to replace, expand, repair and maintain existing bridges at Upazila Roads (UZR) and Union Roads (UNR). . The program consists of two parts. Part A - Results Program (P for R)(USD 393 million) and Part B - Investment Program Financing (IPF) (USD 32 million). P for R is results-oriented and is linked to the achievement of payment indicators (DLI). Funding for the Part A program (P for R) is paid directly to the Treasury after obtaining and verifying the results. The Account Controller (CGA) is responsible for maintaining the program account and reporting through the iBAS / iBAS ++ system. Part B program funds (IPF) are paid directly into paper accounts, and report-based payments using unaudited interim financial statements are the preferred method of withdrawing funds from the IDA credit.

The Government of Bangladesh (GOB) has applied to the International Development Association (IDA) for financial assistance for the Rural Bridge Support Program (SupRB) implemented by the

Department of Local Government Engineering (LGED) within the Department of Local Government (LGD). Municipality, rural development and cooperatives. The program is administered by the Local Government Engineering Department (LGED) through the Office of the Program Director, and construction contracts are administered by the LGED District / Upazila Office. The program will be implemented in 61 of 64 regions, excluding three mountainous regions, and will cost \$ 618 million. The program includes 85,000 m of bridge overhaul, 24,000 m of bridge modernization and repair, 5,000 m of rural bridge extension, 20,000 m of bridge replacement or construction and institutional capacity building through various activities.

This mission proved to be a completely unique concept. Random control is closely linked to the success of the mission. According to Project Management Institute PMI (2017), contingencies are events that can have very good or bad effects. A good end result, considered possible, will benefit the mission if it occurs, while a bad end result, a threat, will cause the mission to deviate from its plan and no longer achieve the mission's goal. Development missions present several types of risks, including physical risks, settlement risks, location risks, political risks, financial risks, legal and contractual risks and environmental risks. Each of these types of threats must be proactively managed for the development mission to be successful.

This MSC report examines the risk management approach to SupRB research using the current development risk management process in Bangladesh. Risks management methods understand the relationship between risk management and the final product (Complete Bridge).

1.2 Risk Management Goals

The risk is almost inevitable. It can never be stopped. But it can be identified and mitigated - either by reducing the likelihood of the risk occurring (by carrying out preventive checks) or by reducing the impact of its occurrence (by having insurance and contingency plans). The first step in defining the goals and objectives of risk management is to define the overall vision of the organization. After creating a common vision, the overall goals and objectives of risk management should be defined. While a vision statement is often preferable, goals and objectives usually describe what needs to be done in simple terms. Some general objectives of risk management are:

- Establish a common understanding of risk across multiple functions and business units to cost-effectively manage risk across the organization.

- A better understanding of the risks that lead to a competitive advantage.
- Create and improve the capabilities of effective response to low-probability, critical and disaster risks..
- Reduce costs by improving internal resource management. More efficient allocation of the budget.

1.3 Objective of this Report

Below are the research objectives of this study:

- 1.To study the possible risks in SupRB project.
2. To determine the level of awareness of the risk among stakeholder in SupRB project.
- 3.To identify the tools and technique used in managing risk of SupRB project.

1.4 Operational Definition

Project

A project is clearly defined, which is evident when a unique event is combined with several elements such as environmental, temporal, and administrative variables. A project has a beginning and an end point where resources are needed.

Risk

Risk is the uncertainty faced by some projects that can be controlled to some degree, where the risk can be transferred or shared with other project actors.

Risk Management

Risk management is a process of systematic elimination of risks associated with their activities in order to achieve a stable profit in each operation and group of operations.

CHAPTER-2

Literature Review

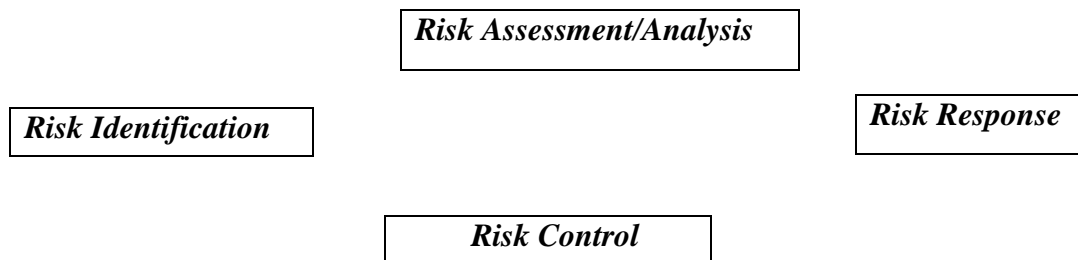
2.1 Risk Management

In the real world, project risk must be effectively managed based on a process that identifies, analyzes, considers and manages all potential risks. Although these processes are basic steps, interpretations of this systematic process vary. If this process can be implemented throughout the project life cycle, it will be an essential part of a successful risk management program. The risk management plan includes adequate risk management after evaluation and analysis to minimize the negative impact of the project. Risk management is used to obtain key indicators for the successful design and construction of the necessary strategies. And analyze the existing risks. This means prioritizing risk processes, taking into account first the risk with the highest loss and first the risk with the lowest potential loss. The risk management process becomes more complex when high risk and low risk need to be weighed simultaneously. It is also very difficult to correctly assign risks in a project. Risk management provides a clear framework for identifying, analyzing, evaluating, processing, monitoring and, ultimately, communicating risk information. It is also important to understand management risks. Risk management provides better visibility into the impact of processes by defining steps, sequences and decision-making processes. Effective management is recognized as an important part of risk management. Because risk management is always uncertain, it should be part of the business family. However, due to risk management, continuous improvement, also known as kaizen in Japanese, is implemented in every aspect of an organization's decision-making process. Risk management is an old theory. The first risk is traditionally managed through an assessment based on personal experience. A new concept of systematic approach facilitates understanding and risk management. Applying these risk management techniques requires experience and expertise. Good risk management is very useful for identifying and assessing project risks. In addition, project teams should focus on key types of project risks to minimize potential damage to the project. When project risk is well managed, project teams can manage uncertain aspects of risk. Risk management is also known as a tool to reduce the uncertainty inherent in risk management.

