



# RISK AND DISASTER MANAGEMENT

Paper

Reg No 14325  
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## **Q NO 1.**

### **Risk**

Risks in construction occur as a result of the experience of dormant sets of conditions, which possess the potential for initiating in most cases adverse events (accidents). They are usually in a dormant state but all that is required is an activating agent to trigger the change from a dormant to an active state. To name and identify the hazards and risk in a project is therefore the first step in the process of managing it to success.

### **Construction associated with the technical aspects of the project**

#### **1. Political and/or organizational**

Political pressure to fast-track project implementation before the mid-2018 general elections undermines the quality of the project, design and implementation Political competition and rivalry build on flawed comparisons between existing BRT projects in Pakistan and the proposed project, derailing the project.

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Vested interests (existing public transport operators, shopkeepers, and others along the BRT corridor) try to undermine the project during implementation.

he delayed operationalization of the KPUMA and Trans Peshawar fails to provide necessary critical mass to implement the project and capacity building

Limited capacity and a lack of coordination and clarity regarding the roles and responsibilities of the executing and implementing agencies Pakistan's score for control of corruption, government effectiveness, and regulatory quality remains low.

Due to potential for corruption and political interference (notably with regard to appointments of the ombudsman and chairperson of the NAB), oversight institutions are not perceived to be impartial. Lack of transparency and disclosure of project activities, especially procurement

#### **2. Technical**

Longer pre construction time and delayed start of civil works due to

(a) the delayed preparation of bidding documents; and

(b) the time required for procurement Delays due to the complexity of the design and implementation in the city centre and cantonment area. Public transport users do not utilize BRT at projected levels.

#### **3. Public Financial Management**

Incomplete and in accurate financial reporting The PMU and PIUs are unfamiliar with ADB's policies and procedures, and there is a risk that expenditures incurred will not be in accordance with the applicable legal framework.

#### **4. Social and Environmental Risk**

Unemployment of existing private bus drivers and other workers. High traffic congestion leading to delays in vehicular movement (including ambulances), along with an increased risk of accidents during the construction phase of the project. Delayed land acquisition for depots, no-objections from railways, and the relocation of utilities by relevant agencies may delay civil works. The security situation deteriorates and impairs project implementation and future BRT operations. Counter the risks associated with the technical aspects. All possible advance actions have been taken to help the provincial government deliver the main bulk of civil works before the mid-2018 elections. Large consulting teams have been mobilized. A strong communication team has been.

#### **Counter the risks associated with the technical aspects:**

##### **1. Existing operators:**

Dedicated cost and consultancy support is built into the project design to facilitate bus industry transition through negotiations and capacity building to operate the BRT system. Consultations with the existing bus operators' federation were held during the PPTA to inform the operators about the project. Under the PDA, skilled negotiators have been recruited to the ODBM consulting team, who will further discuss and develop a business model to include the existing operators as much as possible in the BRT operations. The initial BRT fleet will be financed under the project and leased to private operators to reduce the need to mobilize capital and allow existing operators to participate in the bidding process. The project design also includes a fleet scraping program and compensation mechanism for non-participating existing operators.

##### **Shopkeepers' and traders' associations:**

The Government of Khyber Pakhtunkhwa, supported by the PMCCB communication team and ADB project team, engaged with traders' associations and other organizations (e.g., Lady Reading Hospital and the Cantonment Board) in the vicinity of and impacted by the BRT corridor, to present the project design, consider their concerns, and ensure buy-in and ownership, so that these groups do not oppose the project or ask to change the project design and alignment.

