SFG4016

Peshawar Torkham Economic Corridor Project Environmental Management Framework (EMF) for Component II -Allied Facilities along Peshawar – Torkham Expressway

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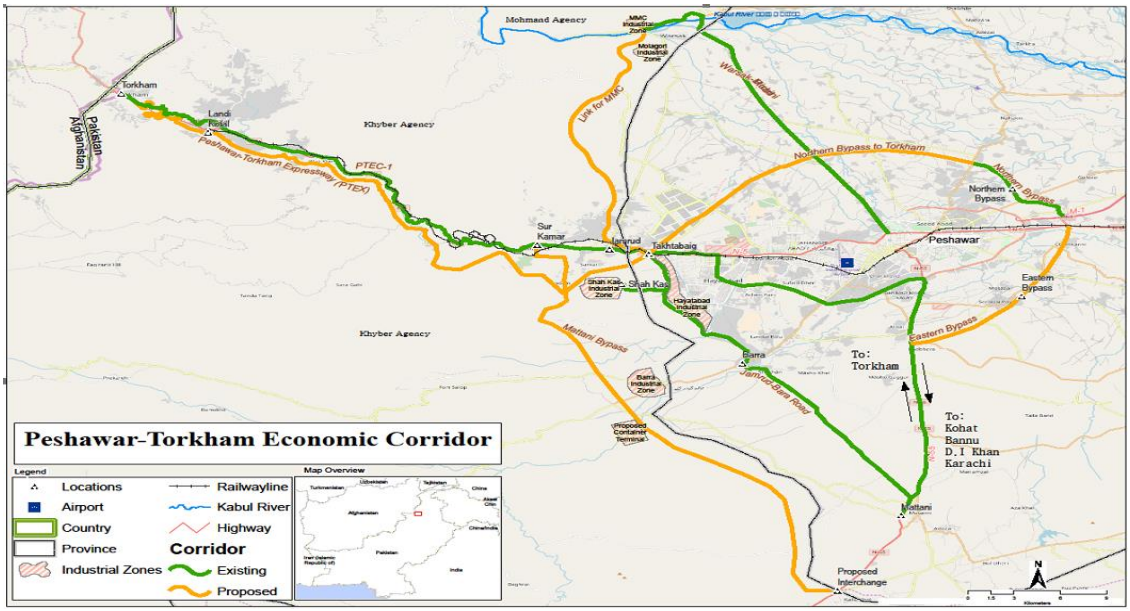
EXECUTIVE SUMMARY

The National Highways Authority (NHA) is working on three regional economic corridors for the CPEC, Western, Central and Eastern. Eastern corridor includes Peshawar-Kabul motorway, a 4-lane, access-controlled, 281 km long motorway connecting Peshawar, capital city of the Khyber Pakhtunkhwa (KPK) Province in Pakistan with Kabul, capital city of Afghanistan via Torkham (border between Pakistan and Afghanistan in KPK Province).

The proposed motorway can be termed the Gateway to Central Asian countries. This is also an ancient trade route between the Indian sub-continent and the Central Asia, formerly known as the silk route. The proposed trade corridor is between Peshawar and Torkham, the border between Pakistan and Afghanistan. This will pass through the famous Khyber Pass in Khyber Agency through some of the most underprivileged parts of the country in the Federally Administrated Tribal Areas. Administratively, the Governor of KPK is the head of FATA region.

Expressway project is proposed on the route where majority trade between Afghanistan and Pakistan is taking place and thousands upon thousands of vehicles use this route for movement of people and goods. Many people from Afghanistan also use this route for getting to better medical attention in Peshawar so this will also benefit the patients.

This Environment Management Framework is for component II of the project which is the proposed development of allied facilities along this expressway. This will focus on development of dry-port facility on the model of Sialkot for enhanced trade with Afghanistan, revival of any existing industry, rehabilitating and improving existing industrial zones, improving the connecting road network to the proposed expressway and promoting inclusive development in the shape of building training center(s) for women and providing them an enabling environment.



The overall componentII2 might include several sub-projects under a majority private investment and in some places a public-private partnership. The World Bank has strict policies in the environmental and

social sectors and compliance to all Bank policies is mandatory. The project is categorized in category 'A' for its envisaged environment and social impacts.

FATA area falls in the jurisdiction of Federal Environmental Protection Agency (EPA) also known Pak EPA. Therefore, all regulatory requirements under Pak EPA regulations on environment and emission standards are applicable to this project.

During the consultative process people expressed their support for the project. Consultations were held in both the Mohmand Agency the Khyber Agency that also falls within the reach of this component. They also had the apprehension that external labor may cause disruptions in day-to-day lives of nearby communities. They also wanted that majority jobs must be provided to locals so that they get the actual benefits of the project. They were optimistic about the success and sustainable development of this project.

An initial screening checklist has been provided in this framework for conducting environmental assessment or screening. This will help determine the scale of impacts a sub project might have and subsequently categorizing the project for A, B or C and the type of safeguard document needed for the sub project. Apart from the checklist, a detailed template to prepare environmental impact assessments and environmental management plans (ESIA and EMP) is provided with all possible impacts, mitigation, monitoring criteria and identification of implementation party. This will be applicable for all sub-projects in the project and has been developed for all possible scenarios envisaged at this stage to serve as a guideline.

This EMF and any subsequently prepared ESIA/EMP for any subproject under Component II forms part of the Request for Proposals package/ Bid Documents and its compliance is mandatory. The civil work contractor will be required to prepare a site specific ESIA/EMP for each subproject based on mitigation and monitoring measures highlighted in EMF and subsequently prepared subproject EMPs. These site specific EMPs will then be embedded into the civil works contracts, before the approval of each subproject for the WB financing, its EMP shall require Bank approval and therefore, will be legally binding on the contractor. The Site Specific EMP prepared by the contractor must be submitted to the PIU/Supervising Engineer for review and clearance within 30 days of the signing of the contract or before mobilization on site, which ever date is earlier.

This environment management framework and all the other safeguard documents such as the sub project specific ESIA and site specific ESMP will be disclosed to the local public and displayed on the FATA secretariat and World Bank websites.

Monitoring & evaluation (M&E) is an essential part of any project. Internal monitoring will be carried out internally at PIU and FATA secretariat level by the environmental specialist. An external monitoring consultant will also be hired to verify and validate the internal reports and advise the World Bank and relevant implementation authorities on the project progress with special focus on status of Bank Policies and the desired outcomes of the project overall, as well specific to each subproject. The external monitor will be analyzing quantitative and/or qualitative data, summarizing findings, developing monthly, quarterly or annual reports depending on project requirements, disseminating evaluation findings and project results to donors and other stakeholders.

Additional resources and capacity building will be required for successful implementation of this project.

Manpower and training requirements are also provided in detail as part of this framework document.

If the requirements and recommendations of the framework are implemented, the project will help pave way for socioeconomic uplift of this region, which has been in turmoil for a long time. This project will also be helpful in developing other infrastructure and facilities to bring awareness in the area about inclusive development.

1. INTRODUCTION

This document presents the Environmental Management Framework (EMF) for the component II only of the Peshawar-Torkham Economic Corridor Project has been prepared for FATA Secretariat under Economic Rehabilitation of KP and FATA (ERKF) Project. This report has been prepared to meet compliance with environmental regulations and requirements under Environmental Protection Act, 1997 and the World Bank's Safeguard policies applicable to the project.

As the sub-projects under the Component II have been finalized, framework approach has been followed under which generic impacts have been identified. This framework will help serve as a tool for identification of all potential environmental issues, not identified at this stage due to lack of final design of the proposed sub-projects to be identified and finalized later. The EMF introduces the environmental screening procedures, management principles, preparation of site specific ESMPs and monitoring that must be considered for every subproject in line with Bank policies. These arrangements will also ensure that there is a systematic process for the different stages of the implementation of a framework that assures participation of affected persons, involvement of relevant institutions and stakeholders, adherence to both World Bank and Government of Pakistan procedures and requirements. This EMF thus serves as the framework within which ESIAs/ESMPs/Checklists will be developed when the project is certain of the locations and specific impacts of the subprojects.

1.1 Components of the Proposed Projects

The Peshawar – Torkham Economic Corridor Project comprises of three components which are briefly described below. As this report deals with the environmental and social impacts of only component I, brief description is followed by detailed description of the expressway to be constructed under Component I. A separate EMF deals with the environmental aspects of Component II.

Component-I – Expressway Development: The anchor of the Peshawar – Torkham Economic Corridor is a new expressway which will provide a reliable and safe driving environment with higher travelling speeds. The existing Peshawar-Torkham road is part of the National Highway N-5 that traverses the historic Khyber Pass which has great historical significance and has been an important trade route between Central and South Asia. The 400-year old existing carriageway is a 6.0-meter-wide, two-lane facility with earthen shoulders. Improvements to the existing highway are constrained by heavy population settlements on either side, a railway line running adjacent to the road, and steep gradients and sharp curves that are difficult for large multi-axle commercial trucks to negotiate. Geometrics are inadequate to cater for the modern high speed heavy vehicular traffic. The proposed four-lane expressway will be built on a new alignment with much improved geometry and will be constructed as a dual highway facility with a 7.3-meter-wide carriageway on each side and 3.0-meter-wide treated shoulders. The Expressway will provide a reliable and safe driving environment with higher travelling speeds resulting in reductions in transit time and costs for regional and international trade goods using Peshawar-Torkham corridor. The proposed expressway is an extension of the Karachi-Lahore-Islamabad-Peshawar Trans-Pakistan Expressway System as well as part of the Peshawar-Kabul-Dushanbe Motorway.

Component-II – Economic Corridor Development: This component aims, in conjunction with other projects, to alleviate the main constraints on the development of key regional value chains – particularly marble and horticulture - in the Greater Peshawar area to maximize the benefits of the Expressway for the region. The main constraints include (listed by decreasing order of importance): insecurity (including for women workers), difficult access to markets (hard and soft infrastructure issues), land (unsecured mining rights, lack of irrigated and industrial land), utilities, skills and finance (the latter being largely a consequence of the other constraints). Component II focuses on alleviating these constraints in conjunction with other projects on-going or planned initiatives as highlighted in the table below. For instance, while access to entrepreneurial and managerial skills is addressed by the Multi-Donor Trust Fund for the Economic Rehabilitation of KP and FATA (MDTF-ERKF), technical skills in strategic sectors are not, creating a role for PTEC to provide these skills. Similarly, access to finance issues are being addressed substantially by other projects and, consequently, they are not included in PTEC Also, and at the request of the governments of KP and FATA, Component-II focuses on FATA specifically, where the needs are the greatest and where on-going and planned initiatives are relatively limited.

Component-II investments seek to facilitate improvements in the productivity of existing enterprises in FATA and encourage private investments in the area. Two target sectors are marble production, a sector in which FATA has 446 processing units (which account for 20% of Pakistan's production);1 and horticulture. Both sectors have great potential for export. For instance, although marble exports are currently limited, the mineral can fetch prices around five to ten times higher in international markets than in local markets. Fruits and vegetables, which may be further processed, already comprise a substantial share of export volume through Torkham. Further, both sectors have substantial participation by SMEs, and given their relatively high labor intensity, show great potential for employment of internally displaced people (IDPs), women, and youth. In the longer term, investments may catalyze investment in light manufacturing, a sector in which Chinese investors have already expressed interest to FDA, and the potential for which will grow with increased regional connectivity through CPEC.

While Alignment has been finalized under component I, actual activities to be financed under Component II are not clear at this stage and would be decided upon during implementation. Therefore, hybrid approach is being followed where site specific Environmental and Social Impact Assessments (ESIA) for component I and Environmental Management Framework for activities under component II have been prepared.

1.2 Safeguard Assessments and Documents

In line with the World Bank and local regulations requirements, the following safeguard documents have been prepared. This ESIA is volume two and part of the overall assessment. Table 1-1 list other volumes/documents prepared for this project.

Table 1-1: Environment and Social Management Assessment

Volume 1	Executive Summary
Volume 2	Environmental and Social Impact Assessment for Component I

Volume 3	Environmental Management Framework for Component II
Volume 4	Resettlement Action Plan for Component I
Volume 5	Resettlement Policy Framework for Component II
Volume 6	Social Management Framework for Component II

1.3 Objectives and Scope of EMF

This EMF has been prepared for the allied facilities development along the Peshawar-Torkham Expressway, the Environmental Management Framework (EMF) approach is needed to identify the potential impacts and direct implementing agencies to practical ways of avoiding or mitigating them. The main objective for the EMF is to set out the policies, principles, institutional arrangements, schedules and indicative budget for sustainable implementation of the sub-projects under Component II. These arrangements will also ensure that there is a systematic process for the different stages of the implementation of a framework that assures participation of community, involvement of relevant institutions and stakeholders and adherence to both World Bank and Government of Pakistan procedures and requirements. This EMF will serves as the framework within which sub project specific ESIA/EMPs will be developed.

EMF primarily prescribes project arrangements for the preparation, review, approval and implementation of subprojects to adequately address Bank safeguards issues and has the following objectives:

- To establish clear procedures and methodologies for the environmental and social planning, assessment, review, approval and implementation of subprojects to be financed under the Project;
- To specify appropriate roles and responsibilities of all implementing agencies and outline the necessary reporting procedures for managing and monitoring environmental and social concerns related to subprojects;
- To determine the training, capacity building and technical assistance needed to successfully implement the provisions of the EMF;
- To establish the Project funding required to implement the EMF requirements;
- To ensure disclosure of project information and undertake public consultation as well as describe grievance redress mechanism to address complaints.
- To provide practical information resources for implementing the EMF.

The scope of this EMF includes a description of how safeguards issues will be dealt with by outlining:

- Procedures for safeguard screening and assessment to determine the project category and early identification of potential environmental and social issues
- Project-specific safeguards instruments and procedures for activities that may prompt adverse environmental and/or social impacts; and
- Key responsibilities for EMF implementation
- Institutional and monitoring arrangements.

1.4 EMF Methodology

Field trips, consultations with stakeholders and locals, coupled with desk studies and online data collection was done to develop this EMF. The region under study is difficult terrain in terms of infrastructure, law & order situation and access limitations due to cultural norms. Some of the feedback and consultation had

to be done over the phone because of the lack of direct physical access to the area. Environmental baseline was collected by visiting the areas in general and getting some info from the limited secondary data available for the tribal areas.

The purpose of the site visits was to familiarize with the physical, biological and socioeconomic environment of the proposed project area and the areas in the vicinity. Critical areas with respect to environmental and social concerns were identified. A summary of the main activities undertaken during the visit have been enlisted below:

- Collected information and required data from the project area for preparation of EMF for this project.
- Information obtained regarding existing infrastructure in and around the project area.
- Requirements of necessary mitigation measures for to be integrated into the future EMPS and project development were identified.
- Limited direct consultations with the population in the area of influence envisaged at this stage of the project.

Climate data was collected from Pakistan Meteorological Department (PMD) sources and published data. The regional geology is assessed based on the various available data sources and reports. Land use info was collected by visiting the areas, and from Google Earth data and available secondary data. Forest types and the floristic data for the catchment were sourced from the published literature.

1.4.1 Study Area

The study area related to this project is comprised of the Mohmand Marble City, Shahkus industrial zone, potential truck port / dry-port near Jamrud and other areas where there are some small scale industry/potential including area near Malagori in Khyber Agency along the corridor between Peshawar and Torkham.

1.4.2 Data Limitations and Impact Prediction

As mentioned above, limited data is available and consequently, impact assessment is based mostly on projects undertaken in similar areas as well as projects having similar scope. Therefore, it is difficult to predict impacts with precision and certainty. Care was taken to incorporate possible impacts in the EMP. The mitigation measures and environmental monitoring have been worked out in the light of environmental impacts assessed with the limited information about sub-projects available at this stage. The sub-project/site specific ESIA/ESMPs will be submitted to the Bank for their approval before initiation / implementation of sub-projects.

1.5 Incorporation of Safeguards Documents in Contract Documents

Safeguard documents (ESIA/ESMP/Checklist) prepared for each sub-project under this Framework will form part of the Request for Proposals package/ Bid Documents and its compliance will be mandatory. These site specific ESIA/ESMP/Checklist will then be embedded into the civil works contracts and therefore will be legally binding on the contractor.