2.2 Risk management frame work

Risk management can be described as a process that includes risk management planning, risk

identification, qualitative and quantitative risk analysis / assessment, risk response and risk management. (PMI, 2017) (Winch, 2010) (Renault & Agumba, 2016). A system for early detection and warning of risks, risk analysis and development of options, risk assessment, risk management decisions and actions and monitoring and evaluation of the sponsor has been implemented. There are 4 steps in this report: Risk Identification, Risk Assessment / Analysis. Risk response and risk management are used to support rural bridge projects.



Figures 1 Risk management frame work

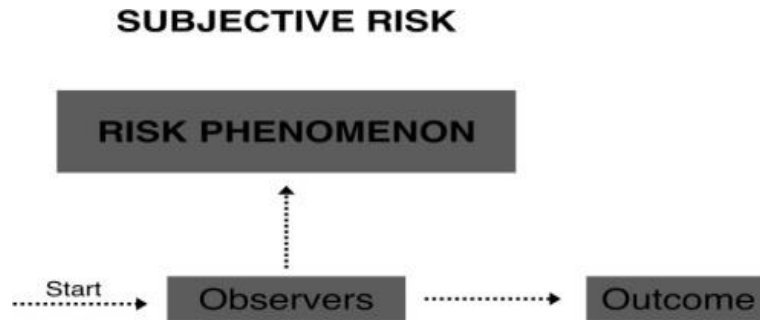
2.2.1 Risk Identification

At this stage, the project's risks are identified. According to PMI (2017), the risk identification phase should include a data collection phase with brainstorming sessions, a checklist as well as interviews. Participants in these sessions can be project managers, project team members or risk specialists. However, other stakeholders involved in the project should have the courage to skip the risk identification stage. All stakeholders throughout the data collection phase must document the identified risks in a consistent format for subsequent processes. Through a risk workshop, identified risks can be recorded and included in a risk register. The risk register should include the identified risks, who is responsible for the risks, and how to respond to the risks. Risk identification is an essential part of the risk management process because risks that are not identified and thus left unresolved will affect the project (Renault & Agumba, 2016).

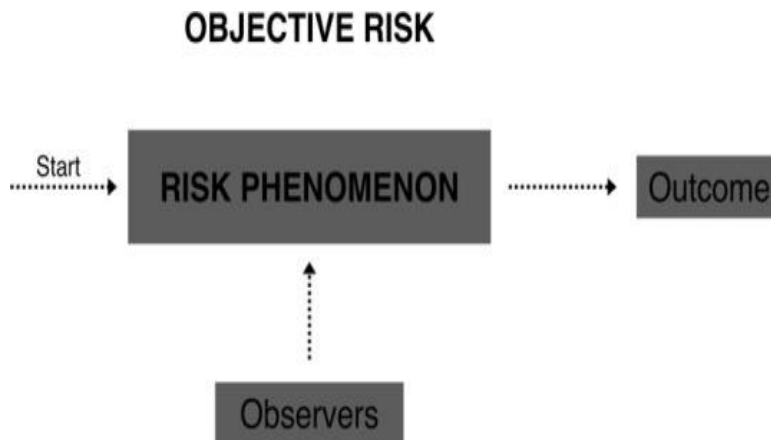
2.2.2 Risk Assessment/Analysis

Risk assessment is divided into four groups: project management systems, subjective perceptions

and irrational risk management behaviors. These four groups can be divided into two categories: objectivity and subjectivity. Figures 1 and 2 show the subjective and objective risk difference.



Figures 2 Subjective Risk



Figures 3 Objective Risk

These figures begin with the fact that risk is an objective fact Possibility to influence the project. Winch further explains the purpose of this risk based on historical event statistics, which is used to predict the outcome of a risk event. Therefore, research should focus on risk management and analysis to exclude the possibility of a negative event. However, different observers with different

perceptions of risk may analyze the risk event, which may influence how the risk is managed and analyzed. The risk of the internal structure, on the other hand, depends only on the observer of the risk. How danger is perceived and whether it is perceived as danger depends on the observer and another observer may not notice those events. Vinch (2010) explains further. If this happens, viewers who are not aware of the risk will focus only on managing the risks they have identified. Risk measurement based on likelihood and impact is done using a probability-impact model based on the theory of expected application. This suggests that there is a risk equal to the probability of occurrence over time, not the impact (Vose (2008), cited in Farooqetal, 2018). Overall, the results of the probabilistic impact assessment are summarized in the probabilistic impact matrix (PMI, 2017). However, not all potential hazards of a development project can be identified, so the identified risks need to be properly analyzed (Schatteman, Herrroelen, VandeVonder, & Boone, 2008).

Some uncontrolled factors or risk factors may have been identified, but they can still be surprising. Although weather can be effectively analyzed and estimated, it can also provide the most unlikely weather scenarios that can be carefully analyzed. Risk analysis is usually done in the project team, but when risk analysis is done in the project team, a qualitative approach is highly desirable. However, when consultants are involved, a slightly optimistic approach is desirable. However, quantitative risk analysis is becoming increasingly popular. Risk management therapists believe that their knowledge of risk management principles is very limited, but often there is no formal training other than indoor training (Lyon and Skitmore, 2004)

2.2.3 Risk Response

The main goal of risk management is to minimize the risks of negative risk, increase the likelihood of positive risk and thus identify practical means to turn risk into opportunity. Find the right resources, plan events and integrate them into tables and budgets (PMI, 2017). Winch (2010) proposes the following alternatives for risk reduction: Project managers can take risks and develop programs that respond to risk events. Otherwise, the risk may be external, for example, the party that is more willing to accept the risk (change of (PMI, 2017)). Again, risk sharing is a risk and should be moved closer to the risk, so this is only possible if the other party manages the risk better. Project management can reduce and prevent risk by changing the purpose of the project.