Parliament has already approved the legal framework establishing the KPUMA, and TransPeshawar is already licensed as a Section 42 (non-profit) public company. The government, as part of their commitment, has already approved an annual allocation for the KPUMA's operations. ADB will finance Trans Peshawar's operational expenditures for 3 years. Organograms and job descriptions for key staff for both organizations have been developed by the PMCCB consultant, who will also provide general support during staff recruitment, and build the staff's capacity. An assessment of additional capacities required by the executing and implementing agencies, including national and international consultants and incremental staff (PMU and PIUs), was included in the project scope. Consultants required by the executing and implementing agencies have been hired under the PDA and are fully mobilized. The government approved advance funding for the PMU and PIUs, and staff are currently being hired. The KPUMA's board of directors will act as the project steering committee and will guide, oversee, and coordinate among the different entities implementing the project. The PMU, supported by the PMCCB consultants, will report to the KPUMA, provide dedicated coordination support, and be responsible for overall management of the project. The roles and responsibilities of the executing and implementing agencies are outlined in the PAM.

## **2. Governance**

Federal and provincial governments have initiated reforms to strengthen governance. The Right to Information, the Ehtasab Commission (which was established in 2014 to promote accountability), and the Citizens' Right to Public Services have all been operationalized in Khyber Pakhtunkhwa. In addition, several federal-level anti-corruption watchdogs (e.g., the NAB and ombudsman) comprise provincial divisions. Khyber Pakhtunkhwa is also working on a 10-year governance program for long-term systemic reform. The initiative includes training citizens and establishing effective public grievance redress mechanisms. The project will also be ring-fenced by the institution of a mechanism to redress project-based grievances, corruption control, and the periodic review of regulatory compliance.

Several partners, including the DFID, EU, GIZ, and World Bank, are providing support for legal and judicial anti-corruption reforms. The projects will be effectively insulated from corruption risks in accordance with ADB's Anticorruption Policy by the building of compliance requirements into the financing agreements and close monitoring of their implementation

Project design and implementation arrangements have included several measures to bring more accountability and transparency to procurement. A proper system of procurement lining, tracking of various procurement actions, and complaints monitoring will be implemented. This includes support from a team Bidding documents have been prepared with the support of the PMCCB consultants hired under the PDA.

## **3. Technical**

EPCM consultants have completed 75% of the DED under the PDA, allowing advance procurement to be undertaken for most civil works contracts, which will be ready forward on or before loan effectiveness. A detailed procurement capacity assessment of both implementing agencies was conducted, and the procurement capacity required to undertake advance actions and contract management was built into the PIUs' structures. In addition, the national and international consultants hired under the PDA provide oversight. The procurement plan has been designed to reduce the number of packages without compromising competition and to reduce contract management requirements.

EPCM consultants have been hired in advance under the PDA and initial surveys for both the design and relocation of utilities have been completed. Traffic management and alternate routes have been identified, and the packaging and phasing of procurement and implementation have been synchronized accordingly. The PPTA consultants estimated demand and ridership by following a proven but simplified methodology. These estimates will be further updated and confirmed through detailed additional surveys by ODBM consultants under the PDA.

The actual ridership at system opening will depend on the final project design, and quality of the construction and operations management by Trans Peshawar Both implementing agencies will adopt the FMM developed by ADB as technical back-stopping. Regular supervision missions and training by ADB will further enhance their capacity to build and establish an effective financial management system. For Trans Peshawar, PMCCB will deploy, when fully established, accounting software for cost control based on ADB's FMM to establish a proper financial management system for the project The FMM includes a comprehensive section providing step-by-step guidance on expenditure management, defining the service standards and requisite supporting documentation for payment processing. The PMU in the KPUMA and PIUs in Trans Peshawar and the Peshawar Development Authority will adopt the FMM.

#### **4. Social and Environmental Risk**

The project design includes dedicated cost and consultancy support to facilitate the bus industry transition through capacity building to operate the BRT system. This includes training existing drivers and bus industry workers, who will be given employment preference to operate the BRT system. The BRT system is expected to generate around 4,000 jobs directly.

EPCM consultants under the PDA are currently developing a detailed and comprehensive traffic management plan that will ensure the utilization of alternative routes to minimize traffic congestion and reduce traffic and pedestrian movement along the proposed project corridor construction sites. In addition, a comprehensive set of mitigation measures to manage traffic related issues during construction is being developed and will be implemented and monitored.

