

DEPARTMENT OF CIVIL ENGINEERING

Mid Assignment / Quiz (Spring 2020)

Submitted By **MUHAMMAD ASIF**

ID **15267**

Subject: **(RISK AND DISASTER MANAGEMENT IN
CONSTRUCTION)**

Instructor **sir Yaseen**

Dept & Semester **MS (CEM) Final semester**

Question no 1

Considering the Bus Rapid Transit (BRT) Peshawar, what were the risks involved during construction associated with the technical aspects of the project? Support your answer with logical and factual arguments along with references. State how we could counter the risks associated with the technical aspects. Hint: You can take help from book "Risk and Insurance in Construction" by Neal G. Bunni

ANS NO 1

Risks during construction associated with the technical aspects of the project

The following are points which are more suitable with the BRT Peshawar Condition from the above technical aspects.

1) Extended duration of construction

It is evident that the longer the period of construction, the greater is the probability of occurrence of the hazards to which a project is exposed. **Construction** work on the **Peshawar** metro bus project began in October 2017. A few months later, the KP government announced it would be completed in six months, followed by another announcement of its completion in one year. However, three years later, the project has yet to be completed.

2) Defective design

The BRT is when executed in October 2017 then it was from Chamkini to Hayatabad, and after sometime the design is extended to Karkhanu market and the design was changing time to time after construction is going on. The designers have lack of knowledge and they didn't take a measure of busses at the station for passing the bus and repeatedly at several stations it was constructed and again changes were made for the road and was designed according to the new design. At some curves of bridges there were less angles for the turning of busses and redesigned pillars and bridges were made.

3) Mechanical and electrical breakdown

Site operations are becoming more dependent on plant and equipment, the breakdown of which forms a major risk element. The drivers of the equipment which are using was not of that quality and was defective time to time. The machinery was old and the risk of delaying the project occurs. During excavation phase the wires of ptcl and underground wires/cables was cut off and the side electric transmission tower was changed to the sides of the road and was too difficult for the people.

4) Ground movement

Ground movement could take place from a number of causes, including landslides, frost heave, earth slips and ground pressure leading to collapse. In BRT Project during excavation for underground roads due to heavy rainfall the earth on the side of excavated area and slopes near JB Tower slips down. The soil pressed and compacted again to bring it to the required condition.

5) Dangerous substances and items during construction and /or commissioning

Dangerous substances and items during construction of Bus Rapid Transit Peshawar (BRT) is all occur due to improper planning and management of this project, as nowadays the project is near to completion stage and suddenly the blunder is noticed at different stations and flyovers that the buses can't cross smoothly near stations as well as at some points the bus not takes turn properly at curves mostly in flyovers. So the project completion is delayed due to this problem. Now once again the road sides near stations and the concrete safety walls at flyovers along the curves are trimmed to increase the width so that buses can easily drive moved.

6) Inadequate site management

The Inadequate site management is due to poor supervision and lack of knowledge for the construction work. In BRT Hayatabad building depot several time I have experienced that the work is under supervision of internee engineers, due to which they always found delay in work progress.

7) Defective temporary works

The defective temporary works are seen in BRT, when the formwork was removed from the flyover then there was seen some empty holes due to poor filling and due to poor formwork its results cracks. The remove cracks by broken down the upper layer and make cement plaster again which they repeat for several times. It can be seen on sides of flyover near Hayatabad Police Station.

8) Quality control

To control quality of material can lead the project to meet required design strength. In BRT Peshawar quality control is such that the use of reinforcement is more than concrete. This may specified in design phase but due to over reinforcement the concrete cannot insert properly.

How we could counter the risk associated with the technical aspects

The following are describe that how to counter or manage a risk associated with technical aspects.

Project risk management includes the processes concerned with the identifying, analyzing and responding to project risk.

It includes maximizing the results of positive events and minimizing the consequence of adverse events

- RISK IDENTIFICATION** - determine which risks are likely to affect the project and documenting the characteristics of each.
- RISK QUANTIFICATION** – evaluating risk and risk interaction to assess the range of possible project outcome.
- RISK RESPONSE DEVELOPMENT** – defining enhancement steps for opportunities and response to threats.
- RISK RESPONSE CONTROL** – responding to changes in risk over the course of the project.

Question No#02

Given Data;

ID# 15267 , Cost of loss= 45275000\$

Required; identify the risk level in risk matrix?

Solution:

Step#01

Annual probability of occurrence of a hazardous event= $15343/6585200$
= 0.00233

Step#02

Select likelihood category of risk from table 2.1;

$$0.01 < 0.00232$$

Which is < 0.01 ; so category is very unlikely.

Step#03

To select the category in table 2.2 for consequences categories for a risk matrix
in Monetary Amount (US \$).

From table 2.2 ;

$$45275000 > 10,000,000$$

But

$$45275000 < 100,000,000$$

So, category is (Significant loss) is right.

Step#04

To find out the risk level in risk matrix, So figure# 2.1, Put the value in figure# 2.1, so
from given value

This risk is low category

THE END