Reduction is the most desirable response, and also explains why the risk management process is an ongoing process throughout the project life cycle. Another possible risk response is insurance against risk events. This should be done for events with low probability, but with high impact, as described in the previous section. In the end, don't make such decisions alone, so postpone the decision until further notice. However, if a risk is accepted, the project plan and budget must be changed so that the project can manage the impact of the risk (Winch, 2010).

Risk management is just as important as the previous step. At this stage, you should monitor the identified risks and evaluate the effectiveness of your response. Again, by reusing risk management as a process, the management phase develops more response strategies and identifies new risks (PMI, 2017). Must document all responses to risks, risks, and how risk responses affect your program, budget, or quality. To do this, the program must determine the owner of the risk. Risk workers should be actively involved in monitoring the progress of work and risk management, for example, by talking to real builders, field workers or other personnel close to the source of danger (Winch, 2010).

2.2.4 Risk Control

Risk control is just as important as the previous steps. At this stage, identified risks of monitoring and its effectiveness should be measured. Again, using risk management as an operational process, the control phase further refines response strategies and identifies new risks (PMI, 2017). All risk actions must be documented, including the risk and how the response to the risk affects schedule, budget or quality. To do this, the project must identify the risk owner. The risk owner needs to know how labor control and labor management are progressing, where people need to communicate with someone else.

2.3 Assessing the likelihood of Risk and Impact

The probability of occurrence of a specific risk is estimated using the risk and impact probability matrix. Using a method called risk probability assessment and impact assessment, the probability of a particular risk is estimated. The impact of risk on project objectives should consider not only its positive impact on opportunities, but also the negative impact of threats. Therefore, probability

and impact must be defined and adapted to specific projects (PMI, 2004). It depends on the nature of projects, criteria and goals (Cooper et al. 2005). PMI (2004) defines an initial probability range from “highly unlikely” to “almost certain”. However, a relative numerical estimate is acceptable. Additionally, as shown in Figure 6, additional lines should be drawn on each assessment scale to assess the impact of project factors such as time, cost, or quality. Each hazard is listed according to the likelihood and impact of the hazard occurring at the identification stage (PMI, 2004).

Defined Conditions for Impact Scales of a Risk on Major Project Objectives (Examples are shown for negative impacts only)					
Project Objective	Relative or numerical scales are shown				
	Very low /.05	Low /.10	Moderate /.20	High /.40	Very high /.80
Cost	Insignificant cost increase	<10% cost increase	10-20% cost increase	20-40% cost increase	>40% cost increase
Time	Insignificant time increase	<5% time increase	5-10% time increase	10-20% time increase	>20% time increase
Scope	Scope decrease barely noticeable	Minor areas of scope affected	Major areas of scope affected	Scope reduction unacceptable to sponsor	Project end item is effectively useless
Quality	Quality degradation barely noticeable	Only very demanding applications are affected	Quality reduction requires sponsor approval	Quality reduction unacceptable to sponsor	Project end item is effectively useless
This table presents examples of risk impact definitions for four different project objectives. They should be tailored in the Risk Management Planning process to the individual project and to the organization's risk thresholds. Impact definitions can be developed for opportunities in a similar way.					

Table- 1 Definitions of Impact Scales for Four Project Objectives (PMI, 2004)

Potential impacts on project objectives, such as time, cost, domain or quality, are investigated through risk impact assessments. A risk probability assessment examines the probability that each particular risk will occur. The probability of each risk and its impact on each objective are assessed during an interview or meeting. Assumptions that justify the level of risk are also recorded in the form of annotations. There is a risk of underestimation, which is not a problem in this case, but is added to the monitoring list for further monitoring (Ritter, 2008).

2.4 Probability/Impact Risk Rating Matrix

The probability and impact assessed in the previous step are used as a basis for the quantitative analysis and response to risks, which will be explained later in the study. Therefore, evaluation findings are prioritized using various computational methods available in the literature (PMI, 2004). According to Westland (2006), a priority score can be calculated as the average of likelihood and impact. The importance of each risk can be

represented by a range of priority scores, ratings, and colors. Impact is multiplied by probability for priority. The collected results are shown in the matrix in Figure 2.4 (PMI, 2004). The combination of these factors indicates which risks have low, medium, or high priority. Regardless of the calculation method chosen, the combination of such data indicates the priority of previously identified risks using color or related number systems and helps to assign an appropriate risk response. For example, low-priority risk can be monitored or reacted to only when necessary, while high-risk, high-probability risk is defined as high risk.

Probability and Impact Matrix										
Probability	Threats					Opportunities				
0.90	0.05	0.09	0.18	0.36	0.72	0.72	0.36	0.18	0.09	0.05
0.70	0.04	0.07	0.14	0.28	0.56	0.56	0.28	0.14	0.07	0.04
0.50	0.03	0.05	0.10	0.20	0.40	0.40	0.20	0.10	0.05	0.03
0.30	0.02	0.03	0.06	0.12	0.24	0.24	0.12	0.06	0.03	0.02
0.10	0.01	0.01	0.02	0.04	0.08	0.08	0.04	0.02	0.01	0.01
	0.05	0.10	0.20	0.40	0.80	0.80	0.40	0.20	0.10	0.05

Impact (ratio scale) on an objective (e.g., cost, time, scope or quality)

Each risk is rated on its probability of occurring and impact on an objective if it does occur. The organization's thresholds for low, moderate or high risks are shown in the matrix and determine whether the risk is scored as high, moderate or low for that objective.