Noise barriers shall be placed at different strategic locations at work sites along the project corridor to ensure that all key receptors (e.g., educational institutions, healthcare facilities, and residences) are shielded from any high noise levels generated during construction. In addition, the EIA prepared for the project outlines a comprehensive set of mitigation measures to be implemented to minimize the impacts, if any, of high noise levels. Effective pre-planning is being conducted with all concerned utility departments to minimize any possible impact(s) on different utilities in each section of the project corridor. Alternative arrangements will also be made wherever the outage of a particular utility is unavoidable. The duration of the utility outage will be minimized as such as possible. All associated possible mitigation measures, such as keeping communities informed of planned outages, will be conducted to enable them to prepare and plan in advance. Close coordination has been established with the BOR, and land transfer funds have already been approved by the government and transferred to the BOR. Work will be phased to start in sections that do not require land acquisition. A separate PC-I for the relocation of utilities has been approved, and funds are being transferred to these utilities in advance, along with location maps of the utilities to be removed. This will be closely coordinated by the Peshawar Development Authority, which has a well-established coordination mechanism in place with all major utilities to ensure timely removal. Close coordination has been established with the BOR, and land transfer funds have already been approved by the government and transferred to the BOR. Work will be phased to start in sections that do not require land acquisition. A separate PC-I for the relocation of utilities has been approved, and funds are being transferred to these utilities in advance, along with location maps of the utilities to be removed. This will be closely coordinated by the Peshawar Development Authority, which has a well-established coordination mechanism in place with all major utilities to ensure timely removal. The provincial government has committed to provide security to the project site through its Home Affairs Department and local law enforcement agencies. Bidders are instructed to include provisions for security at the camp site. The project design includes measures such as metal detectors in all BRT stations, and security agents in all BRT vehicles.

Q NO 2

**GIVEN DATA**

Annual probability of occurrence of a hazardless event = 14325

Cost of the loss is = 45275000\$ US

**REQUIRED DATA**

Identify the risk level in the risk matrix

**SOLUTION**

Risk matrix, also called heat, maps risk by defining ranges for consequences and likelihood as a two-dimensional presentation of likelihood and consequences

As we know that ,

Hazards event =  $14325/6585200 = 0.0021753$

Table 2.1

Likelihood Categories for a Risk Matrix

Category	Description	Annual Probability Range
A	Likely	$\geq 0.1$ (1 in 10)
B	Unlikely	$\geq 0.01$ (1 in 100) but $< 0.1$
C	Very unlikely	$\geq 0.001$ (1 in 1,000) but $< 0.01$
D	Doubtful	$\geq 0.0001$ (1 in 10,000) but $< 0.001$
E	Highly unlikely	$\geq 0.00001$ (1 in 100,000) but $< 0.0001$
F	Extremely unlikely	$< 0.00001$ (1 in 100,000)

From Table 2.1

We find the value in category event ,

So, the value is "C" **very unlikely**

Cost of loss is = 45275000 \$ US

Table 2.2

Example Consequence Categories for a Risk Matrix in Monetary Amounts (US\$)

Category	Description	Cost (US\$)
I	Catastrophic loss	$\geq 10,000,000,000$
II	Major loss	$\geq 1,000,000,000$ but $< 10,000,000,000$
III	Serious loss	$\geq 100,000,000$ but $< 1,000,000,000$
IV	Significant loss	$\geq 10,000,000$ but $< 100,000,000$
V	Minor loss	$\geq 1,000,000$ but $< 10,000,000$
VI	Insignificant loss	$< 1,000,000$

From table 2.2

So, the value which fall under category iv significant loss

According to given data the risk matrix found to be “**low**”

Probability category	A	L	M	M	H	H	H
	B	L	L	M	M	H	H
	C	L	L	L	M	M	H
	D	L	L	L	L	M	M
	E	L	L	L	L	L	M
	F	L	L	L	L	L	L
		VI	V	IV	III	II	I
Consequence category							

**Figure 2.1 Risk Matrix (L: Low, M: Medium, H: High)**