The contractor(s) may request adjust/amend/revise of safeguard documents (ESIA/ESMP/Checklist) prepared for each subproject to bring it line with the contractor's working plans. However, such alternations would require prior approval by the supervision consultants and the World Bank. The Site Specific ESMP must be submitted to the PIU/Supervising Engineer for review and clearance within 30 days of the signing of the contract or before mobilization on site, which ever date is earlier.

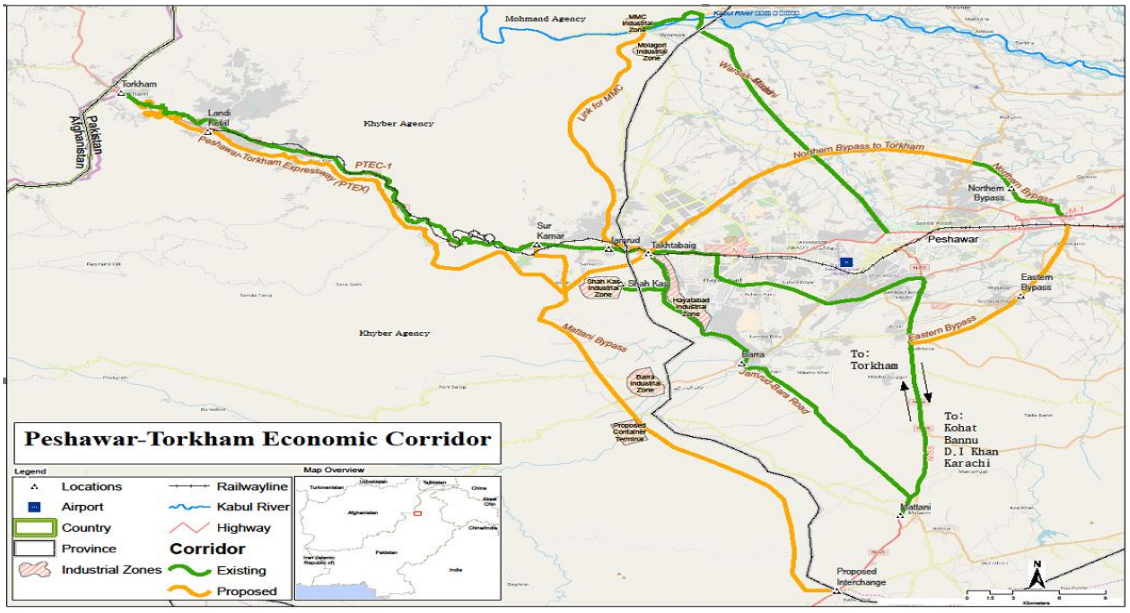
2. PROJECT DESCRIPTION

The component 2 of the project aims to facilitate the realization of agglomeration economies in Greater Peshawar and further integrate local producers into global value chains, activities will be undertaken to: (a) build a critical mass of human capital in economically strategic industries; (b) ease entrepreneurs' access to finance; (c) encourage the participation of women in economically-strategic industries; (d) reduce the costs of local, regional, and global trade by both suppliers and producers; (e) increase access of local producers to world-class supportive infrastructure; and (f) facilitate the coordination and prioritization of infrastructure development.

Activities, to be finalized in consultation with the FATA secretariat are expected to specifically consist of (a) completion of Greater Peshawar and Central FATA Economic Development Plan; (b) Vocational Training; (c) Rehabilitation of Industrial Zones; (d) Microfinance; (e) Rehabilitation and/or Upgrading of Industrial Zones in conjunction with other projects, to alleviate the main constraints on the development of key regional value chains – particularly marble and horticulture - in the Greater Peshawar area to maximize the benefits of the Expressway for the region.

2.1 Project Area

At this stage the exact details of the sub-projects are unknown, however the development along the corridor will primarily work on the revival of the existing industry and associated infrastructure. There are industrial setups in one form or the other like the Mohmand Marble City for the rich marble reserve development in the Mohmand Agency. Then there is an industrial zone of sorts in the Shahkas area in Khyber Agency near the Hayatabad industrial area, while Jamrud is the other hotspot for trade in the Khyber Agency, which can benefit from this project. The map below shows the overall all project.



This EMF is applicable only for the component 2 of the project, available details of which are provided in this section, while a detailed ESIA will be carried out separately for Component I of the main project.

The types of industry currently established in the corridor are as follows:

- Marble extraction and cutting factories
- Plastic pipes
- Plastic resin
- PVC and PPRC pipes manufacturing
- Coal mines
- Furniture and woodwork
- Handicrafts
- Distilleries

2.2 Project Components

The activities completed under Component-II will be finalized at the beginning of project implementation. Some of the major projects envisaged at this stage under this component are described as follows:

2.2.1 National Single Window (US$ 20.0 million)

The Time Release Study conducted in 2016 at the Torkham border shows that issues on the Pakistani side of the border result in long delays for trucks coming into Pakistan (more than 34 hours on average) as well as for trucks going into Afghanistan (more than 12 hours on average). The project will finance activities to support the modernization of the custom processes through the establishment of a National Single Window (NSW). This will go a long way in improving the time lag at the border check post and helping with quick completion of different formalities along with reducing the traffic jam at Torkham. Since many people visit Peshawar on daily basis for their business, availing medical facilities and education etc., this will be beneficial to them as well.

2.2.2 Strategic Technical Assistance (US$ 6.0 million)

This activity will focus on three major areas: (i) preparation of an integrated Greater Peshawar Economic Development Plan, covering relevant agencies of KP and FATA, that maps existing, on-going, and planned soft and hard infrastructure, identifies constraints to economic development and poverty alleviation in the area, and offers proposals for policy reform and public investments to address these factors; (ii) reinforcement of key institutions relevant to the economic development of Greater Peshawar and (iii) design and implementation of reforms of the business environment in FATA – in particular securing the mining property rights to promote investments and higher mining yields.

2.2.3 Secondary Transport Infrastructure (US$ 20.0 million)

This activity will support the development and rehabilitation of secondary roads connecting communities and industrial zones in FATA to the Peshawar – Torkham Expressway. This activity may also support the development for instance truck terminals, modern warehousing facilities and display centers at the junction of the Expressway and the Indus Highway (N-55) which connects the Expressway to the port in Karachi.

2.2.4 Upgrading of Industrial Zones (US$ 20.0 million)

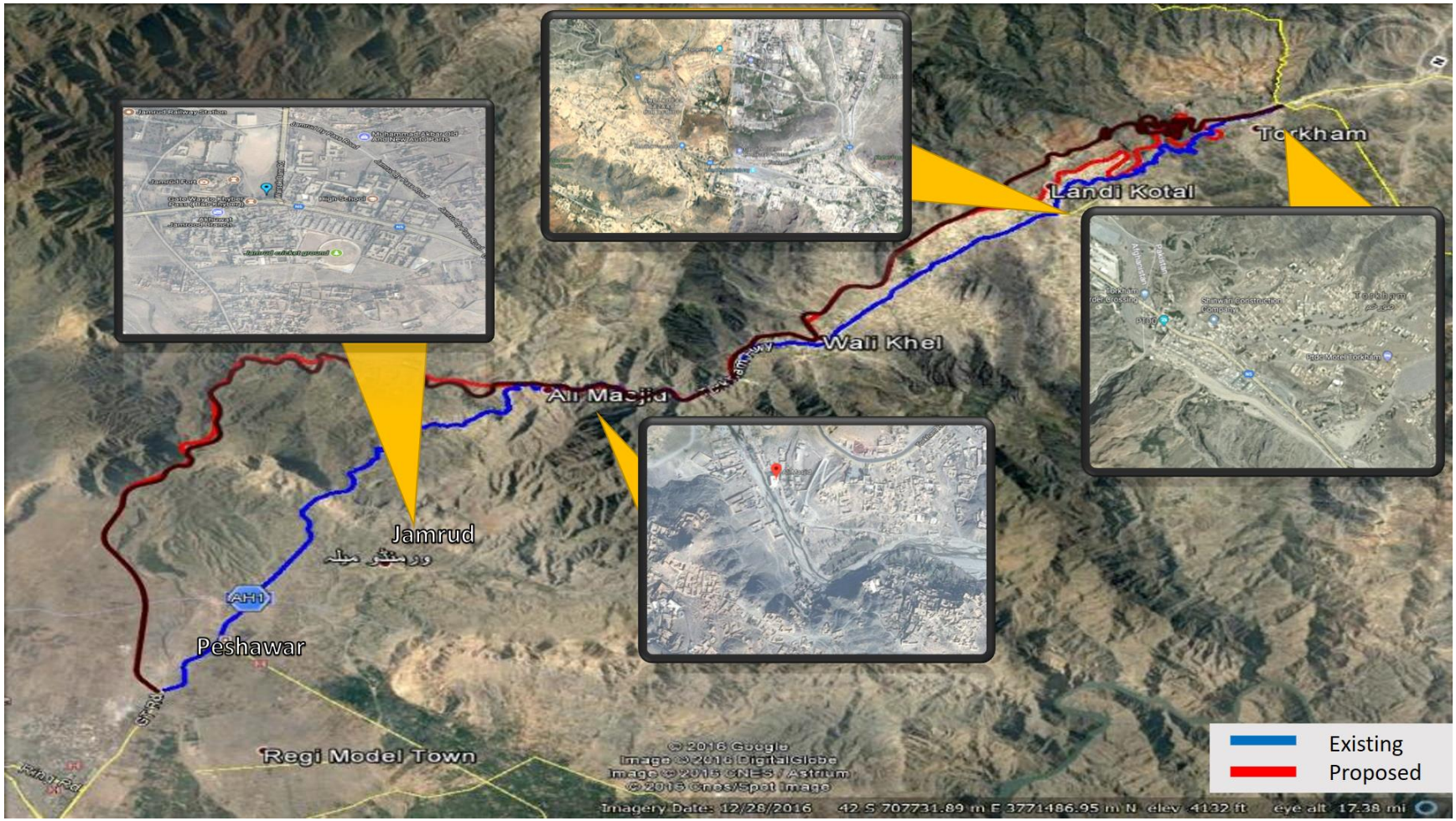
This proposed activity will support infrastructure investments in industrial zones in FATA including Mohmand Marble City (MMC), Shahkus and Mulagori. The nature of investments to be supported will be

decided based on independent feasibility assessments inclusive of all stakeholders, and the Greater Peshawar Economic Development Plan. They are expected to include Combined Effluent Treatment Plants (CETPs), plug-and-play industrial buildings for SMEs, training centers (the planned Common Facility Training Center at MMC is a prime candidate) and facilities to promote female employment (i.e. day care centers, safe transportation and housing). The activities will be undertaken by private-sector firms, after completing the competitive bidding requirements, which will be expected to finance some part of the development cost, with the exact amount to be determined through the competitive process in which the financial contribution from the private sector firm will be a key selection criterion.

2.2.5 Skills Development (US$ 5.0 million):

This sub-component will complement the training centers in the industrial zones supported by the previous subcomponent. It will focus on helping FDA upgrade and increase capacity of its Women Development Centers aimed at providing the women of FATA with the skills so that they can develop the skills necessary to earn a good living and be less reliant on others for their livelihood . These training facilities will be available in priority to the women affected by the construction of the Expressway. Its success hinges on setting up a robust monitoring & evaluation mechanism.

Major Towns along the Existing and Proposed Alignment of the Peshawar Torkham Expressway



3. ENVIRONMENTAL AND SOCIAL MANAGEMENT REQUIREMENTS

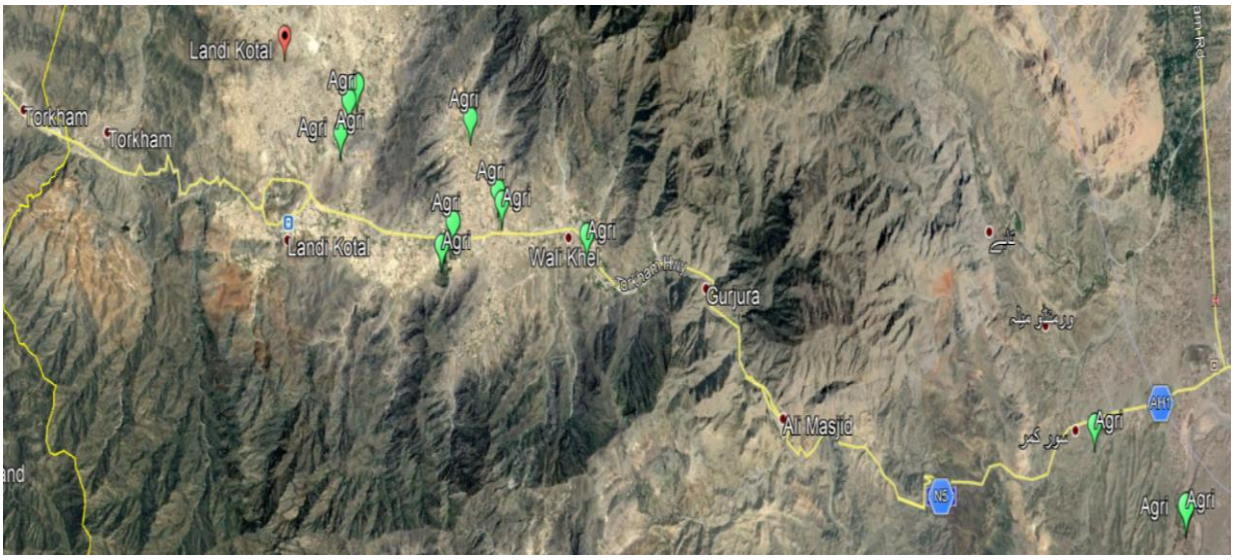
3.1 Environmental and Social Baseline

This component has been classified as environmental category **A** project. A brief description of the general environment of the project area is provided below. The baseline only covers environmental aspects. Social aspects are covered under Resettlement Policy Framework and Social Management Framework for Component II. However, indirect social impacts are covered under the environmental management matrix of this framework. Primarily and detailed baselines will be developed as part of the sub-project specific safeguard document (ESIAs/ESMPs/Checklists) requirement.

3.1.1 Geography

Project area is predominantly high to low mountain and plain terrain. The hills in this region form a transition zone between the Hindukush Mountains, and the Piedmont and lowland basins. The area is prevailingly hilly, with rugged barren mountainous terrain, including narrow strips of bottom valleys and sub valleys. Descending from the hills and adjacent to the *Khwar* (stream) bed is a series of very productive agricultural areas. Most portions are surrounded by hills, which are steep on the northern and western sides. The main Torkham *Khwar* and its tributaries have steep slopes (and carry high sediment loads). These areas receive a fair amount of water through gravity channels, especially in rainy seasons, and are being used for patches of agriculture along the *Khwar* beds. The water catchment area of the rain-fed streams has been observed and classified as mountainous.

General Topography And Agricultural Areas along the Peshawar – Torkham Expressway



The terrain is marked with mountains having limestone as their major component, while sandstone, siltstone, and slate are also present in small amounts. The slate, limestone, and gravel are suitable for construction material and are available in the area, although their extraction entails high risks of landslides. The various patches from Peshawar to Torkham contain soils that are medium to moderately fine in texture. The topsoil is generally very thin silt. The sporadic rain on the mountains carries down quite fertile soil that spreads in the *Khwar* beds and valleys. The soil is generally hard, brittle, and rocky (with

slate). The predominant rock consists of slate and limestone.

3.1.2 Geology and Seismology

Typical rocks of the FATA region are of the mélange zone and there is a variety of alteration zones. Various types of sedimentary, igneous and different grades of metamorphic rocks ranging in age from Pre-Cambrian to Paleocene are found in this region.

The area is characterized by seismic activity. Mild tremors from the northwest Hindu Kush range have been felt at various locations and times in the past. The main seismic feature is the Main Mantle Thrust, which separates the Kohistan area to the north from the Indian Plate in the south. Earthquake epicenters are concentrated along this fault line. Occasional minor tremors are common in NWFP. However, the seismic map of Pakistan suggests that the Torkham area is located in an area with minor seismic activity and its probability of experiencing a high intensity earthquake is low.