Table- 2 Probability and Impact Matrix (PMI, 2004)

2.5 Risk Management Strategies

2.5.1 Treat (Mitigate, Minimize or Control)

Take preventative measures to manage the risk to minimize its possible or potential impact.

Mitigation strategies can, according to

- Quality assurance
- Contingency planning
- Contract terms and conditions

- Crisis management and disaster recovery plans

2.5.2 Tolerate (or Accept)

If the likelihood or impact of the assessed risk is very low (or there is no other way to reduce the risk), no further action is currently required or warranted.

2.5.3 Transfer (or Spread)

If another participant with greater qualifications or ability can manage the risk, the best option is to transfer it. Potts (2008) suggests transmitting risk to those who know how to manage it. Units are those that can change the nature of the risk, such as the customer, contractor, subcontractor, designer, and so on. This can increase the cost of the project or additional work, often known as the risk premium (Putz, 2008). Thus, the risk does not disappear. Risk is transferred only to parties with experience in managing it (PMI, 2004).

When risks are outside the control of project management, transferring risks and negative consequences is also an option. This type of risk can be related to labor strikes or political problems. (Darall and Preston, 2010). This situation can also have rare and unpredictable disasters in a certain environment. (Winch, 2002) Such risks beyond the control of management should be replaced by insurance.

2.5.4 Terminate or Avoid

If the risk associated with a particular project or decision is too high and cannot be mitigated, the company may not be involved in the investment, performance or opportunity.

- More detailed planning
- Alternative approaches
- Protection and safety system
- Reviews of operation.
- Operation reviews frequent inspection.
- Regular inspections

2.6 Determinants of Risk Behavior

itkin and Pablo (1992) define risk as "the degree of uncertainty in which potentially significant and disappointing outcomes of decision making are achieved." Instead, it focuses on three different aspects of risk: uncertainties in outcomes, expectations of outcomes, and potential outcomes. Uncertainty in the results can be explained as not knowing the distribution of the results, and the greater the variance of the results, the higher the uncertainty. If not familiar with the different outcomes and those different outcomes are unlikely to pose a risk, will not be able to calculate the expected value. However, if the results are said to be out of control, there should be an increased risk that decision makers may affect the results. On the other hand, the expectations of the outcome are somewhat trivial, but depending on how the outcome is formulated, the outcome itself may not pose a risk, but is the outcome disappointing to stakeholders or decision makers? It depends on what you do. Here, the most extreme negative and highest positive results of that decision are analyzed.

2.7 The Iron Triangle

According to Atkinson (1999), in projects, project managers use three parameters to measure project success: quality, time, and cost. He goes on to explain that these two dimensions are only estimates and assumptions, while the third dimension is the phenomenon. However, measuring success using these three dimensions may be too restrictive because it does not take into account other benefits to the organization or other stakeholders affected by the project. Atkinson (1999) suggests a "square way" of designs to reduce the iron triangle type of narrow interval errors. . The information system includes the reliability, validity, support and quality of software knowledge. Organizational benefits include increased productivity, increased profitability, organizational learning and stakeholder benefits, social or environmental benefits, and simply user satisfaction (Atkinson, 1999).

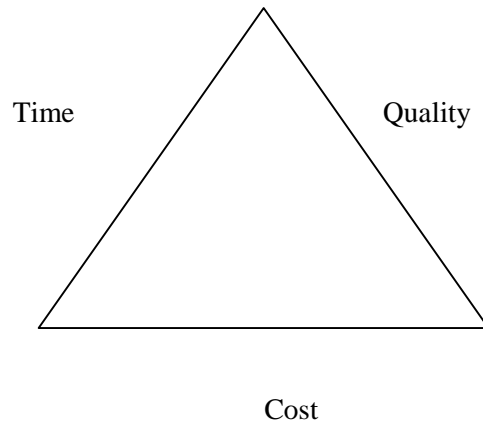


Figure 4 the Classical Triple Constraint

2.8 Behavior and Risk Management

In 1974, Kahneman and Tversky suggested that people suffer from various cognitive biases and use heuristics to make decisions (Tversky and Kahneman, 1974). They hypothesized that this heuristic exists when people try to predict the outcome of an uncertain event. In addition to using the above definition of uncertainty, uncertainty is also defined as the lack of information needed to make a decision; the lack of information prevents us from assigning a probable distribution to the outcome of a decision. Despite this, heuristic utility in assigning probabilities and predictors is thought to depend on representation, accessibility, significance, and heuristics (Tversky&Kahneman, 1974). Delegation can be defined as the provision of other work. For example, in describing a person's personality, does this person correspond to the stereotype of a certain profession? Adjustments described by those who make estimates based on predetermined values and of these values by data collection or self-calculation.

