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SEMISTER: 3rd

SUBJECT: RISK AND DISASTER MANANGMENT IN CONSTRUCTION.

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COURSE: CONSTRUCTION ENGINEERING AND MANAGEMENT.

**Question 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**

**Answer: -** Following are the risk involved during construction associated with the technical aspect of bus rapid transit Peshawar

**1) EXTEND DURATION OF CONSTRUCTION**

**2) INCREASE IN COST**

**3) DEFECTIVE DESIGN**

This three are the main risk that has seen from the start of the project up to date

**1) EXTEND DURATION OF CONSTRUCTION: -** It is evident that the longer the period of construction, the greater is the probability of occurrence of the hazardous event to which a project is exposed. However, in certain circumstances, there are different hazards which occurs at specific time during consideration if the period of construction is to be extended.

**For example:** - According to the spokesman for BRT Peshawar project, Khalid mukhtiar, said there were conflicting report about the completion of the civil work on the BRT project. However, he claimed the construction company would complete the civil work on BRT by march 16,2019. He said that the extension of the period for completion of the civil work was due to the expansion of the BRT project at several places, including an extension to bacha khan international airport and karkhano market, which were not included in the PC-1 of the project. Besides he says, flyovers were also added to the BRT project that took much time in the construction. If all these things are mentioned in the early stage of the project than the time period for the project also increases and less negative effect on public and environment.

**2) INCREASE IN COST: -** Peshawar bus rapid transit will be one of the most expensive BRT ever built – once it is completed. Lo and behold, the Peshawar BRT – at $22 million per kilometer will be the most expensive on the face of the planet. According to the Peshawar high court, the total cost for the 27.37 kms road project is estimated at Rs 66.437 billion. This translate into approximately Rs 2.427 Billion cost per kilometer which is exorbitantly high. The Peshawar high court adds, the project has grossly been miss handed and mismanaged from inception by the provincial government officials and thus three project directors have been replaced

**3) DEFECTIVE DESIGN: -** As only three weeks are to go to see the soft opening of the Peshawar; multi-billion rupees bus rapid transit the contractor has started dismantling concrete structures on both sides of the main track at reach 3 of the project due to the design fault. The concrete structure is being dismantled on two main BRT stations to widen the main track on the university road. The fences erected on both sides of the track have been removed, while the structure has been broken to widen the road. The widening of the track will further narrow the main road for general traffic

**WE COULD COUNTER THE RISKS ASSOCIATED WITH THE TECHNICAL ASPECTS: -**

To counter the above risks, proper time should have been spent on both planning and scheduling. Whereas, no time was given by the government for planning and scheduling due to which detail survey was not conducted, no proper construction drawings were developed before the contract with the contractor. The actual estimate about the project was also not known because of unskilled client about these project which later on a big issue for both the client and contractor

These can be stated as main technical risks for the project and its causes is ill planning and scheduling for the overall project.

**ANSWER NO 02: -**

**GIVEN DATA**: -

Annual probability of occurrence of a hazardous event is ID / 6585200

Event occur, then the cost of the loss will be 45,275,000 us$(Consequence)

**REQUIRED: -**

Identify the risk level in the risk matrix =?

**SOLUTION: -**

**STEP NO 01:**

To find out the annual probability Rang / Value from the statement given in question.

Annual probability value = 15565/6585200

=0.0023

**STEP NO 02: -**

Now we have to select likelihood category for risk matrix from table 2.1

The annual probability range is

0.0023 GREATER THAN 0.001 BUT LESS THAN 0.01

SO,

Our risk occurs have in category (C) VERY UNLIKELY

**STEP NO 03: -**

Now to select category in table 2.2 for the consequences categories for a

Risk matrix in monetary amount (US$)

Now to compare the cost of loss with table 2.2

**COST OF LOSS** = 45275000 GREATER THAN 10,000,000

BUT

45,275,000 ∠ 100,000,000

So consequences categories of our risk are in consequence category is No 04. (SIGNIFICANT LOSS)

**STEP NO 04: -**

To find out the risk level in risk matrix Figure 2.1 are

The final result shows us from these figure that the likelihood category and their consequences shows that the risk is in **LOW CATEGORY**