3.1.3 Water Resources

Springs, streams, rivers and perennial watercourses serve as the primary source of water for drinking and domestic use. In mountainous areas, where natural surface and ground sources are not available, people rely on rain-water ponds. In the plains where surface water is scarce, shallow wells allow the people to meet their basic requirements. Warsak dam and River Kabul along with some seasonal and perennial streams are the main sources in the general project area.

The Torkham basin has a mountainous terrain and the Peshawar–Torkham area can be divided into two major geographical divisions: (i) the rugged mountainous regions on the north and west, with one end touching the Afghan border, and (ii) the comparatively narrow strip of valleys along the *Khwar* bed. Descending from the hills and adjacent to the *Khwar* bed is a series of very productive agricultural areas. Most parts are surrounded by hills, steep on the northern and western sides. The main Torkham *Khwar* and its tributaries have steep slopes (and carry high sediment loads). These areas receive a fair amount of water through gravity channels, especially in rainy seasons, used for patches of agriculture along the *Khwar* beds. The water catchment area of the rain-fed streams is classified as mountainous.

There is no water storage facility in the Khyber Agency or its vicinity, so most of the water is received either from rainfall or melted snow through non-perennial *Khwars*, (*khwars*, streams, and seasonal outlets) that pass on to the downstream areas of the province and country. The melted snow and (at high altitude) rain are available only for a few months of the year, and therefore the water resource is very limited.

Groundwater can be found at depths of 10–300 m below the surface, and deeper, depending on a number of parameters, the most important being the lateral distance from any *Khwar* or water body. Extraction of groundwater requires heavy-duty electrically or diesel powered pumps. Due to insufficient availability of groundwater, people do use surface water for domestic and commercial purposes.

The Khyber Agency is mountainous without any well-developed alluvial plain. According to the available information, approximately 20 test-and tube wells have been drilled in different valleys. The lithological

data on two boreholes in the Jamrud – LandiKotal area indicate an ill-sorted mixture of clay and gravels, probably with low transmissivity values. The depth to water level is quite large (more than 30 m). If these boreholes are representative of the whole area, then the groundwater development is not viable (Kruseman and Naqvi, 1988).

The depletion of forest resources has reduced the water retention capacity of the soil, while ecological and climatic conditions have led to the low recharge of groundwater sources. As a result, many springs, streams and perennial watercourses have dried up in the recent past, forcing people to turn to deep groundwater sources.

As part of the ESIA for Component I some water quality analysis was conducted which are included in the EMF for reference and guidance.

Google Image Showing Distribution of Major Surface Water Channels along the Peshawar – Torkham Expressway

Surface Water: Analysis results of surface water samples of three respective sampling points shows that the surface water available at Torkham have relatively higher quantities of Total Dissolved Solids (TDS), Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Chlorides, Sulphate, and Iron. While the value of Total Suspended Solids was below the detectable limit at Torkam, as compared to the 11 mg/l and 9 mg/l at Ali Masjid and LandiKotal respectively.

Ground Water: Inter comparison of analysis results of groundwater samples of three respective sampling points shows that the groundwater available at Torkham expresses relatively higher quantities of Ca and Mg salts in terms of water hardness. Value for total dissolved solids was found relatively higher in water samples of Ali Masjid. While at LandiKotal values of chloride and nitrate were found relatively higher but none of the values were found exceeding the WHO Guideline limits for drinking water. Total coliforms were found in all of three samples, while fecal coliforms contamination was also detected in samples of Ali Masjid and Torkham. This microbial adulteration makes this water unhealthy for human consumption and this requires that the fecal contamination of groundwater tables need to be repeatedly investigated.

Wastewater: Analysis results of wastewater samples of three respective sampling points shows that the wastewater sample of Michni Post has relatively higher quantities of Total Dissolved Solids (TDS), Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Phenolic Compounds and Chlorides. At Torkham, values of Total Suspended Solids (TSS), Detergents, Ammonia, and Iron were found relatively higher. While at Ali Masjid Sulphate contents were found relatively higher. Overall all of the considered parameters lie within the NEQS limits except Phenolic Compounds i.e. 0.1 mg/l.

Agricultural cultivation and social forestry are found in isolated pockets where spring, surface, or groundwater is available. No detailed data is available on the quantity or quality of surface and/or groundwater along the project corridor.

3.1.4 Climate

Project area is normally dry and semi-dry, with warm summers and cool winters. According to climatological data, the area receives more winter precipitation as a result of western disturbances and some rain in the summer from the monsoon. No meteorological station exists in the subproject area. As the region is extremely mountainous, there are considerable variations in local temperatures. Maximum temperatures range from 15–20 ^{o}C in winter to 40 ^{o}C in summer. The monsoon rains usually start in June, peak in August, and end by September. Occasional heavy showers can take place during other months. The bulk of the rainfall usually comes between July and September. October and November are the driest months. Average rainfall in the project area for the years 2001/2002, 2000/2001, and 1999/2000, respectively was, 6.92, 9.58, and 18.58 mm.

3.1.5 Noise Level

There were no permanent sources of noise recorded in the area except traffic noise. The noise levels were under the prescribed limits under National Environmental Quality Standards (NEQS) set by Pakistan's Environmental Protection Agency (EPA). Major sources of noise in the area is the road traffic, including heavy vehicular traffic, noise emissions from the industrial setups scattered around the project area in Mohmand Marble city, Shahkus, Mulagori and Jamrud industrial area. Along with these other sound source is the localized stone crusher industry which are constant source of noise with their continual operation and are a nuisance for the labor working there and also for any settlement around 500-1000m of these units.

3.1.6 Ambient Air Quality

According to findings of baseline investigations carried out specifically for this project, there is no major population settlement or industrial activity in the area, air pollution is mainly due to vehicle emissions along the road corridor. The baseline studies conducted in the past have shown that the main air quality issue is the high level of particulate matter (PM_{10}) and noise levels, while levels for nitrogen and sulfur oxides and carbon monoxide were within the National Environmental Quality Standards (NEQS) set by Pakistan's Environmental Protection Agency (EPA). To a certain extent, the high level of particulate matter is a natural consequence of the dry atmosphere, lack of vegetation cover, and winds. Nevertheless, this condition is exacerbated by such human activities as vehicles driving on unpaved shoulders or poorly maintained roads. Moreover, many trucks, buses, and passenger vehicles are diesel fueled and poorly maintained. Some use a fuel that is a mixture of kerosene and diesel which results in both a cheaper fuel mix and in exhaust smoke that is high in PM_{10}.

The only mobile source of air pollutants is N-5. As part of the study, ambient air quality monitoring was carried out during the ESIA field visits, as the part of the supplement study. Ambient air quality monitoring was carried out to observe the present condition of the project area. The recent monitoring was carried out within the premises of project site in order to find the present concentration values of SO_2, NOx, CO, and PM_{10}.

Ambient air quality was measured with monitoring devices that have the capability to capture and analyze criteria airborne pollutants including CO, NOx, and SO_2 at micro levels. These testing and analysis were done as part of the ESIA for Peshawar-Torkham Expressway Section – Component I, being reproduced here as representative for the potential area of impact of the Component –II as well being in the same general area.

NEQS for air quality standards have been introduced in Pakistan since 2010. Therefore, the monitoring values of Carbon monoxide (CO), Sulphur dioxide (SO_2), Nitrogen oxide (NO), Nitrogen dioxide (NO_2), Oxides of Nitrogen (NOx) and Particulate Matter (PM_{10} & $PM_{2.5}$) were compared with standards set by NEQS.

(CO): 24 hours Air monitoring of CO was done at all of three selected points. Results report that the maximum concentration of CO was observed at Landi Kotal i.e. 0.55mg/m^3 and it lies within the prescribed limit of NEQS, 2010 i.e. 5.0mg/m^3. Results for CO at all three monitoring points are shown in the figure below.

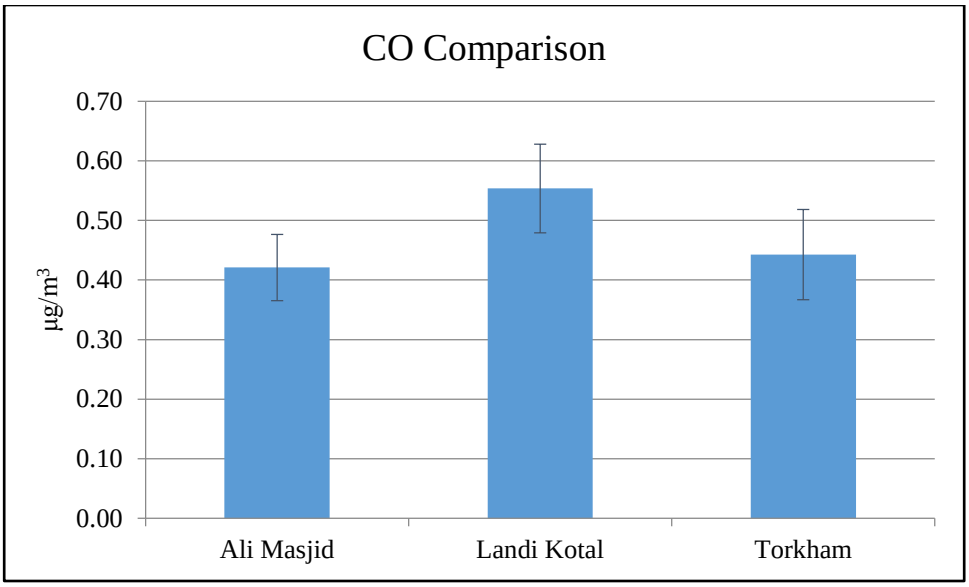


Figure 3-1: Comparison of CO at three respective monitoring points

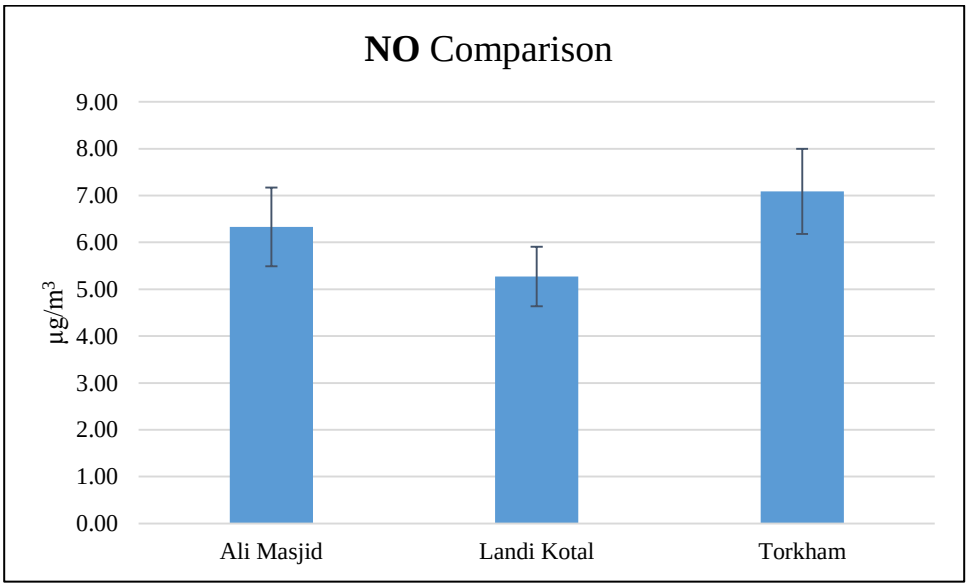


Figure 3-2: Comparison of NO at three respective monitoring points

NO: 24 hours Air monitoring of NO was done at all of three selected points. Results report that the maximum concentration of NO was observed at Torkham i.e. 7.09 µg/m^3 and it lies within the prescribed limit of NEQS, 2010 i.e. 40.0 µg/m^3. Results for NO at all three monitoring points are shown in the figure above.

NO_2:24 hours Air monitoring of NO_2 was done at all of three selected points. Results report that the maximum concentration of NO_2 was observed at Torkham i.e. 12.14 µg/m^3 and it lies within the prescribed limit of NEQS, 2010 i.e. 80.0 µg/m^3. Results for NO_2 at all three monitoring points are shown in the figure below.

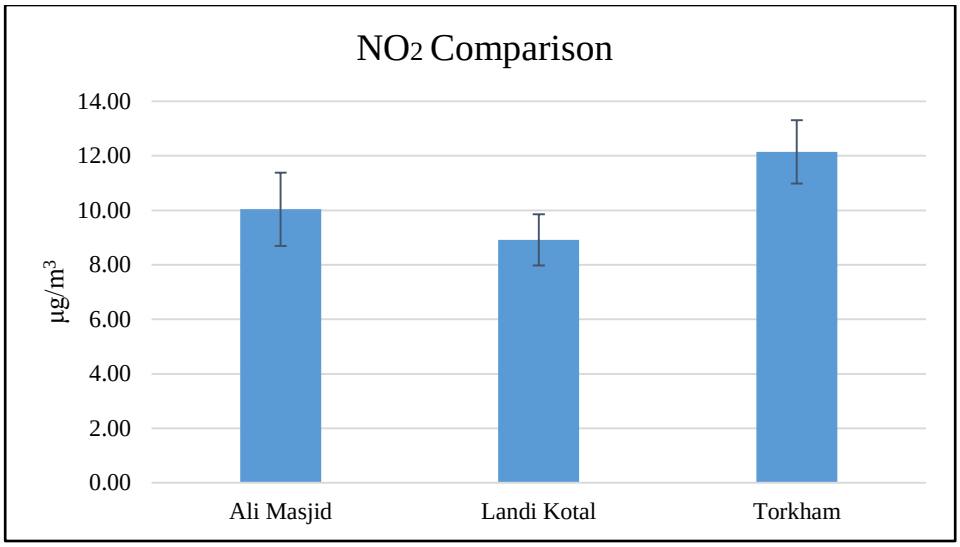


Figure 3-3: Comparison of NO_2 at three respective monitoring points

NOx: 24 hours Air monitoring of NOx was done at all of three selected points. Results report that the maximum concentration of NOx was observed at Torkham i.e. 19.23 µg/m^3 and it lies within the prescribed limit of NEQS, 2010 i.e. 120.0 µg/m^3. Results for NOx at all three monitoring points are shown in the figure below.

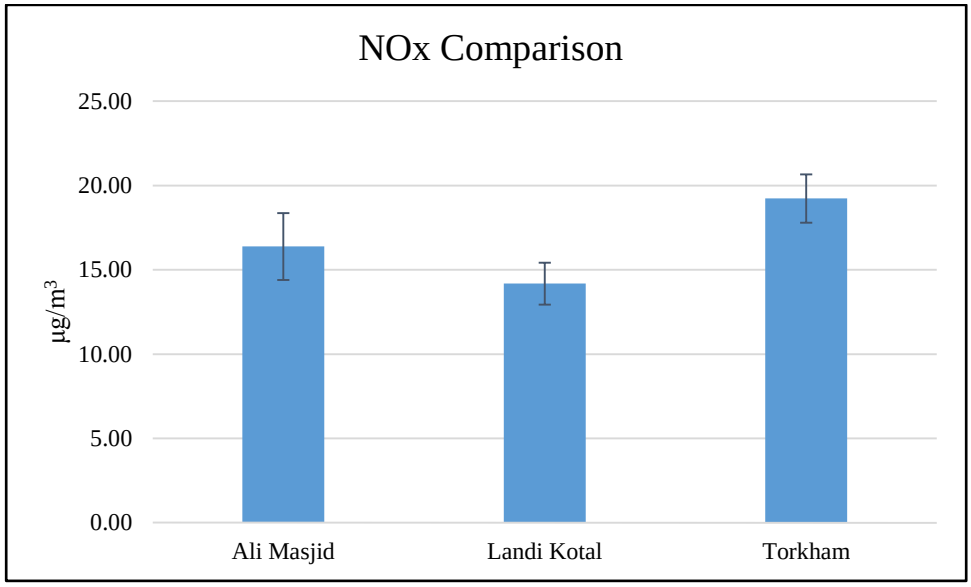


Figure 3-4: Comparison of NO_x at three respective monitoring points

SO2: 24 hours Air monitoring of SO_2 was done at all of three selected points. Results report that the maximum concentration of SO_2 was observed at Landi Kotal i.e. 8.77 µg/m^3 and it lies within the prescribed limit of NEQS, 2010 i.e. 120.0 µg/m^3. Results for SO_2 at all three monitoring points are shown in the figure below.