Conversely, affordability is one discovery that should be emphasized. Continuing a previous project and starting a new one is decision support available for decision makers as they identify risks and develop plans. The theoretical analysis is informed by a practical process that reflects the concept of success in the context of decision makers who make risky and successful decisions. (Kahneman and Tversky) suggested that people act by comparing alternatives when making decisions. Their results show that decisions are based on determinism rather than common

elements. This means that people tend to concentrate on the differences between their preferences. It is represented by a breakpoint that shows an S-shaped utility function with steeper losses than equal gains. As a result, people experience harm rather than profit. Perspective theory when an individual reacts to a risk situation, the relationship between perceived risk and perceived risk changes based on past experience. This reference point determines whether the decision maker evaluates the expected outcome as a loss or a gain (Kahneman & Tversky, 1979). Fiorto (2016) Budget Implementation Influences Decision Makers in the Construction Industry and Review Project Budgets from an Implementation Perspective. As explained above, decision makers face high risk in projects that are below or slightly over budget. Depending on the experience of the decision maker, these trends may be reinforced or weakened. Moreover, (Kahneman and Tversky) coined the term “planner’s deception” to describe how a person underestimates the time required to complete a task (Kahneman & Tversky 1979, cited in Buehler, Griffin & Peetz, 2010). One of the most interesting aspects of planning misconception is that people underestimate past experiences that are directly related to the task, regardless of the person’s estimated time to complete the task. This is a trend. One reason for this may be that the future is more optimistic than negative past experiences (Buhler et al., Kahneman and Tversky 1979a, cited in 2010). People tend to be more pessimistic when judging others’ end times. The explanation for this phenomenon is that when people evaluate past experiences, they ignore the negative aspects and focus on the positive aspects to justify their assessments. (Buhler, Griffin, & Ross, 1994). In addition, Kahneman and Tversky described internal and external perspectives. In the first case, the individual or group focuses on a certain aspect of the task that may increase or decrease the final time. In the second case, the task is placed in a specific reference to a related task. People seem to focus on the novelty of specific tasks rather than considering tasks or outcomes related to previous experiences or plans (Kahneman & Tversky 1979a, cited in Buehler et al., 2010).

More research on perceptual biases has emerged, providing a coherent theory of probability. People and decision makers are partisan in their decision making. Mandatory biases are difficult to overcome (Montebello & Winterfed, 2015). In the internal risk management process, the project is the answer to be found because of its uniqueness. Using methods such as cost-benefit analysis, managers often overestimate benefits and underestimate costs, thus increasing the likelihood that their project will be approved or funded (Fly berg, 2006). The difference is whether this is done intentionally or due to political and institutional pressures from the strategic agent. Tests are made

to account for estimation errors due to missing data. Technologies like RCF provide decision makers with an objective view of the project and reduce planning errors.

CHAPTER 3

Risk in SupRB project

3.1 Risk in SupRB project

3.1.1 Environmental Risks and Benefits of the Program

The functions of this project include maintenance of the bridge (big and little) Rehabilitation, expansion of efficiency and replacement of upazila and union -road networks. Building and maintenance activities can cause some potential environmental risks They (i) air pollution and dust (construction equipment, construction, construction Vehicle transport) (b) sound -pollution and noise, (iii) surface water pollution (fugitive, construction Garbage), (iv) groundwater pollution (accident filtering, incorrect health care systems for workers), Production of solid and liquid waste, drainage (construction remains, busy Water bodies, storage of building materials Simultaneous (VIII) boat navigation interruption, (IX) interruption of plants and water animals Fish and more.

Short and medium bridges over canals and small rivers will be rebuilt / built Most of them dry out in the dry season or have very little flow. Such physical intervention a natural channel can change its hydro morphological regime and cause a narrowing of the flow this effect is more localized around the bridge area. Possible sand mining and Land construction can also cause loss of flora and fauna, but this is expected to be temporary And reversible, fundamental work is usually done in the dry season There is little or no current in the canal / river, so the impact of vibration / noise is minimal

Related to candles New bridges across large rivers with sensitive ecosystems Under this plan, it will not be built.

In addition to the risks associated with the physical and chemical environment, construction activities this poses a danger to the health and safety of workers and the public. Builders will face Occupational health risks such as minor or serious injuries without general protection Precautions, equipment failure, careless use of equipment and vehicles, etc. It is poorly designed Temporary camps, water supply and sewage facilities create threat and health problems For workers. Unjustified selling of food and drinking water in workplaces is one thing Risk of spreading infectious diseases such as typhoid, diarrhea, malaria, dengue; etc. Builders have to work with hazardous building materials It is especially suitable for plants that process cement, bitumen, paints, chemicals, fuel, diesel and so on. Thus, the risk to the health of employees increases.

During construction, it may be necessary to dismantle communications (electricity). telephone, water supply, internet connection) existing bridges and connected to them approaching Electrical and telephone pole located on the slope of the deck near the bridge Roads can be affected during construction. These lines can be dangerous for workers Public health and safety during the construction phase, if detected and not removed earlier. A general danger may be due to a lack of signage or construction operations, problems related to the above physical and chemical hazards.

Building bridges will not affect physical culture Resources; opportunities are built as bridges across existing lines of the road network “Optional discoveries” during construction. This will have a potential negative impact on physical cultural assets In view of such consequences, appropriate measures will be taken. Production-related effects may occur during bridge operation traffic and, as a result, increased traffic congestion and the development of temporary shops and markets in nearby places. The health and safety of the community involved in traffic accidents can be important in some places, this is a cause for concern.

However the expected side effects of the Village Bridge project Not expected to be significant: (i) geographical path of planned creativity (Building/rehabilitation measures are carried out on

bridges; they are small and medium Size (<100 m)); (B) a repair of maintenance of existing physical work Structures; (Iii) programming activity is likely to engage or distort allergic habitats As this program is excluded from bridges located in major areas (IV) Environmental consequences of bridge work can be temporary Dealt with the use of known sedative measures and appropriate environmental codes Proceedings.

3.2 Potential Environmental Benefits and Opportunities

One of the areas the program aims to strengthen is professional development Occupational health and safety (OHS). This is evidenced by the analysis of the current tender documentation of the contractors Safety hygiene is correctly included in the tender documentation. But the implementation of basic principles Sometimes SGS is missing. At the peak of construction, there is a possibility of delivering it hiring a significant workforce and these challenges cannot be ignored. Between intensive by monitoring and informing contractors of compliance with these rules, changes are visible this part can be created. The process of planning, designing and implementing these bridges helps LGED learn Best practices in bridge planning, design, construction and management Environmental Risk Management during Construction There are many possible DLIs Environmental risks can be reviewed in PforR.DLI-4 (Bridge Management System). Report these Capacity building in occupational health and safety completes the transition Maintenance and construction under PforR. DLI-5 (Improving contract management formalization of the system and contract for design and construction) also contributes to the creation of TEM. Contract documents. In addition, DLI-6 (Transparency and Accountability) may refer to the implementation of contractual obligations at the field level (including EMP compliance).

3.3 Social Risks and Opportunities of the Program

3.3.1 Potential Challenges and Social Risks

Most rural bridges are planned for restoration / reconstruction. Project in mind some new bridges (bridges of short and medium span with a total length of less than 100 meters).

Without significant environmental and social consequences). About 20 percent of the bridges (about 40 bridges) are proposed for new construction. All proposed bridges will link two existing roads. Bridges over rivers or canals use public land. The road near the bridge There must be sufficient width or in some cases ground is required Existing border In general, the construction of adjacent roads requires additional land bridges Agricultural land near the access road is likely to be affected suffered These lands are mostly privately owned by local residents who will of course be there Beneficiary of the bridge.

Rehabilitation and replacement of existing bridges and building new bridges in union And roads can temporarily have a bad social impact Permanent, physical and economic movement, temporary repayment of existing Information system that affects everything in the community, including a vulnerable group, tribal tribes Children and others use this bridge/live with work. However the right forward Planning of these effects can be effectively reduced and reduced. This will have negative social consequences it should be directly proportional to the size of the bridge and the duration of the works. Possible social Vulnerabilities / problems and risks are described in the following paragraphs.

LGED avoids projecting reconstruction / widening / repair / replacement of existing bridges.

Any land acquisition that makes relocation unnecessary. However, the final election has not yet been finalized Subprojects and revisions of engineering plans are considered possible

Social risks and effects in the following forms:

- For entering public territory / gas land and housing in huts and sheds Livelihoods will also be affected.
- Therefore, a negative impact on businesses near the bridge is also expected Destruction of temporary and semi-permanent commercial facilities.
- This leads to the loss of small businesses and related employment and affects livelihoods of the affected society.
- Bridge access / alternative access can impede safe traffic Elderly or disabled.

3.3.2 Labor Influx in the Bridge Sites

Problems related to the flow of work at the following project sites:

- The flow of non-local labor into the workplace can increase pressure on the local market Bourgeois facilities exist due to the risk of rising prices for goods of daily demand in the area the locals .
- There is a possibility of social division due to the antisocial activity of some employees. Coercion in the form of drug addiction, gambling and prostitution or other issues related to sexual violence.
- Workplace for workers / office related to construction in the city Failure to plan a separate construction yard pressures local authorities.

Challenges / dangers of society in terms of construction activities:

- Renting of workers and workhouses when there are no separate sites at the workplace Theft, noise and moderate risk to local residents Movement of unknown people in the area.
- Negative impact on harvested crops and cutting of trees / fruit trees Value near the deck of the bridge
- Contractors or their agents may use child labor for low wages Increase in construction cost and profit.
- A similar effect is expected in flat areas where TP is a minority.

3.3.3 Potential Social Benefits and Opportunities

The social benefits and potential of the project are many. Some of them Features include:

- Improve the communication network to create more opportunities for business and commerce. Easy movement of agricultural products and other locally produced products, Reduction of transportation costs and reduction of travel time and convenience of movement Pedestrians include VG, TP, and the elderly and school-age children.
- Local unskilled workers, including women, can find work at the bridge construction site long time. LGED's headquarters formulated the "Contract Bonds". At least 10% of women should be employed in repair work. UP and his team Contractors must ensure compliance through regular monitoring.

- Intention to receive rent by renting vacant land and vacant / unused land near the deck of the bridge.
- Growth of local economic activity due to increased demand for basic necessities. Including agricultural products, labor and workers in production.

CHAPTER 4

Methodology

4.1 Methodology

This study was conducted through qualitative research and the use of interviews. An inductive research approach was chosen to identify risks through the risk management process. Variations in different risk management processes and risk behaviors of decision makers are identified in the literature, and experts of SupRB are consulted to further develop the research. Risk management is very effective to reduce risk. This report aimed at defining the theoretical basis, formulating more clearly the research questions and consisted of four steps;

- Literature review including an inventory of existing research and theory formation in the relevant areas. The purpose was to obtain a theoretical basis for further work and clarify in greater detail the research questions and delimitations.
- Selecting a SupRB projects to be included in the main study.
- Preparation of some interview questions, using the results of the literature review.
- Analyze the findings and provide recommendations.

4.2 Interviews

To collect empirical data interviews were used. Semi-structured interviews allow researchers to be flexible in the interview approach and allow the interviewer to ask specific questions based on the interview. This approach also gives the interviewer an opportunity to research, ask follow-up questions, and build on the answers given.

All of the interviewees are currently working within SupRB Project under LGED Department, so we asked them about how the organizational setting was also included in the questionnaire.

4.3 Interview Design

Work in risk management on a daily basis were also consulted before finalizing the question of the interview guidelines. The purpose of the report and the purpose of the interview were reiterated at the start of each interview. The informant was then asked about his/her role and duration in the project before asked a number of questions related to risk management. The informants were asked the predetermined interview questions but spoke freely on the topic.

4.4 Data Collection Methodology

The choice of interviewees was based on finding a combination of experts who could somehow tackle risk management within this Project and make and represent risky decisions. The common denominator is that their decisions and risk management impact project performance because they all work in a project-based environment. The interviews were all conducted separately to avoid any interference from each other and to maintain anonymity. A total of 10 interviews were conducted with participants from different levels and various backgrounds.