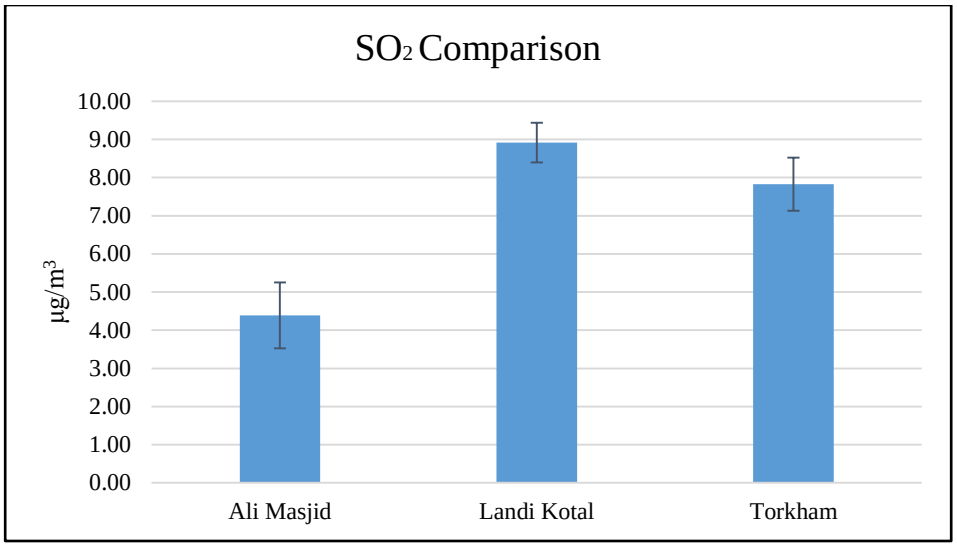


Figure 3-5: Comparison of SO_2 at three respective monitoring points

Overall Air monitoring indicates that average 24 hour concentrations of CO, NO, NO_2,NO_X and SO_2 were found below the permissible limits regulated by NEQS, 2010 for ambient air; whereas, the highest value for Particulate Matter PM_{10} and $PM_{2.5}$ was recorded 136.2 µg/m^3 reported at Torkham and 16.20 µg/m^3 reported at Landi Kotal. The results from three respective locations were found complying with the NEQS which sets the limit of 150.0 µg/m^3 and 35.0 µg/m^3 during 24 hours of measurement. Results for PM_{10} and $PM_{2.5}$ at all three monitoring points are shown in the figure below.

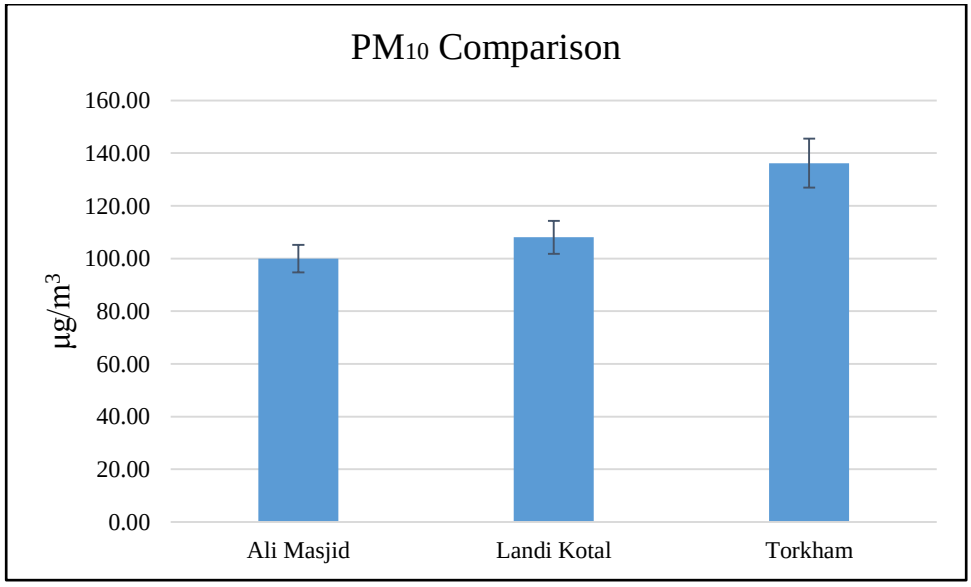


Figure 3-6: Comparison of PM_{10} at three respective monitoring points

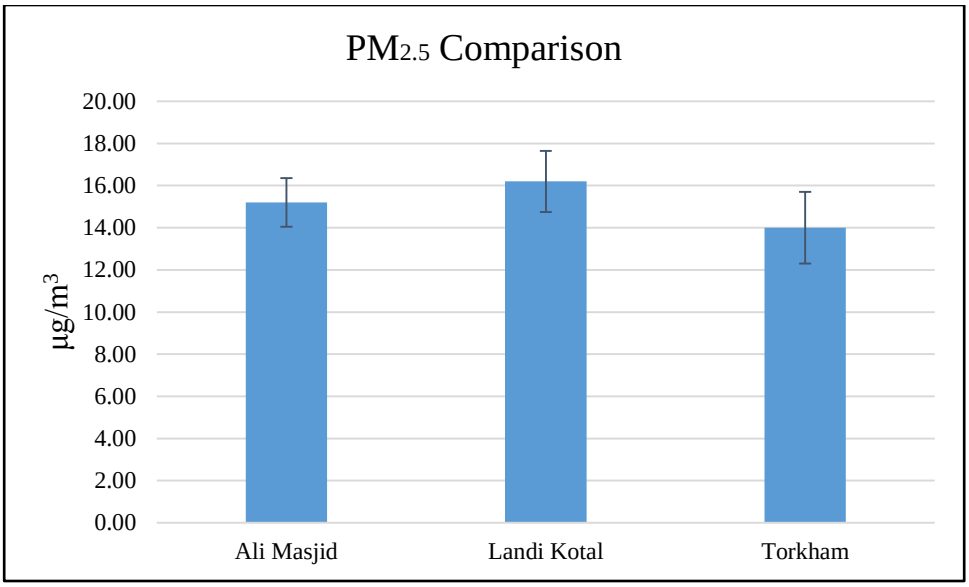


Figure 3-7: Comparison of $PM_{2.5}$ at three respective monitoring points

The meteorological conditions were also monitored with the help of meteorological station installed for 24 hours to assess the trend of air movements.

3.1.7 Ecological and Biological resources

Flora: In general, the areas traversed by the project corridor are poorly vegetated and/or forested with quite minimal biological species. The project area is mainly located in arid environment. The series of mountains along the corridor has very little vegetative cover, due to a shortage of water and limited rainfall. Scattered plantations can be seen in patches due to increased rains, and vast rangelands provide brushy growth for grazing.

Forests in Khyber Pakhtunkhwa and especially in Khyber Agency are meager and are being depleted due to limited water supply, population pressures, illicit cutting, and overgrazing. The area is generally overgrazed and with a degraded vegetation of few trees and bushes, such as *Acacia* modesta and *Olea* cuspidate, and shrubs like *Dodonea* viscose and *Monotheca* buxifola. Degraded shrub vegetation is typically *Reptonia* buxiflia, *Olea* cuspidate, *Pistacia* integerrima, Nannorhops itchieananda, Bromus spp, Palosa (*Acacia* modesta), Sanatha (*Dadonia* viscosa) and Ber (*Zazyphus* jajuba). Eucalyptus species and Mesquite (*Prosopis* juliflora) have also been found in Khwar valley beds. These are non-palatable for cattle but have become a good source of wood for fuel.

The project area does not have any forest or game reserve, wildlife sanctuary, or any protected area. No endangered species have been reported.

Fauna: No comprehensive survey has ever been conducted in the territories by any line department. For the purpose of this study, a primary survey was conducted to ascertain the distribution of species, and to

In consultation with local residents, and wildlife department, Peshawar, the following animals have potential to be in the area

Mammals:

- *Canis* aureus
- *Vulpes* vulpes

- *Sus* scrofa
- *Rattus* argentiventer
- *Lepus* species
- *Erethizon* dorsatum
- Erinaceinae
- *Felis* silvestris
- *Herpestes* edwardsii
- *Vormela* peregusna
- *Pipistrellus* coromandra
- Asiatic White-toothed Shrew
- *Suncus* etruscus
- *Lepus* nigricollis
- *Funambulus* pennantii

Reptiles

- *Naja* naja
- *Ptyas* mucosa
- *Hemidactylus* frenatus

Amphibians

- *Bufo* bufo

Birds

- *Columba* livia
- *Columba* palumbus
- *Accipiter* badius
- *Tyto* alba
- *Dendrocopos* himalayensis
- *Corvus* corone
- *Corvus* splendens
- *Passer* domesticus
- *Anthus* trivialis
- *Mirafra* cantillans
- *Prinia* inornata
- *Coturnix* coturnix

No endangered species of conservation importance or listed on the IUCN Red list is reported / expected from this area.

3.1.8 Protected Areas

There are no protected areas, along the project, and in the FATA regions as per list of protected area defined in National Conservation Strategy.

3.1.9 Endangered Species

The project area does not have any endangered, threatened, or vulnerable species

3.1.10 Physical Cultural Heritage

Khyber Agency derives its name from the famous Khyber Pass, which has served as a historical trade route, connecting the Asian sub-continent with the rest of Central Asia, via Afghanistan. There are many artifacts, buildings, and historical sites in the province representing the Buddhist, Muslim, and British eras. These include such things as check posts and forts.

The graveyards of Turangzai Baba, Naaqi Kandao, Zareef Kooroona are important site of cultural and archaeological importance in the area. Local communities take the issues related to the graveyards of their ancestors and loved ones seriously, therefore, any planned intervention near these and other graveyards must be handled accordingly.

There are only a few sites in the vicinity, including the Buddhist remains in the Khyber Pass, a castle close to the border at Torkham, a historical underground hospital built by British authorities, and the archaeological site at Rehman Dheri. A partially collapsed Buddhist stupa is located in the Rehmat Killi area adjacent to the existing road and separated by the railroad track. This important archeological site is representative of the significance of this ancient trade route.

There are no protected historically proven sensitive sites within the project area. However if any sensitive site is discovered during project implementation appropriate measures will be undertaken as per the environmental checklist provided as part of this document and relevant WB policies. ,

3.1.11 Socio-Economic Environment and Background

Social aspects like demographics, religion, ethnicity, culture, land tenure, socio-economic profile, etc. are covered under Resettlement Policy Framework and Social Management Framework for Component II. However, indirect social impacts are covered under the environmental management matrix of this framework. Some basic background of the area is proceeding paragraphs.

Khyber Agency is the most famous agency amongst seven others in the Federally Administered Tribal Areas (FATA). Because of its geographical location, the agency has a history dating back thousands of years. The Khyber Pass has been used by the Aryans in 1600 B.C., the Persians in 600 B.C., Alexander in 326 B.C. and subsequently, by Changez Khan, Taimurlang, the Mehmood of Ghazni and the Mughals.

FATA has a unique governance status, whereby most land is owned by the local community while there is some portion of Government owned land as well. Any physical activity hence carried out needs the agreement of the locals, as well as land donation by them. Decisions are taken by Jirga and the tribal administration.

Tribal people are accustomed to managing their own resources and solving disputes without outside intervention. They act collectively to assist others in the group and help fulfill social obligations. Marriages and deaths, for example, draw support from all members of the tribe, as do everyday activities such as harvesting and threshing, laying and clearing irrigation channels, carrying out flood protection, maintaining paths, cutting grass, and constructing hujras (meeting places), mosques or other buildings.

Kinship provides the basic regulating mechanism for social action. Each person relates to others based on

modalities determined by the degree of blood proximity to common ancestors. Based on this principle those related through paternal kin should stand together against those who are not relatives. When two related individual enter into conflict (a case not rare among cousins) their kin will split to support the one with whom they have closer ties.

This logic is supported by the deep value attached to notions of male honor, by the principle of ethical superiority of the elders, and by an unwritten behavioral code called *Pukhtunwali*. This code defines the way tribal people should behave to keep the tribe together. The term combines the principles of revenge (*Badal*), hospitality to guests (*melmastia*), help to persons who seek refuge (nanawattee) capital punishment of adulterers (tor) and protection of one's honor (*ghayrat*), truce (*tiga*), equality (*nikat*), self-respect (*peghur*), collective decision (*sarrishta*) and cousin rivalry (*tarboorwali*). An individual is under obligation to defend the honor of his/her homeland, social values and other material possessions as no other system extends protection to them. Whenever a tribesman comes into conflict, he acts according to the demands of the Code because it is the reference for him to define himself and his culture and it is by adherence to *Pukhtunwali* that makes his claim to a place of dignity among his peers.

In traditional times power among the tribes was primarily organized along the segmentary logic above described, was held by notable elders (Malik) and was manifested in their legitimacy as arbitrators and decision-makers. Given the relative nature of kinship relations this meant that no elder could be a superior arbitrator than others solely based on kinship. For this to happen, it was necessary that an influential elder could influence its recognition with personal attributes. Such attributes included charisma, reputation as arbitrators, wealth, capacity to keep together large numbers of followers, ability to manipulate Islamic and genealogical knowledge, and last, but not least, in later times capacity to manipulate colonial and state powers.

The Maliks are exercising their functions as mediators as members of special tribal councils called Jirga which are organized every time there is a major conflict to settle or a major decision to take.

3.1.12 Gender Issues

Gender related issues are also covered under Resettlement Policy Framework and Social Management Framework for Component II.

4. APPLICABLE LEGAL / REGULATORY REQUIREMENTS

This section deals with the current environmental policy as well as legal and administrative framework required and relevant provisions of Environmental Policies laid out by the Government of Pakistan, along with applicable World Bank Safeguards have been duly discussed and the Project Proponent will be required to adhere to these regulations throughout the course of the project. Upon a careful perusal of these legal frameworks the project has been categorized under **Category - A** of World Bank O.P 4.01 'Environmental Assessment'.

4.1 OP / BP 4.01 Environmental Assessment

The WB requires environmental assessment (EA) of projects proposed for their financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision-making. The borrower is responsible for carrying out the EA. For Category A projects, the borrower retains independent EA experts not affiliated with the project to carry out the EA. For projects involving the preparation and implementation of annual investment plans or subprojects, identified and developed over the course of the project period during the preparation of each proposed subproject, the project coordinating entity or implementing institution carries out appropriate EA according to country requirements and the requirements of this policy.

4.2 OP / BP 4.11 Physical Cultural Resources

Physical cultural resources may not be known or visible; therefore, it is important that a project's potential impacts on physical cultural resources be considered at the earliest possible stage of the project planning cycle. For projects in which the physical cultural resources management plan incorporates provisions for safeguarding physical cultural resources, supervision teams include relevant expertise to review the implementation of such provisions.

4.3 OP / BP 4.12 Involuntary Resettlement

Some subprojects may require land acquisition and in the process negatively impact certain households, groups or individuals. Subprojects need to be screened during preparation stage for likelihood of land acquisition and its subsequent impacts in terms of loss of shelter, loss of assets or access to assets, and loss of livelihood.

Involuntary taking of land or any form of economic displacement must be avoided where feasible or minimized by exploring all alternative subproject designs.

Copies of aforementioned safeguard policies are attached as appendices with this EMF for reference of all parties involved in implementation of this framework.

Apart from the applicable WB policies local regulations applicable on this project are briefly described below.

4.4 National Policy and Legal Framework

The Pakistan's National Conservation Strategy (NCS) that was approved by the federal cabinet in March 1992 is the principal policy document on environmental issues in the country (EUAD/IUCN, 1992). The NCS outlines the country's primary approach towards encouraging sustainable development, conserving natural resources, and improving efficiency in the use and management of resources. The NCS has 68 specific programs in 14 core areas in which policy intervention is considered crucial for the preservation

of Pakistan's natural and physical environment. The core areas, that are relevant in the context of the proposed sub-project, are pollution prevention and abatement and increasing energy efficiency while conserving biodiversity.

4.4.1 Pakistan Environmental Protection act (PEPA) 1997

Basic legislative tool empowering the Government of Pakistan to frame and enforce regulations for the protection of environment. The PEPA 1997 is broadly applicable to air, water, soil, marine and noise pollution, and handling of hazardous wastes. Penalties have been prescribed for those contravening provisions of the Act. Under section 12 of the PEPA 1997, no project involving construction activities or any change in the physical environment can be undertaken unless an IEE or EIA is conducted and a report submitted to the federal or provincial EPA.

Prior to the adoption of the 18th Constitutional Amendment, the Pakistan Environmental Protection Act (PEPA) 1997 was the governing law for environmental conservation in the country. Under PEPA 1997, the Pakistan Environmental Protection Council (PEPC) and Pak Environmental Protection Agency (EPA) were primarily responsible for administering PEPA 1997. After the adoption of the 18th Constitutional Amendment in 2011, the subject of environment was devolved and the provinces have been empowered for environmental protection and conservation.

4.4.2 Regulations for Environmental Assessment, Pakistan EPA

The Regulation classifies projects on the basis of expected degree of adverse environmental impacts and lists them in two separate schedules. Schedule I lists projects that may not have significant environmental impacts and therefore require an IEE. Schedule II lists projects of potentially significant environmental impacts requiring preparation of an EIA. The Regulations also require that all projects located in environmentally sensitive areas require preparation of an EIA. It also lists projects not requiring either an EIA or an IEE.

Under Section 12 (and subsequent amendment) of the PEPA (1997), a project falling under any category specified in Schedule I of the IEE/EIA Regulations (SRO 339 (I0/2000), requires the proponent of the project to file an IEE with the concerned provincial EPA. Projects falling under any category specified in Schedule II require the proponent to file an EIA with the agency, which is responsible for its review and accordance of approval or request any additional information deemed necessary.

4.4.3 Regulatory Clearances, EPA

In accordance with provincial regulatory requirements, an IEE/EIA satisfying the requirements of the Pakistan Environmental Protection Act is to be submitted to Federal Environment Protection Agency for review and approval, and subsequent issuance of NOC before the commencement of construction.

The Project has (i) a Dam/weir and reservoir with storage volume less than 50 million cubic meters and (ii) surface area less than 8 square kilometers, so falls under Schedule-I of IEE/EIA regulation hence required to file an IEE report to get NOC from EPA.

4.4.4 Guidelines for Environmental Assessment, Pakistan EPA

The Pak-EPA has published a set of environmental guidelines for conducting environmental assessments and the environmental management of different types of development projects.

The guidelines that are relevant to the proposed project are listed below:

- Guidelines for the Preparation and Review of Environmental Reports, Pakistan, EPA1997;
    - Guidelines for Public Consultations; Pakistan EPA May 1997;

4.4.5 National Environmental Quality Standards (NEQS)

The National Environmental Quality Standards (NEQS) were first promulgated in 1993 and have been amended in 1995 and 2000. They have been revised and the latest NEQS were issued in 2010.These standards are also stringent with the International NEQs Regulation.

NEQS for Ambient Air – November, 2010 state the Maximum allowable concentration of pollutants (9 parameters) in gaseous emissions from vehicle exhaust.

NEQS for Drinking Water Quality – 2010describe the drinking water properties by outlining the defined physical and chemical parameters.

NEQS for Noise – November 2010 states the maximum allowable limit of noise arising from vehicles in decibels (dB) separately for day and night times.

NEQS for Waste Effluents –2000states the Maximum allowable concentration of pollutants (32 parameters) in municipal and liquid industrial effluents discharged to inland waters, sewage treatment facilities, and the sea.

These standards apply to the gaseous emissions and liquid effluents discharged by, campsites and construction machinery. The standards for vehicles will apply only during the construction phase of the subproject. Standards for ambient air quality have also been prescribed.

4.4.6 The Forest Act (1927)

The Act empowers the provincial forest departments to declare any forest area as reserved or protected. It empowers the provincial forest departments to prohibit the clearing of forest for cultivation, grazing, hunting, removing forest produce, quarrying and felling, lopping and topping of trees, branches in reserved and protected forests.

4.4.7 The Antiquities Act (1975)

It ensures the protection of Pakistan's cultural resources. The Act defines "antiquities" as ancient products of human activity, historical sites, or sites of anthropological or cultural interest, national monuments, etc. The Act is designed to protect these antiquities from destruction, theft, negligence, unlawful excavation, trade, and export. The law prohibits new construction in the proximity of a protected antiquity and empowers the GOP to prohibit excavation in any area that may contain articles of archaeological significance. Under the Act, the project proponents are obligated to ensure that no activity is undertaken in the proximity of a protected antiquity, report to the Department of Archaeology, GOP, any archaeological discovery made during the course of the project.

4.4.8 The West Pakistan Fisheries Act 1961

The Fisheries Act requires protection of public waters as habitat of fish and other aquatic life. This is

helping the Fisheries Department to provide effective protection to the fish and other aquatic life in the game Sanctuary upstream the barrage and the public waters downstream the barrage. Fish is a food to a good number of migratory birds.

4.4.9 The Public Health (Emergency Provision) Act 1954 read with West Pakistan Epidemic Control Act 1958

These two laws cover the presentation and spread of human diseases, safeguarding the public health and providing and maintaining adequate medical services and other services essential to the health of the communities in the project area.

4.4.10 Explosives Act 1884

Under the Explosives Act 1884, the Project Contractors are bound by regulation on properly and securely handling, transporting and using explosive during quarrying, blasting and other purposes.

4.4.11 Pakistan Penal Code

The Pakistan Penal Code (1860) authorizes fines, imprisonment or both for voluntary corruption or fouling of public springs or reservoirs so as to make them less fit for ordinary use.
The Pakistan Penal Code (PPC) 1860 deals specifically with the pollution of water in Chapter XIV on "Public Health and Safety". Here, "fouling" or "corrupting" the water of a public spring or reservoir is listed as an offence, punishable with up to three months in prison and/or a fine of 500/- rupees (Section 277).

4.4.12 Land Acquisition Act, 1894

The Land Acquisition Act (LAA) of 1894 amended from time to time has been the policy governing land acquisition, resettlement and compensation in the country. The LAA is the most commonly used law for acquisition of land and other properties for development projects. It comprises of 55 sections pertaining to area notifications and surveys, acquisition, compensation and appointment awards and disputes resolution, penalties and exemptions.

Under article 247(3) of the Constitution of Pakistan, acts of Parliament do not apply to Federally Administered Tribal Areas unless the President so directs. The criminal code of Pakistan does not apply to the tribal areas and Article 247(7) of the Constitution debars the jurisdiction of the country's high courts and the Supreme Court from the tribal areas.

Following the same principle, the body of laws and practices relative to Land acquisition which are embedded in the Land Acquisition Act of 1894 (as amended) are not applicable in Tribal areas (as with most other laws of Pakistan). The gap left void by the non-applicability of the national regular law in Tribal Areas is filled by the Frontier Crimes Regulation (FCR) of 1901. On the one hand the FCR sanctions the tribal customary practices as the appropriate means to deal with crimes and civil issues in tribal areas, establishes the authority and the jurisdiction of the Political Agent (PA) as the supreme representative of the Government in those areas, and stipulates that legal rulings are to be taken by the PA in agreement with the Tribal leaders. In FCR 1901 under regulation 56 the property rights are protected and no person can be deprived of his assets without compensation on consensus rate.

The Land Acquisition Act of 1984 is not applicable in FATA and land acquisition follows the FCR 1901 provisions which provide an administrative set-up for FATA including acquisition of asset for public purpose

projects. Though, the FCR stipulates that land/assets compensation will be based on consensus rate (negotiated settlement between the land owners and the PA) that fits with World Bank's policy requirement, however a comparison of Land acquisition under Pakistan's FCR 1901 applicable in FATA and the World Bank's Policy on Involuntary Resettlement (IR) shows that there exist major differences in the two instruments. The objective of this comparison is to identify if and where the two sets of procedures are in conformity with each other and more importantly where there are differences and gaps. The key consideration is that the Land Acquisition and Resettlement Planning is in compliance with World Bank's safeguards requirement and consistent with Pakistan and FATA regulatory system.

It must be ensured that all land acquisition and resettlement planning and implementation applied for this project based on RPF/RAPs of the project must be compliant with World Bank's safeguard policies as well as Pakistan and FATA regulatory requirements.

4.4.13 The Constitution of Pakistan, 1973

The constitution of Pakistan contains concurrent legislative powers to federation and provinces to legislate in respect of environment and ecology (Article 142(b), Clause 24). Any gaps in the environmental law can be referred to National as well as the provincial assembly for passage of an appropriate law. Under the Constitution, FATA is included among the territories of Pakistan (Article 1). It is represented in the National Assembly and the Senate but remains under the direct executive authority of the President (Articles 51, 59 and 247). Laws framed by the National Assembly do not apply here unless so ordered by the President, who is also empowered to issue regulations for the peace and good government of the tribal areas. Currently, FATA continues to be governed primarily through the Frontier Crimes Regulation 1901. It is administered by Governor of the KP in his capacity as an agent to the President of Pakistan, under the overall supervision of the Ministry of States and Frontier Regions in Islamabad.

4.4.14 The Frontier Crimes Regulation 1901

The Frontier Crimes Regulations 1901, popularly known as FCR is one of major component of the administrative system of justice in Tribal Areas. The judicial system in FATA is a hybrid colonial-era legal framework that mixes traditional customs and norms with executive discretion. The regulations do not specifically provide any environment related directives, but it outlines the administrative setup and the judicial system in the area. Additionally it is the supreme law in FATA and other civil and criminal laws are not extended to the area. It serves all purposes both of procedural as well as substantive law. Neither criminal procedure code (Cr.P.C) nor civil procedure code (C.P.C) or law of evidence is applicable. No right of appeal to the High Court or Supreme Court exist under the provisions of these regulations. Until 1997, the Commissioner acted as a provisional court but in 1997 it was amended and turned into appellate forum and the powers of revision of the Commissioner's verdict were given to the tribunal consisting of secretaries of Home and Law Department. All these belong to the same executive and are usually hand in glove for all practical purposes.

Though FCR is the primary source of judicial system in FATA, but over a hundred national, local and specific laws stand extended to FATA including such enactments as The Pakistan Penal Code and The Criminal Procedure Code which are the two major laws of Pakistan, The Evidence Act, the various Hadood Ordinances, The Custom Act, The Foreigners Act, The Control of Narcotics Substances Act, The Arms Act, The Companies Act, The Passport Act, The Pakistan Army Act, The Defence of Pakistan Ordinance, The Representation of the People Ordinance, etc..

4.4.15 Highways Safety Ordinance, 2000

This ordinance includes provisions for the licensing and registration of vehicles and construction equipment; maintenance of road vehicles; traffic control, offences, penalties and procedures; and the establishment of a police force for motorways and national highways charged with regulating and controlling traffic on the national highways, and keeping the highways clear of encroachments.

4.4.16 Motor Vehicle Rules, 1969

Motor Vehicle Rules 1969 (MVR 1969) define powers and responsibilities of Motor Vehicle Examiners (MVEs). The establishment of MVE inspection system is one of the regulatory measures that can be taken to tackle the ambient air quality problems associated with the vehicular emissions during operation phase.

4.4.17 Regulations of Mines and Oil Fields and Mineral Development Act, 1948

This legislation provides regulatory procedures for the quarrying and mining of construction material from state-owned as well as private land.

4.4.18 The Pakistan Minimum Wages for Unskilled Workers Ordinance, 1969

This law was established with the aim of establishing a system for deciding on the minimum rates of wages for unskilled workers employed in certain commercial and industrial establishments in the Pakistan. According to the application of this law all unskilled workers employed in a commercial or industrial establishment in the province of KP will not be paid less than a set minimum rate and the employer shall be responsible for this payment either directly or through a contractor.

4.4.19 Industrial Relation Ordinance 2010 Pakistan

This new draft gives worker right to form trade unions and collectively bargain as per the constitution and all related conventions of the ILO (International Labor Organization). Trade union could be formed only in as institution having at least 50 employees. The representation of staff member of a workplace in its trade union has been enhanced from the previous 75 per cent to 80 per cent. It envisages cancellation of a grade union's registration upon getting less than 15 per cent votes now in two referendums to be held seeking the status of a collective bargaining agent. The law makes unfair labor practices by worker or employers a crime to ensure healthily trade union activity. At the same time is also empowers the government to order breaking of any illegal strike or lockout, or make them approach court for a decision. It allows CBA unions and employers to approach a labor court for the redress of complaint. It also empowers labor courts to grand interim relief in any case.

5. ASSESSMENT DURING PROJECT PREPARATION, APPROVAL AND IMPLEMENTATION

5.1 Screening Process

For each sub-project, implementation of environmental requirements will be in accordance with the following steps closely linking with activity planning, design and implementation steps.

- Step 1: Screening of project to determine the type / category of project as per WB standards and local regulatory requirements
- Step 2: Simplified or Detailed Environmental and Social Impact Assessment
- Step 3: Preparing Environmental and Social Management Plan
- Step 4: Environmental Clearances
- Step 5: Inclusion of Environmental Specifications and Environmental Management Plan in bid documents
- Step 6: Environmental Method Statements (for large investments)
- Step 7: Compliance and Monitoring

Based on type of construction required, all detailed information analysis including Environmental Management Plans must be completed prior to awarding of contracts for construction.

5.2 Sub-Project Assessment

Environmental Assessment Screening checklist (attached as **Annex A**) has been prepared as part of this framework. The checklist has been developed in accordance with the World Bank Policies and its purpose is to determine the level of impact and safeguard document required for each of the sub-projects. Efforts have been made to include different aspects of environment which maybe be impacted by the proposed developments under component II in the checklist. In additional to the checklist, the regulatory requirement of the Pak EPA as per Schedule I and II of Pak EPAs IEE/ EIA regulations will also determining the documents required. The Table 5.1 below summarizes the documents requirements.

Table 5.1 Sub-Project Classification by Categories and Safeguard Documents Required

Category A Subproject (Full EIA Required)	**Category B Subprojects ESMP/IEE Required**	**Category C Subprojects (Mitigation Checklist Required**
Subprojects with: (i) Significant irreversible and widespread impacts like common effluent treatment plants, industrial estates, etc; (ii) Significant degradation of forestry of sensitive natural habitat; (iii) Land acquisition and preparation of RAP as per World OP 4.12 of World	Subprojects potentially causing low to moderate level of negative but reversible and localized impacts such as widening or repairing of roads	Subprojects having only minor impacts

Category A Subproject (Full EIA Required)	Category B Subprojects ESMP/IEE Required	Category C Subprojects (Mitigation Checklist Required
Bank; (iv) Projects requiring an EIA as per to Pak EPA regulations		

5.3 Sub-Project with EIA Requirement

After initial screening if the subproject is identified to have significant irreversible impacts or fall under Schedule II of the IEE/EIA Regulations (SRO 339 (I0/2000) would require an EIA and full environmental impact assessment. EIA should cover the following aspects

Executive Summary: It should summarize EIA in significant details to enable the reader to easily understand subproject, it's impacts and mitigations proposed as well as institutional arrangements for implementation.

Introduction: This chapter should provide the background, subproject needs and objectives. It also explains the methodologies adopted for carrying out different environmental and socio-economic studies

Legal and Administrative Framework: The legal and institutional framework chapter provides in detail, an overview of the government laws and rules that apply to regulate and control the environmental impacts due to subproject implementation, operation and maintenance, together with the relevant guidelines, legislation and policies concerning the project.

Sub-Project Description: It provides details of the subproject components, rationale, costs, resources required including manpower, construction material, equipment, labor camps and borrow areas requirements as well as quantity of waste to generated.

Analysis of Alternatives: This chapter covers analysis of alternatives and compares social, environmental, financial and technical resources and costs required for the project.

Environmental and Social Baseline: It describes the baseline conditions like physical, biological and socioeconomic, and surrounding area people. It also provides information about the existing amenities like education, health, infrastructure, cultural heritage, water supply/availability, electricity, physical cultural resources, etc. in the area.

Impact Assessment and Mitigation Measures: It provides the subproject impacts, both positive and negative/adverse, on the land, land based assets, infrastructure, crops, forest and fruit trees, existing amenities, sewage, waste material generation etc. during subproject construction and operations. This section also deals with the mitigation of the adverse impacts identified in the shape of the compensation, rehabilitation, capacity building, provision of livelihood resources and other needed amenities etc.