Interview	Actor	Years of experience
1	Executive Engineer	15
2	Executive Engineer	17
3	Executive Engineer	15
4	Assistant Engineer	2
5	Assistant Engineer	3
6	Assistant Engineer	2
7	Assistant Engineer	4
8	Lab –Technician	2
9	Surveyor	3
10	Senior Sociologist	15

4.5 Sampling

4.5.1 Sample Size

The sample size for this study was determined the scope and time frame of the study was limited. Employees designated from the Surveyor up to the Executive Engineer of the

organization are considered for this survey.

4.5.2 Population Size

There are approximately 188 personnel who hold the post and position from Surveyor to Executive Engineer in this SupRB Project. In Project Management Unit (PMU) level approximately 30 persons are working and other person working Project Implementation Unit (PIU) which means field level. Questioner asked some (PMU) staff. A sample of 10 out of 30 means around 33.33% of the population, hence the sample may be considered statistically significant.

4.5.3 Survey Study Period

Survey was conducted from 15th June, 2022 to 22nd June, 2022 at SupRB Project offices of the local Government Engineering Department (LGED). The offices situated in Agargaon, Shera Bangla Nagar, Dhaka-1207.

CHAPTER 5

Data Collection & Findings

5.1 Data Analysis

The data collected to describe the Risk Management process in Local Government Engineering Department (LGED) in Bangladesh. Each interview was written. Each interviewee was classified as a Assistant Engineers, Executive Engineers, Sociologist, Lab-technician, surveyor, each interviewee was classified by position and length of service in this project .Using thematic analysis of the interview responses, each interview was analyzed in detail, where each question was formulated accordance with the interview guide, and the topics in the responses were identified.

5.1.1 Reliability and validity

The approach in this report can lead to errors such as the interviewer's bias and response dependency. Asks or analyzes the results in a way that reinforces the interviewer's own beliefs. The response may be associated with favorable distrust, as a semi-structured approach may prevent respondents from compromising information or discussing topics. This is because they are not sure what the next question of the survey will be, or the interviewer must consider public opinion on the matter, or they do not want to present their firm in a negative light (Saunders et al., 2015).) and avoid these prejudices before the interview. In addition, an interview manual was provided at the beginning of each interview, and respondents were advised not to answer freely if the question was difficult to answer. Given the small sample of this study. Instead, the results should serve as a basis for discussing the existence of these risks in the Program for Supporting Rural Bridge (SupRB) and how to manage them.

5.2 Findings

Survey questionnaire (Annexure-1) from different position of this project. Questions were asked about the risks management prospects of SupRB. Project risk management usually concerns itself with risks related to time (not delivering on time), cost (not delivering on budget) and quality (not

delivering with expected quality). Projects are temporary and meant to achieve a goal or objective within a set timeframe, budget and expected or agreed upon quality. Hence, project management is about managing limited resources (time allotted, budgeted costs) to ensure the execution of a set of tasks and activities in order to achieve or complete the main objectives. Unsurprisingly then, project risk management identifies and measures risk on time, budget/cost and quality. The following sections will look into some of the identified risks to schedule, costs and quality in the SupRB projects – and how these risks were managed. Participants are different position of this project and they comments in differently by those question.

5.2.1 Findings from Question-1

[Q-1 what are the main challenges facing the SupRB Project in dealing with risks?]

When asked to explain from whose perspective they assess project risks, all indicated that this is either the perspective of the environmental risk, Political risk, Cost & Budget risk legal action delay etc. In addition, half of the respondents indicated that they are not currently studying risks from the perspective of the organization, and also benefit from the request of a close administrator. Further, respondents asked if these efforts were economically limited or more positive, or they were threatened. The decisions are divided here, and the belief in the threat of 1/2 of the respondents demands the threat of threat to change in any direction. Four respondents said underfunding the plan could make the initiative more vulnerable, and two respondents said the project could bring higher margins. More general testing may reduce the incentive for threats, while more remote testing may have more room for threats. Questions regarding project teams and composition of project teams were also raised. Some also mentioned that they used team building activities, although they are now more comfortable working with an internal project team that includes experts from different organizations. In this creative environment, working groups often do not reach the same conclusions during discussions. The difference between sending and receiving is not uncommon; one of them is usually mentioned, especially by respondents who work in applications, exchange of information. Better risk management will no longer change any goals, plans, or budgets in favor of the host. The questions were expected to review the same direction.

5.2.2 Findings from Question-2

[Q-2 How increased risks affect strategy and operations SupRB Project?]

In question-2 most of the participants says, Risk analysis this project should provide the necessary guidance for success. They instructions have been prepared likes;

- A) Creation of context (definition of the goal, analysis of interested parties, etc.)
- b) Identification of risks (checklist, brainstorming, historical data, etc.)
- c) Number of risks (probability, effect, interaction, type of distribution, result).
- d) Prepare a schedule with the cost of the project.
- e) Understand the results and formulate a risk response strategy.

5.2.3 Findings from Question-3

[Q-3 which management methods are used in SupRB Project?]

When asked to describe what management methods are used in SupRB Project, the five interviews says 4T and PMI Risk Management method are used in SupRB Project. Treat risk as a matter of economic impact or return of time. This was mentioned during the description of ways to contain the threat. When there are changes in scale, it indicates a weakness in the capacity management process. An alternative measure is risk assessment. Problems when working with proprietary tools, risks when using Excel-Spreadsheet or other software. Time and price ranges are often monitored and operate on a daily, weekly, monthly or quarterly basis. On the other hand, risk is not always subject to its individual aspects. This was discussed in two interviews. Risks are often perceived as something beyond a person's control. It is caused by a known threat and the tool is considered to be the most likely economic or project impact. Risk management can allow a professional to have a significant impact on their organization. The field of risk management is rapidly evolving, and this career offers many advantages.