Cumulative Impact Assessment: This chapter looks at the cumulative impacts of the subproject, identified VES and proposes mitigation measures

Environmental and Social Management Plan: This chapter covers institutional arrangements, mitigation plans, monitoring responsibilities and provides budget estimates for its implementation.

Stakeholder Consultations: This chapter deals with consultation with different stakeholders of the project as well as area of influence.

Complaints and Grievances: This chapter covers the procedures for handling sub-project related complaints from stakeholders and public, and also includes required actions taken on any issue raised by concerned and/or affected parties during difference phases of the sub-project.

TORs for such projects is given in Annexure D.

5.4 Sub-Project with EMP/IEE Requirement

Subprojects assessed to be category B under initial screening or falling under Schedule I of the IEE/EIA Regulations (SRO 339 (I0/2000) requires the proponent of the project to file an IEE with the concerned provincial EPA. It also translates to Environmental Management Plan (EMP) under the Banks requirements. The proposed structure of the EMP is as follows:

Executive Summary: This should provide a general summary of the EMP contents and key findings, in a vocabulary that is easily understood by the general public. It should be clear and concise;

Introduction: An introduction describing the EMP purpose, objectives, principles and methodology. This section should introduce the project proponents, the study team, and provide other relevant information. The layout of EMP should also be described to facilitate its use;

Sub-Project Description: A description of the subproject which will include background, purpose and different components. Also, indicate any subproject specific resource requirements such as material, manpower, equipment, etc.

Environmental Baseline of Subproject Area: This section gives site specific overview of baseline covering physical and biological environment. It will include ambient air quality, noise, temperatures, rainfall, etc.

Socio-Economic Profile of Subproject Area: This section describes socio-economic profile of the subproject area. It will cover community structure, planned development activities, population, occupation and livelihoods, methods of communication and transport, cultural heritage sites, etc.

Stakeholder consultation and Information Disclosure: This section will describe the objective, process, and outcome of the stakeholder consultations carried out during the EMP preparation. This section should also list arrangements for disclosing subprojects information in order to comply with the Bank's Policy of Disclosure of Information.

Impacts and Mitigation: This section will identify all positive as well as negative environmental and social impacts with cost effective and feasible measures to reduce adverse environmental impact to acceptable level. It will describe with technical details mitigation measures including the type of impact to which it relates to. It will also describe methodology for social impacts

Environmental Management and Monitoring Plan: This section will provide specific description and technical details of monitoring measures including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions. The monitoring and reporting procedures will ensure early detection of conditions that necessitate particular mitigation measures, and furnish

information on the progress and results of mitigation.

EMP Implementation Budget: An EMP implementation budget estimates are provided here. The budget will include funds for institutions development activities, training programs for implementation teams and local/national institutions, technical assistance to authorities, costs for preparations of EMPs and other safeguard documents; and

Annexures: Technical annexes to support EMP implementation.

All updated EMPs for the sub-projects and this EMP will be part of all bidding documents as an annexure for the potential bidders to ensure that all EMP related costs and staffing are built into the contract in advance.

Terms of Reference for project specific EMP(s) are attached with the document at Annexure E.

5.5 Sub-Project Approvals

FATA falls under the Federal EPA also known as Pak-EPA whereby all projects need to have an EIA, falling in any of the categories explicitly mentioned in Schedule-I and Schedule-II of EPA regulations. It is mandatory under the act to share all information about any development project with all stakeholders including NGOs. If any EA is conducted and submitted to the Pak EPA, it is shared with public by public consultation. Therefore, disclosure requirements of both Bank and local regulatory requirement will be fulfilled. Apart from that information about different projects under progress are monitored by the M&E Directorate and they publish some data on their website.

6. ENVIRONMENTAL MANAGEMENT PLAN (EMP)

6.1 Major Impacts Associated with Proposed Sub-Projects

Currently we are at a very early stage of project development. Apart from few identified projects, listed earlier, sub-projects of the component 2 are yet to be finalized. Based on the details of the proposed projects and some idea about the anticipated projects, there are some common impacts envisaged, which are briefly described below with possible mitigation measures / strategies.

6.1.1 Water Quality and Quantity

Water is used for all types of activities during any project implementation. Use ranges from drinking, domestic cleaning, suppressing dust, disposal of waste material, cooling of machines and washing of vehicles etc. all of this has direct impact on the quality of water as well on the quantity of water. Proposed project activities are proposed in largely water scarce area therefore, this aspect must be critically assessed during preparation of ESIAs and their EMPs. Some of the general mitigation measures are as follows:

- Large scale or combined effluent treatment plants for the proposed industrial development along the road corridor
- Dispose of municipal waste via septic tanks and soakage pits
- Prohibition of dumping waste material into seasonal and perennial water streams
- Maintain water usage logs and train staff members on the efficient utilization of water
- To the extent possible, not tap into shallow local aquifers and develop joint water extraction strategies with consultation of the local community
- Discourage wasting water and unnecessary washing of vehicles at project site(s)

6.1.2 Air Pollution

Due to expected nature of the construction, involving excavation, land leveling and clearing, a lot of dust will be produced. Heavy machinery will be used to carry out these activities, which will result in vehicular emissions as well as other exhaust fumes. Some of the major mitigation measures are as follows:

- Regular maintenance of all equipment and ensure that all equipment and vehicles have their fitness certificates at the time of hiring for any of the sub-projects
- Ensure exhaust mufflers on all machinery and power generation sets
- Strictly ban burning of waste or of wood, especially extracted from nearby shrubs and bushes
- Implementation of appropriate sprinkling regime on all exposed surfaces and roads to minimize fugitive dust emissions

6.1.3 Noise and Vibration

Major sources of noise and vibrations are:

- Blasting, land clearing using heavy equipment and road compaction
- Stone crushing roads or stone crusher industry
- Drilling and cutting machines
- Operation of industrial units

Some of the major mitigations are proposed as follows:

- Prepare blasting schedules along with warning sirens, and ensure minimum damage to the landscape
- Ensure use of newer, well maintained machinery that creates minimum noise and emissions, as per National Environmental Quality Standards (NEQS 2000)
- Noise monitoring will be carried out near sensitive receptors once a week for the first month. In case of a violation, the monitoring frequency will be maintained at once a week. Otherwise, the monitoring frequency will be raised to once a month. The NEQS for noise residential areas is 55 dB(A) in the day time and 45 dB(A) at night
- Night time construction activities will be strictly discouraged

6.1.4 Waste Disposal

Most of the waste generated will be related to construction. Construction waste will involve debris due to cutting of stones and blasting, residual RCC material, waste from labor camps, packaging material and kitchen waste etc. Major mitigation measures are as follows:

- Avoid unnecessary disposal of earthwork materials and maximize the reuse of excavated materials
- Residual spoil will have to be disposed in environment friendly manner, where it will be leveled and landscaped
- Implementation of three R principle i.e. Reduce, Reuse and Recycle, at site to reduce waste generation and maximize reuse of material
- Hazardous waste management plan must be separately developed and strictly adhered to by site management

6.1.5 Safety of Community

Since many of project activities will be carried out near communities, therefore, there safety and security must be ensured via implementation of following steps:

- Ensure appropriate signage and fencing in order to limit public access to the construction site
- During activities, such as blasting and excavation, access will be strictly restricted
- Establish liaison with local community so that they are aware of project activities and can also take precautionary measures at their own end in consultation with project team

6.1.6 Health and Safety of Labor

Safety of labor will be of prime concern. Adequate measures related to Health, Safety and Environment (HSE) will have to be provided for the labor employed some of which are listed below:

- Ensure that proper HSE protocols are in place, including protective gear, drinking water, sanitation, energy supply and overall safety for the labor
- Evacuation plans in case of fire or any other accidents will also be prepared, and drills carried out to ensure the labor is aware of responding to such a situation

6.2 Environmental Management Plan

The mitigation plan, being a key component of EMP includes measures to mitigate potential negative impacts and enhance its positive impacts during construction phase of the sub-project. The contractor is responsible for implementation of EMP with the co-operation of executing and implementing agencies, client staff, socio-environmental consultants and local community of the project.

Environmental Management Plant (EMP) for Allied Facilities Development along Peshawar – Torkham Expressway

Aspect / Activity Impact	Mitigation Measures	M&E Measurement Criteria	Institutional Responsibility
Planning/ Designing			
Potential damages to the existing infrastructure and facilities, especially underground installations (water supply and sewerage pipeline etc.) which cause obstacles in the provision of services to consumers.	▪ Precisely identify the position of infrastructure and underground installations at the local works in cooperation with the relevant institutions at all levels of authority. ▪ Close liaison with local relevant authorities for all excavation and building of any structure, both temporary and permanent.	• Get layouts of all utilities and other underground installations from the relevant offices and see if they are covered in the site-specific construction management plans • Check meeting and other communication documentation / evidence.	Contractor and PA/FATA Secretariat
Increased possibility of employment and income in the local community.	▪ Prioritize qualified local population in employment and ensure all non-technical jobs are given to locals.	Include this as part of the contract and condition of approval(s) for project proponent(s).	Contractor and FATA Secretariat
Waste Management and Protected area Protection/ Management Plans	▪ Careful selection of camp sites in consultation with local authorities and community. ▪ Must avoid Forest Protected area and / or Wildlife Sanctuary, Game Reserve near the project area.	• Physically visit the site • Consult forest office and communities for confirmation of camp location.	Contractor verified by forest dept. local community rep.

Aspect / Activity Impact	Mitigation Measures	M&E Measurement Criteria	Institutional Responsibility
Potential degradation to archeological and cultural resources if project planned in the immediate vicinity	▪ Mapping all such resources prior to project design and approval so that these sites can be excluded from project implementation and impact areas ▪ Prepare site specific management plans in line with Bank guidelines on cultural and archaeological resources and local regulatory requirements.	• Confirming on Geographic Information System and onsite verification of distances from such sites / monuments.	Contractor and FATA Secretariat rep aided by Archeology Deptt. GoKP or GoP
Construction			
Conflict due to use of privately owned agriculture land for camp construction	▪ Establishment of camp on government levelled land / RoW at least 500m away from nearest settlement. ▪ Approval of campsite from PA office rep who will also consult the nearest community and / or the owner community of the proposed campsite land.	Verify the distances in presence of designated rep from the land and revenue department	Contractor & Supervised by Consultant
Social conflicts due to influx of external workforce	▪ Hiring of work force from local communities to the extent possible in technical areas and majority, if not all for non-technical work ▪ Training of external labor on local customs to avoid conflicts and ensure privacy of communities which is paramount in FATA ▪ Engage local community elders for effective two way communication on this and other issues which may create nuisance for any stakeholder ▪ Avoid or minimize contact with community by external labor	• HR data for all labor, daily wage and contractors with signed copies of contracts along with copies of CNIC • Training records for sensitization of external labor on socio-cultural issues • Feedback from surrounding communities on social and employment issues.	Contractor and FATA Secretariat rep

Aspect / Activity Impact	Mitigation Measures	M&E Measurement Criteria	Institutional Responsibility
Conflict with local water demand.	▪ Avoid use of already scarce water sources and aquifers ▪ Arrange water for domestic and project requirements from outside sources where water is abundantly available ▪ Contractor to ensure and keep records of water source of outsourced water ▪ Maintain record of water consumption and train labor on water conservation.	• Ensure community water resources are not compromised due to project activities. • Where applicable, check water consumption records as well.	Contractor and PA / FATA Secretariat rep
Damage to sites of cultural / religious/ archeological importance	▪ Completely avoid these areas in the design stage ▪ Based on good practice and available guidelines, establish minimum distances of activities from such sites. ▪ Weekly monitoring of these sites at the time of construction ▪ Daily inspection by contractor's EHS resource	• Physical damage to such sites / monuments by sites inspection • Verify daily and weekly checklist for this aspect • Verify from the community or caretaker of the sites about the mitigation measure's status.	Contractor and FATA Secretariat Rep
Supply of material	▪ Use existing quarries, asphalt and concrete bases for the supply of material. ▪ Use licensed suppliers / vendors for other materials, preferably local suppliers / vendors.	• Verify the sub-contractor's sources and licenses • Verify sub-contractors / vendors if they are local	Contractor and PA / FATA Secretariat rep

Aspect / Activity Impact	Mitigation Measures	M&E Measurement Criteria	Institutional Responsibility
Transport of material	▪ During the transportation of soil and similar aggregates, trucks must be covered with Tarpaulin sheets. ▪ Ensure drivers follow speed limits, especially near communities ▪ Regular inspection, tuning, and maintenance of transport vehicles. ▪ Avoid night time activity and peak traffic hours ▪ Maintain liaison with communities; Repair of damaged roads/ other infrastructure.	• Physical condition of road • Feedback from surrounding communities • Random check on roads of project traffic / vehicles • Log of incoming and outgoing vehicles with time mentioned for each trip	Contractor and PA / FATA Secretariat rep
Dust emissions from disposal area, vehicular movement on roads and construction works execution.	▪ Compact deposited earth material. ▪ Sprinkle dust sources with water in order to reduce impacts on the surrounding population and vegetation. Preferably remove the emission / aggregate source as the project area is generally scarce ▪ Strict compliance of speed limits ▪ The stockpiles should be covered or kept moist in dry weather and to be located in such a distance, so that the communities are not affected by downwind of the stockpiles.	• Visit the dumping locations and record the conditions • Observe project vehicles near communities and get feedback from them regarding compliance with speed limits • Visit construction site to check storage of material in accordance with requirements of the EMP	Contractor and PA / FATA Secretariat rep
Gaseous emissions and particulates from vehicles, mechanization and power generators.	▪ Regular vehicle and equipment maintenance as per manufacturer's recommendations ▪ Vehicle fitness certificate ▪ Ensure use of silencers and filters on power generating and other units	• Maintenance logs of all equipment and vehicles • Inspect equipment for filters etc.	Contractor and FATA Secretariat rep

Aspect / Activity Impact	Mitigation Measures	M&E Measurement Criteria	Institutional Responsibility
Noise emissions from construction vehicles, machinery and power generators.	▪ Observe normal working hours at construction site and avoid late night and early mornings for major works. ▪ Implement maximum noise abatement measures for equipment near communities and other sensitive receptors ▪ Ensure mufflers for heavy machinery and regular inspection / maintenance of equipment	• Working hours of labor and verify the same from nearby community • Inspect equipment for working silencers / mufflers etc.	Contractor and FATA Secretariat rep
Surface water pollution	▪ Ban disposal of excavated material in and around water channels and their catchment area, both seasonal and perennial ▪ Direct disposal of sewage and any kind of waste must be strictly prohibited ▪ Disposal of oily waste into or maintenance of vehicles near surface water bodies must be avoided	• Visit nearby and any water sources near the approved disposal / dumping site for physical verification • Check sewage disposal and waste disposal practices at construction site(s)	Contractor and PA / FATA Secretariat rep
Soil, groundwater and surface water contamination with oils and lubricants due to equipment maintenance, repairs, spills leakages and refueling at construction site.	▪ Avoid servicing and re-fueling at the site. ▪ Use spill trays during possible vehicle re-fueling and maintenance at construction site. ▪ Provide absorbing material in case of fuel spills. ▪ Used oil/ oily materials and agents should be managed in line with the Waste management plan. ▪ Procedure in place for actions in case of incidental oil and lubrication spills.	• Check for spill trays availability and spill records which must be available with site HSE resource • Ask around if labor and other staff are aware of what to do in case of spill and whether they are aware of location of spill kit.	Contractor and FATA Secretariat rep
Damage to crops and cultivated area	▪ Crops and cultivated area is away from site so, the project will likely not to cause any damage to agriculture crops. ▪ In case of any crop damage, compensation will be paid to the affected person.	• Consult local agriculture dept. and communities for verification	Contractor and PA / FATA Secretariat rep

Aspect / Activity Impact	Mitigation Measures	M&E Measurement Criteria	Institutional Responsibility
Loss of natural vegetation and associated fauna	▪ No cutting or removal of trees unless essential, must be done after approval from Forest dept. ▪ For every tree or removal of plantation the contractor shall compensate three times the vegetation removed and ensure the new plantation is maintained at least for one year project through plantation sub-contract ▪ Restriction and prohibition on hunting, shooting, trapping, and poaching of wild species ▪ Construction during non-migratory season ▪ Continuous monitoring by wildlife experts ▪ No night time activity ▪ Photographs of pre and post project site conditions which will be verifies by line departments i.e. EPA, Forest and Agriculture Departments	• Check approval of tree cutting issued by forest dept. • Verify number of trees etc. planted instead and must be at least three times the cleared vegetation • Verify the one year maintenance contract for the replenished vegetation	Contractor and PA / FATA Secretariat rep

Aspect / Activity Impact	Mitigation Measures	M&E Measurement Criteria	Institutional Responsibility
Traffic management issues	▪ Plan movement of equipment to avoid peak traffic hours / days. ▪ Provide alternative passage for pedestrians and vehicles in collaboration with local authorities or provide a safe passage through the construction site, where applicable ▪ Avoid, where possible, roads through inhabited areas especially near schools and hospitals. ▪ Provide defensive driving trainings to drivers ▪ Use appropriate signage at vital junctions / locations to raise awareness levels of staff and masses ▪ Do not dispose any waste near roads and ensure vehicles do not litter the road with material during transporting material / waste to and from construction site.	• Traffic plan of the contractor • Verification of vehicle movement randomly by the M&E rep with feedback on the same from the community.	Contractor and PA / FATA Secretariat rep

Aspect / Activity Impact	Mitigation Measures	M&E Measurement Criteria	Institutional Responsibility
Risk of injuries at work	▪ Hire HSE resource for developing occupational safety plan and onsite training of labor ▪ Provide PPEs to all staff and install warning signs at construction site. ▪ Conduct job safety analysis of major activities to highlight risks and develop mitigation strategy ▪ Develop and implement an emergency response plan complete with defining emergency response team members and their specific roles ▪ In case of multiple small scale projects in an area, they can develop a joint plan for cost saving and resource efficiency considering the remoteness of the area.	• Credentials of HSE resource • Quantity, quality and adequacy of PPEs • Compliance of PPEs by labor and their awareness levels using field interviews • Verify availability of firefighting equipment and plan • Evidence of mock drills etc., where applicable	Contractor and FATA Secretariat rep
EHS Training	▪ Arrange trainings on general occupational safety which would be a service to the community as their labor would be trained on standards to which they had no previous exposure ▪ Specific trainings on firefighting and use of firefighting equipment ▪ Trainings on excavation safety, rigging safety, working at heights, scaffoldings ▪ Trainings on use of cranes and mobile lifting equipment specially for locals which again would be capacity building for local labor giving them better job opportunities in Pakistan and Gulf countries where a large population work as unskilled labor.	• Training material and resources • Feedback from labor on effectiveness of such trainings	Contractor and FATA Secretariat rep
▪			

Aspect / Activity Impact	Mitigation Measures	M&E Measurement Criteria	Institutional Responsibility
▪ **Site Restoration**			
Site restoration issues on all aspects of environment and community	▪ All leftover / unused material are to be removed from the location and re-used/re-cycled where possible.	• Verify site conditions with photographic evidence of pre-project conditions • Ensure no material, waste or equipment is left behind at site after demobilization	Contractor and FATA Secretariat rep
	▪ Site restoration in such a manner where ground is levelled and restored to a minimum of the pre-project condition. Furthermore, efforts should be made with budget allocations to improve the condition by filling of low lying areas and compaction of aggregate material dumped for this purpose ▪ Documentation of area restoration ▪ Ensuring areas under crops are not used as borrow areas. ▪ Ensure no harm to natural vegetation and blockade of paths and waterways because of site restoration activities. ▪ Ensure all hazardous non-hazardous and domestic waste removed from the site prior to demobilization of contractor labor camps.	• Documentary evidence of restoration activities and construction compliance report prepared for submittal to relevant office •	Contractor & Supervised by Consultant & EMU

7. STAKEHOLDER CONSULTATIONS

Purpose of stakeholder consultations is to engage the communities near the project area to create awareness about the projects and to empower the local communities by including their feedback in the design and development process. This is in line with requirements of WB BP 4.01, Environmental Assessment whereby for all Category A and B projects proposed for financing, during the EA process, the borrower consults project-affected groups and local nongovernmental organizations (NGOs) about the project's environmental aspects and takes their views into account. The borrower initiates such consultations as early as possible.

7.1 Objectives

Main objectives of the consultation process were to:

- Ensure public participation in decision-making.
- Provide key project information and create awareness among various stakeholders about proposed project intervention;
- Begin establishing communication and an evolving mechanism for the resolution of social and environmental problems at local and project level;
- Receive feedback from primary stakeholders on mitigation and enhancement measures for environmental and social impacts

7.2 Process

It is a two-stage process, in the first stage the consultations are carried out at the time of preparation of TORs and the second phase is at the time of disclosures of EMP. There is still not a lot of information available about the proposed sub projects along the expressway, therefore, we were not able to disclose specific information regarding sub projects with the public in Mohmand Agency, however information regarding the overall project was shared with the public and their views and concerns recorded. These consultations were held with ultimate beneficiaries of the project on project sites during July-Aug, 2017.

Sessions were informal to encourage friendly environment in which participants may feel comfortable in raising questions, expressing their opinion and concerns about the proposed activities besides seeking clarification regarding their concerns.

Survey team has highlighted the potential benefits of project implementation and documented any aspects, which need to be covered in detail during execution stage. Their opinion and concerns were taken. Currently they are getting benefits; they are engaged in jobs, daily wages work and small construction contracts.

Unfortunately, despite our best efforts and intentions, consultations with women of the area could not be carried out due to cultural norms and constraints. List of participants consulted for the project is attached is **Annex – G** with the document. Major recommendations after discussion with local community are included in recommendation section.

The stakeholder consultation and engagement is an ongoing process and will continue throughout the

project’s implementation. The ongoing consultation process could be scheduled on a regular basis with the stakeholders including but not limited to the affected populations, concerned government departments, local administration and the community representatives from the proposed project area.

7.3 Conclusion/Outcome

Participants of the consultation sessions were in full support of the project. Community is willing to contribute to sub-project implementation by working as unskilled labor. The preference is to work during the agricultural off-season. Training in labor-based construction works will be needed in order to implement the project efficiently. They also raised concerns over NGOs working in the area for the fear that they may have ulterior motives to which end they were informed that most of the implementation would be done using local government organizations and technical consultants, as and when required. They demanded that all unskilled jobs must be given to locals and allocation of maximum technical jobs as well where locals would meet the criteria. They feared that outside labor will cause unrest among the locals for the reason that those people would be unaware of local customs and especially the privacy of women issues in the area. Therefore, provision of maximum jobs to local is in the longer interest of the communities and project developers / lenders etc.

Communications and physical infrastructure improvement are paramount for success of the marble city project as well for any other development project in this usually neglected part of the country.

Recommendations:

Keeping in view the concerns of the general public and villagers the recommendations are made in order to address the issues example due to the construction of Mohmad Marble City (MMC) there is expected closure of trespass for local villagers and domestic animals, it is recommended that villagers should be allowed to graze their animals on back side of MMC by giving them pass after security clearance and collect medicinal plants, wood for their domestic use.

Similarly, there is unavailability of industrial water treatment plant in MMC design, when asked from FDA and MMC management, they said they have a plan but there is no demarcation of treatment plant in MMC map. As there is no demarcation for water treatment plant inside MMC, it is recommended to mark a site for water treatment plant; since MMC is divided into 3 phases it is also recommended to build 3 separate plants by observing terrain of area. It is very important to drain treated water and keep effluent away from irrigation channel that is already in working condition inside MMC. As per bylaws of MMC, every industrial unit must have its own treatment plant but beside that a collective treatment plant is mandatory. The mechanism would be that the separate industrial units will have a basic or initial treatment facility. Once the initial treatment is done, that would not be released into the drains, instead effluents will be collected in a common drain and then given final treatment at the central treatment facility as proposed.

It is observed that there is a village “Prato ghundai و پراڈئڈنغی” inside the MMC, villagers are living there since last 30 years, now the village is marked for MMC industrial plots, and the land acquisition is with FDA for land acquisition. The villagers are concerned that the rates for land determined by government will not be adequate and below the market value. Additionally, as there is heavy machinery moving inside MMC, safety of villagers is very important, villagers must be provided schedule of working for labor and machinery. The villagers are overall quite happy with the construction of MMC and are hopeful that they would be provided proper rates for their land and would be able to benefit from the opportunities in

future.

7.4 Grievance Redress Mechanism (GRM)

GRM is described in detail in Resettlement Policy Framework and Social Management Framework for Component II. Please refer the relevant sections in the above mentioned documents

8. INSTITUTIONAL ARRANGEMETNS

8.1 Implementation Arrangements

The component will be implemented by the FATA Secretariat and FATA Development Authority (FDA). Following institutional arrangements are proposed for implementation:

Overall Oversight Arrangements: A Steering Committee comprising of the Additional Chief Secretary for FATA, the Director of Projects (FATA Secretariat), the Head of FDA and, to ensure full coordination with KP, the Secretary of the Planning and Development Department (P&DD) of the Government of Khyber Pakhtunkhwa (GoKP) will provide overall guidance and oversight and be responsible for ensuring effective implementation of the component. It will also liaise with FBR (Pakistan Customs) through the overall Project Steering Committee – the "National Single Window" subcomponent will be implemented through the PIU of the ADB project (located within the FBR).

Project Implementation Unit (PIU): There shall be a dedicated Project Implementation Unit (PIU) established within the FATA Secretariat in Peshawar, headed by the General Manager (Peshawar-Torkham Economic Corridor Project). Some procurement tasks shall be delegated to the Chief Engineer of FATA and the FATA Development Authority (FDA). The PIU shall be adequately staffed with competent professionals. The staff will include an Environmental Specialist, a Resettlement Specialist, a Contract Administration Specialist and a Financial Management Specialist. The PIU will be responsible for overall coordination, internal/external processing of all approvals including PC-I, procurement and implementation of civil works, procurement and management of consultant services, operating special account and financial management.

Strategic Technical Assistance: The activity is expected to be implemented jointly by the FATA Secretariat in close coordination with the Planning and Development Department (P&DD) of GoKP with the support of competitively recruited specialized firms. To kick start the master-planning process, a firm was hired during project preparation to take stock of all on-going and planned investments along the economic corridor. The master plans will rely on state-of-the-art geo-spatial mapping techniques (such as the ones being relied upon by the Punjab Urban Unit in the context of the development of the Punjab Spatial Strategy). The business environment reforms will leverage the experience accumulated in Punjab and Sindh (e.g. reforms to improve the Doing Business indicators).

Secondary Transport Infrastructure. The activity will be implemented by the Works and Services Department (W&SD) of the FATA Secretariat, under the leadership of the Chief Engineer. The implementation of this component is expected to require substantial coordination with NHA and with relevant GoKP departments, including P&DD – as discussed above such coordination will have started in the context of the masterplan which will specify the secondary transport infrastructure to be financed under this project. As with Component-I, it is expected that a professional consulting firm will be responsible for contract administration and construction supervision.

Upgrading of Industrial Zones. This activity is to be implemented by the FATA Development Authority (FDA) which supervises industrial zones in FATA. The upgrading of the industrial zones will be carried as a Public Private Partnership (PPP) involving the competitive selection of a firm specialized in the development and management of industrial zones.

8.1.1 Supervision Consultant

The supervision consultant will ensure the implementation and regular monitoring of the EMP in true letter and spirit during execution of the civil works and shall submit periodic reports regarding the EMP implementation status. The Consultant's Environmental Specialist and Social Specialist will be responsible for EMP implementation and reporting any non-compliances to the relevant authority, which will be defined once the project details are finalized.

8.1.2 Contractor

The contractor will be responsible for on-site implementation and compliance of the EMP of each sub-project. The contractor will train their crew/ staff in implementation of the EMP though capacity-building interventions. It will me mandatory for the contractor to have full time in-house environmental and social specialists. The EMP will be an integral part of the contract document. The bid should include a detailed environmental mitigation budget as part of the engineering costs of the respective works.

8.1.3 External Monitoring

Once the M&E system is in place and data collection processes established, the external monitoring consultants will advise the World Bank and relevant implementation authorities on the project progress with special focus on status of Bank Policies and the desired outcomes of the project overall, as well specific to each subproject. They will be mainly responsible the following:

- Analyzing quantitative and/or qualitative data
- Summarizing findings
- Developing monthly, quarterly or annual reports depending on project requirements
- Disseminating evaluation findings and project results to donors and other stakeholders

Depending on the scale of sub-projects, detail responsibilities and their allocation per area or size of the projects will be determined at a later stage. It must be ensure that the consultant possesses the relevant experience and expertise of working on bank projects as well working knowledge of FATA.

8.2 Assessment of Current Institutional Capacity

FATA government is implementing several Bank sponsored projects. However, their capacity to implement safeguard related issues is low and therefore, a concerted effort will be required to build and enhance capacity of the implementing agencies namely PIU, FDA and Works and Service Department of FATA Secretariat.

9. EMF IMPLEMENTATION BUDGET

9.1 Training and Capacity Building

Initially, there will be detailed training sessions for all stakeholders of the project. Participants would include project staff, FATA secretariat staff and related government office as well as community representatives. These stakeholders are involved in the subproject in different capacities at different stages. Therefore, they must be well conversant with the WB safeguards and applicable national regulatory requirements.

According to estimates based on market rates, a three-day session with about a 30 strong group and experienced training resource would cost around USD 10,000/-. This cost will cater for all expenses of the training including material, logistics, venue etc.

9.2 Preparation of Safeguard Documents

Each subproject would require safeguard documents. Cost estimates for different documentation is provided below:

- Checklist USD 5,000 / document
- IEE/EMP USD 20,000 / study
- ESIA USD 30,000-45,000 / study

9.3 Implementation and Compliance Costs

Contractor will implement all the monitoring requirements during project execution. Based on current prices from reputable monitoring firms, tentative budget is as follows:

- Drinking water quality analysis USD 100 / sample
- Wastewater analysis USD 150 / sample
- Ambient air quality monitoring USD 250 / sample (PM and gaseous emissions)

All these costs must be incorporated in the final contract with the contractor otherwise it will be of no use for the implementing agency or for the M&E teams. The sampling prices might be on the higher side as of now but we need to keep in mind that some of the sample might be sent to other cities for ensuring that results given by the consultant are authentic. Furthermore, we are not sure if we will get qualified consultants in the nearby areas. These costs will be further assessed at the time of award of contract, in line with market prices through a transparent open bidding process.