5.2.4 Findings from Question-4

[Q-4 How important is the experience when working with risk management?]

A common view Point through All interviews as that risk Management should continue sometime in the project. Risk assessment often becomes a personal experience through experience.

Revealing risks in financial costs is a way to describe concerns in a way that every person of the project can understand. However, one respondent noted that while the impact of potential risk can be explained in monetary terms based on past experience and past projects, the perception of impact may differ based on the budget of the past project. It is interpreted as misleading if a measure based on a risk assessment is not provided. He also explained that past projects have affected risk perception. When one party at risk experiences greater potential exposure and risk than the other party. When the risk is quantified in simple language, such as changes in cash and budget. This can lead to a misunderstanding of the risks. Depending on the complexity of the project and identified risks, you can consult with various experts, internal or external consultants. However, one of the respondents rarely understands the costs associated with the proposed solution, so the Executive Engineers opinion is not always the best way to assess risk. If a high impact risk or risk matrix is used, the risk with the highest impact is managed first.

5.2.5 Findings from Question-5

[Q-5 How can the SupRB risk management process be improved?]

In the last question, participants are advised to risk management practices are described in different ways. The earlier interviewers are involved the risk management. Two respondents strongly believed in relevant analysis as an important part of risk management. Some say this is the most important part and should be done before starting risk management. Four interviewees expressed that the risks become Living Document. Most participants suggest that the four main stages adhere to the process of managing risks; a) Specify the risk, b)Qualitative risk assessment, c)Address the risk and d)Monitoring and risk analysis.

CHAPTER -6

CONCLUSION & RECOMMENDATION

6.1 Conclusions

Some of the endpoints of this study were that all firm respondents appeared to have a structured risk management that they could all describe in detail. Although some respondents specifically referred to the PMI risk management process (2017), these processes were similar to those provided by PMI. Although the processes are structured, some major weaknesses have been identified. Classification of risks and consequences of a risky event seem to be reduced in an area where information and reviews are found on people and are not provided in structural methods for future projects. Project must carry out the most structured and operational access to risk management. Add the risk to the weekly or monthly meeting agenda and use the risk as a separate meeting. Rather than relying on a new risk management process at the beginning of each complication, risk management should be consistent throughout the project, and each time a new risk is created, the four main processes should be applied. This must be done in separate sets, each set being evaluated separately. In addition, some risk categories that cannot be directly linked to the financial effectiveness of the project, such as environmental or safety risks and the equivalent mitigation strategies, should be common not only within the project but also within the department. Although this report does not directly address environmental risks, but instead focuses on risks as a general term, it is clear that the environmental risk management process must be actively managed. LGED may have historically used questionable materials and methods that affect the areas. Instead of conveying risk through funding, the literature review of knowledge sharing is good examples and inputs for future LGED projects.

Due to the nature of Development project design and interchangeable project teams, risk management must be a structured process in which risks can be transferred between individuals. Assessment and response strategies must be understood by the host parties, and monitoring of the consequences of risk events must be integrated with the identification, assessment and response to new risk events. An important step is to separate risk management from opportunity management and upgrade existing risk management processes to include opportunity management as an

independent activity. Not only are opportunities better valued, most risk management systems also include opportunities because current processes cannot fully exploit the positive benefits. In addition, current risk-focused practices should more accurately assess the most likely outcome and greatest impact and use the same convenient management framework. A change in risk perception has been associated with years of experience. To mitigate this change in risk perception, organizations need to implement better process controls through second- or third-party opinions on risk assessment and risk response, rather than repetitive action as a risk management process. Also, people with more experience should pay attention and be more involved in the risk identification phase. With their expertise, more risks can be identified and thus assessed, addressed and controlled. However, people's risk appetite is becoming stable with increasing experience. Requiring senior management to take a proactive rather than reactive approach to respond to the potential consequences of a risk event emphasizes greater control of outcomes. Lessons learned can also be disseminated within the organization by improving the control of outcomes and the process that leads to those outcomes. The High Government must have a direct understanding of the process of managing risks and request control problems, as well as measuring the skills and consequences and sediment strategies to reduce hungry changes.

When the impact of risk management was very close to the economy described by -surge (1961), was disgusting because it affected efficiency because it was accompanied by a known or convenient solution. As presented in the theoretical section, cost-benefit analysis is often flawed by overestimating benefits and underestimating costs. This study does not directly affect risk management processes in SupRB operating in the LGED. Instead, the results should be used to initiate discussions between organizations and departments on how to manage risk. This in turn provides a better picture of how SupRB manage risk. Everyone's participation in SupRB projects must be successfully completed, so better control and distribution of risks is the key to sustainable and successful development.

6.2 Recommendations

- A risk management manual should be used for risk management throughout the organization.
- A risk register can be used to identify, assess and mitigate risks in any project.
- Time, quality and cost are the three parameters to measure the success of a project.
- Should be analyzed how the risk is currently managed.
- Decision makers can analyzed the project team from one project team to another, analyzing how risk appetite and perception change over time.
- A risk management consultant may be interested in understanding the risk management strategies of various organizations and how they work.
- All Package approval and Tender approval related work must be Collaboration with Project Management Unit (PMU) and Project Implementation Unit (PIU).
- Finally, to assess differences in risk management processes depending on the internal management of the organization and if the risk management process is aligned with the principles of the company or if people change the way they manage risk.

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Appendix 1

Questions:

1. What are the main challenges facing the SupRB project in dealing with risks?
2. How increased risks affect strategy and operations SupRB Project?
3. Which management methods are used in SupRB Project?
4. How important is the experience when working with risk management?
5. How can the SupRB risk management process be improved?