ANNEXURE A – Initial Screening Checklist

Name of Subproject:
Proposing Agency:
Subproject Location:
Subproject Objective:

Questions to be Considered	Yes/No?	Is this likely to result in a significant effect? Briefly Describe
1. Will construction or operation of the project use natural resources? Such as land, water, materials or energy, especially any resources which are non renewable or in short supply**?**	☐ Yes ☐ No	
2. Will the project involve use, storage, transport, handling or production of substance or materials, which could be harmful to human health or the environment or ramie concerns about actual or perceived risks to human health**?**	☐ Yes ☐ No	
3. Will the Project produce solid waste during construction, operation, or decommissioning**?**	☐ Yes ☐ No	
4. Will the Project release pollutants or any hazardous, toxic or noxious substances to air**?**	☐ Yes ☐ No	
5. Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation**?**	☐ Yes ☐ No	
6. Will the Project lead to risks of contamination of land or water from releases of pollutants onto the ground or into surface waters and groundwater**?**	☐ Yes ☐ No	

Questions to be Considered	Yes/No?	Is this likely to result in a significant effect? Briefly Describe
7. Will there is any risk of accidents during construction or operation of the project, which could affect human health or the environment**?**	☐ Yes ☐ No	
8. Will the Project result in social changes, for example, in demography, traditional lifestyles, employment**?**	☐ Yes ☐ No	
9. Are there any other factors, which should be considered such as consequential development that could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality**?**	☐ Yes ☐ No	
10. Are there any areas on or around the locations, which, are protected under international, national, or local legislation for their ecological, landscape, cultural, or other value, which could be affected by the project**?**	☐ Yes ☐ No	
11. Are there any other areas on or around the location, which are important or sensitive for reasons of their ecology e, g. wetlands, watercourses or other water bodies, mountains, forests or woodlands, which could be affected by the project**?**	☐ Yes ☐ No	
12. Are there any areas on or around the location which are used by protected, important or sensitive species of fauna or flora e.g. for breeding, nesting, foraging, resting, over wintering, migration, which could be affected by the project**?**	☐ Yes ☐ No	
13. Are there any inland or underground waters on or around the location that could be affected by the project**?**	☐ Yes ☐ No	

Questions to be Considered	Yes/No?	Is this likely to result in a significant effect? Briefly Describe
14. Are there any areas or features of high landscape or scenic value on or around the location, which could be affected by the project**?**	☐ Yes ☐ No	
15. Are there any routes or facilities on or around the locations, which are used by the public for access to recreation, or other facilities, which could be affected by the project**?**	☐ Yes ☐ No	
16. What kind of effluents can be discharged during operation of this project/ units**?**	☐ Yes ☐ No	
17. Is this project likely to affect the soil, water and air of the surrounding environment**?**	☐ Yes ☐ No	
18. Are there any transport routes passing through or around the location which are susceptible to congestion or which cause environmental problem, which could be effected by the project**?**	☐ Yes ☐ No	
19. Are there any areas or features of historic or cultural importance on or around the location which could be effected by the project**?**	☐ Yes ☐ No	
20. Is the project located in a previously undeveloped area where there is a loss of Greenfield land**?**	☐ Yes ☐ No	
21. Are there existing land uses on or around the location e.g. homes, gardens or other private property, industry, commerce, recreation, public open space, community facilities, agriculture, forestry, tourism,	☐ Yes ☐ No	

Questions to be Considered	Yes/No?	Is this likely to result in a significant effect? Briefly Describe
mining or quarrying which could be effected by the project**?**		
22. Are there any plans for future land uses on or around the location which could be effected by the project?	☐ Yes ☐ No	
23. Are there any areas on or around the location which are densely populated or built up, which could be affected by the project**?**	☐ Yes ☐ No	
24. Are there any areas on or around the locations which are occupied by the sensitive land uses e.g. hospitals, schools, worship places, community facilities which could be affected by the project**?**	☐ Yes ☐ No	
25. Are there any areas on or around the locations which contain important high quality or scarce resources e.g. ground & surface water forestry, agriculture, fisheries tourism, minerals which could be affected by the project**?**	☐ Yes ☐ No	
26. Are there any areas on or around the locations which that are already subject to pollution or environmental damage e.g. where existing legal environmental standers are exceeded which could be affected by the project**?**	☐ Yes ☐ No	
27. Is the project location is susceptible to earthquake, subsistence, landslide erosions flooding or extreme adverse climate conditions e.g. temperature inversion, fogs, severe winds, which could cause the project to present environmental problem**?**	☐ Yes ☐ No	

Questions to be Considered	Yes/No?	Is this likely to result in a significant effect? Briefly Describe
28. What would be the source of energy supply for this project**?**	☐ Yes ☐ No	
29. What would be the mechanism of solid waste disposal/management when this project would become functional?	☐ Yes ☐ No	
30. What would be the mechanism of waste water drainage/disposal/treatment when this project would become functional**?**	☐ Yes ☐ No	
31. What kind of effluents are expected /discharged when this project would become functional**?**	☐ Yes ☐ No	

ANNEXURE B – PAK EPA IEE and EIA Categorization

SCHEDULE I - List of projects requiring an IEE

A. Agriculture, Livestock and Fisheries

1. Poultry, livestock, stud and fish farms with total cost more than Rs.10 million
2. Projects involving repacking, formulation or warehousing of agricultural products

B. Energy

1. Hydroelectric power generation less than 50 MW
2. Thermal power generation less than 200 KW
3. Transmission lines less than 11 KV, and large distribution projects
4. Oil and gas transmission systems
5. Oil and gas extraction projects including exploration, production, gathering systems, separation and storage
6. Waste-to-energy generation projects

C. Manufacturing and processing

1. Ceramics and glass units with total cost more than Rs.50 million
2. Food processing industries including sugar mills, beverages, milk and dairy products, with total cost less than Rs.100 million
3. Man-made fibers and resin projects with total cost less than Rs.100 million
4. Manufacturing of apparel, including dyeing and printing, with total cost more than Rs.25 million
5. Wood products with total cost more than Rs.25 million

D. Mining and mineral processing

1. Commercial extraction of sand, gravel, limestone, clay, sulphur and other minerals not included in Schedule II with total cost less than Rs.100 million
2. Crushing, grinding and separation processes
3. Smelting plants with total cost less than Rs.50 million

E. Transport

1. Federal or Provincial highways (except maintenance, rebuilding or reconstruction of existing metalled roads) with total cost less than Rs.50 million
2. Ports and harbor development for ships less than 500 gross tons

F. Water management, dams, irrigation and flood protection

1. Dams and reservoirs with storage volume less than 50 million cubic meters of surface area less than 8 square kilometers
2. Irrigation and drainage projects serving less than 15,000 hectares
3. Small-scale irrigation systems with total cost less than Rs.50 million

G. Water supply and treatment

Water supply schemes and treatment plants with total cost less than Rs.25 million

H. Waste disposal

Waste disposal facility for domestic or industrial wastes, with annual capacity less than 10,000 cubic meters

I. Urban development and tourism

1. Housing schemes
2. Public facilities with significant off-site impacts (e.g. hospital wastes)
3. Urban development projects

J. Other projects

Any other project for which filing of an IEE is required by the Federal Agency under sub-regulation (2) of Regulation 5

SCHEDULE II – List of Projects Requiring EIA (Regulation 4)

A. Energy

a. Hydroelectric power generation over 50 MW.
b. Thermal power generation over 200 MW.
c. Transmission lines (11 KV and above) and grid stations.
d. Nuclear Power Plants.
e. Petroleum refineries.

B. Manufacturing and Processing

a. Cement Plants
b. Chemical projects
c. Fertilizer plants
d. Food processing industries including sugar mills, beverages, milk and dairy products, with total cost of Rs.100 million and above
e. Industrial estates (including export processing zones)
f. Man-made fibers and resin projects with total cost of Rs.100 M and above.
g. Pesticides (manufacture or formulation)
h. Petrochemicals complex
i. Synthetic resins, plastics and man-made fibers, paper and paperboard, paper pulping, plastic products, textiles (except apparel),printing and publishing, paints and dyes, oils and fats and vegetable ghee projects, with total cost more than Rs.10 million
j. Tanning and leather finishing projects

C. Mining and Mineral Processing

a. Mining and processing of coal, gold, copper, sulphur and precious stones
b. Mining and processing of major non-ferrous metals, iron and steel rolling
c. Smelting plants with total cost of Rs.50 million and above

D. Transport

a. Airports
b. Federal or Provincial highways or major roads (except maintenance, rebuilding or

reconstruction of existing roads) with total cost of Rs.50 million and above
c. Ports and harbor development for ships of 500 gross tons and above
d. Railway works

E. Water management, dams, irrigation and flood protection

a. Dams and reservoirs with storage volume of 50 million cubic meters and above or surface area of 8 square kilometers and above
b. Irrigation and drainage projects serving 15,000 hectares and above

F. Water supply and treatment

a. Water supply schemes and treatment plants with total cost of Rs. 25 million and above

G. Waste Disposal

a. Waste disposal and/or storage of hazardous or toxic wastes (including landfill sites, incineration of hospital toxic waste)
b. Waste disposal facilities for domestic or industrial wastes, with annual capacity more than 10,000 cubic meters

H. Urban development and tourism

a. Land use studies and urban plans (large cities)
b. Large-scale tourism development projects with total cost more than Rs.50 million

I. Environmentally Sensitive Areas

a. All projects situated in environmentally sensitive areas.

J. Other projects

a. Any other project for which filing of an EIA is required by the Federal Agency under sub-regulation (2) of Regulation 5.

Any other project likely to cause an adverse environmental effect

ANNEXURE C National Environmental Quality Standards (NEQS)

Table C.1: Selected NEQS for Waste Effluents

Parameter	Unit	Standards (maximum allowable limit)
Temperature increase	°C	< 3
pH value (acidity/basicity)	pH	6-9
5-day biochemical oxygen demand (BOD) at 20 °C	mg/l	80
Chemical oxygen demand (COD)	mg/l	150
Total suspended solids	mg/l	200
Total dissolved solids	mg/l	3,500
Grease and oil	mg/l	10
Phenolic compounds (as phenol)	mg/l	0.1
Chloride (as Cl)	mg/l	1,000
Fluoride (as F)	mg/l	10
Sulfate (SO_4)	mg/l	600
Sulfide (S)	mg/l	1.0
Ammonia (NH_3)	mg/l	40
Cadmium	mg/l	0.1
Chromium (trivalent and hexavalent)	mg/l	1.0
Copper	mg/l	1.0
Lead	mg/l	0.5
Mercury	mg/l	0.01
Selenium	mg/l	0.5
Nickel	mg/l	1.0
Silver	mg/l	1.0
Total toxic metals	mg/l	2.0
Zinc	mg/l	5
Arsenic	mg/l	1.0
Barium	mg/l	1.5
Iron	mg/l	8.0
Manganese	mg/l	1.5
Boron	mg/l	6.0
Chlorine	mg/l	1.0

Notes:

1. The standard assumes that dilution of 1:10 on discharge is available. That is, for each cubic meter of treated effluent, the recipient water body should have 10 m^3 of water for dilution of this effluent.
2. Toxic metals include cadmium, chromium, copper, lead, mercury, selenium, nickel and silver. The effluent should meet the individual standards for these metals as well as the standard for total toxic metal concentration.

Source: Government of Pakistan (2000) (SRO 549 (I)/2000).

Table C.2: NEQS for Industrial Gaseous Emissions

mg/Nm³ unless otherwise stated

Parameter	Source of Emission	Standards (maximum allowable limit)
Smoke	Smoke opacity not to exceed	40% or 2 Ringlemann Scale or equivalent smoke number
Particulate matter [1]	(a) Boilers and furnaces: i. Oil fired ii. Coal fired iii. Cement Kilns	 300 500 300
	(b) Grinding, crushing, clinker coolers and related processes, metallurgical processes, converters, blast furnaces and cupolas	500
Hydrogen Chloride	Any	400
Chlorine	Any	150
Hydrogen fluoride	Any	150
Hydrogen sulphide	Any	10
Sulphur Oxides [2, 3]	Sulfuric acid/Sulphonic acid plants	5,000
	Other Plants except power Plants operating on oil and coal	1,700
Carbon Monoxide	Any	800
Lead	Any	50
Mercury	Any	10
Cadmium	Any	20
Arsenic	Any	20
Copper	Any	50
Antimony	Any	20
Zinc	Any	200
Oxides of Nitrogen [3]	Nitric acid manufacturing unit	3,000
	Other plants except power plants operating on oil or coal: i. Gas fired ii. Oil fired iii. Coal fired	 400 600 1,200

Explanations:

1. Based on the assumption that the size of the particulate is 10 micron or more.
2. Based on 1% sulphur content in fuel oil. Higher content of sulphur will cause standards to be pro-rated.
3. In respect of emissions of sulphur dioxide and nitrogen oxides, the power plants operating on oil and coal as fuel shall in addition to NEQS specified above, comply with the standards provided separately.

Source: Government of Pakistan (2000) (SRO 549 (I)/2000).

Table C.3: National Environmental Quality Standards for Ambient Air [2]

Pollutants	Time-weighted Average	Concentration in Ambient Air		Method of Measurement
		Effective from 1st July 2010	Effective from 1st January 2013	
Sulfur Dioxide (SO_2)	Annual Average*	80 µg/m³	80 µg/m³	Ultraviolet Fluorescence
	24 hours**	120 µg/m³	120 µg/m³	
Oxides of Nitrogen as (NO)	Annual Average*	40 µg/m³	40 µg/m³	Gas Phase Chemiluminescence
	24 hours**	40 µg/m³	40 µg/m³	
Oxides of Nitrogen as (NO_2)	Annual Average*	40 µg/m³	40 µg/m³	Gas Phase Chemiluminescence
	24 hours**	80 µg/m³	80 µg/m³	
Ozone (O_3)	1 hour	180 µg/m³	130 µg/m³	Non dispersive UV absorption
Suspended Particulate Matter (SPM)	Annual Average*	400 µg/m³	360 µg/m³	High Volume Sampling, (Average flow rate not less than1.1 m³/minute).
	24 hours**	550 µg/m³	500 µg/m³	
Respirable Particulate Matter. PM_{10}	Annual Average*	200 µg/m³	120 µg/m³	β Ray absorption
	24 hours**	250 µg/m³	150 µg/m³	
Respirable Particulate Matter. $PM_{2.5}$	Annual Average*	25 µg/m³	15 µg/m³	β Ray absorption
	24 hours**	40 µg/m³	35 µg/m³	
	1 hour	25 µg/m³	15 µg/m³	
Lead (Pb)	Annual Average*	1.5 µg/m³	1.0 µg/m³	ASS Method after sampling using EPM 2000 or equivalent Filter paper
	24 hours**	2.0 µg/m³	1.5 µg/m³	
Carbon Monoxide (CO)	8 hours**	5 mg/m³	5 mg/m³	Non Dispersive Infra Red (NDIR)
	1 hour	10 mg/m³	10 mg/m³	

*Annual arithmetic mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval.

** 24 hourly /8 hourly values should be met 98% of the in a year. 2% of the time, it may exceed bu not on two consecutive days.

2 Full text of the *Standards* is available at the Pak-EPA website: (http://www.environment.gov.pk/info.htm).\
Source: Government of Pakistan (2010) (SRO 1062 (I)/2010).

Table C.4: NEQS for Motor Vehicles Exhaust and Noise [3]

(i) For In-use Vehicles

	Parameter	Standard (Maximum Permissible Limit)	Measuring Method	Applicability
1	Smoke	40% or 2 on the Ringlemann Scale during engine acceleration mode.	To be compared with Ringlemann Chart at a distance 6 or more. r	Immediate effect
2	Carbon Monoxide	6%	Under idling conditions: Non-dispersive infrared detection through gas analyzer.	
3	Noise	85 db (A).	Sound meter at 7.5 meters from the source.	

(ii) For new Vehicles

Emission Standards for Diesel Vehicles

(a) For Passenger Cars and Light Commercial Vehicles (g/Km)

Type of Vehicle	Category/Class	Tiers	CO	HC+ NOx	PM	Measuring Method	Applicability
Passenger Cars	M 1: with reference mass (RW) upto 2500 kg. Cars with RW over 2500 kg to meet NI category standards.	Pak-II IDI	1.00	0.70	0.08	NEDC (ECE 15+ EUDCL)	i. All imported and local manufactured diesel vehicles with effect from 01-07-2012
		Pak-II DI	1.00	0.90	0.10		
Light Commercial Vehicles	NI-I (RW<1250 kg)	Pak-II IDI	1.00	0.70	0.08		
		Pak-II DI	1.00	0.90	0.10		
	NI-II (1250 kg< RW <1700 kg0	Pak-II IDI	1.25	1.00	0.12		
		Pak-II DI	1.25	1.30	0.14		
	NI-III (RW>1700 kg)	Pak-II IDI	1.50	1.20	0.17		
		Pak-II DI	1.50	1.60	0.20		

Parameter	Standard (maximum permissible limit)	Measuring Method
Noise	85 db (A)	Sound meter at 7.5 meters from the source.

[3] Full text of the NEQS is available at the Pak-EPA website: (http://www.environment.gov.pk/info.htm).

(b) For Heavy Duty Diesel Engines and Large Goods Vehicles (g/Kwh)

Type of Vehicle	Category / Class	Tiers	CO	HC	NOx	PM	Measuring Method	Applicability
Heavy Duty Diesel Engines	Trucks and Buses	Pak-II	4.0	1.1	7.0	0.15	ECE-R-49	All Imported and local manufactured diesel vehicles with the effect 1-7-2012
Large goods Vehicles	N2 (2000 and up	Pak-II	4.0	7.0	1.10	0.15	EDC	

Parameter	Standard (maximum permissible limit)	Measuring Method
Noise	85 db (A)	Sound meter at 7.5 meters from the source.

Emission Standards for Petrol Vehicles (g/km)

Type of Vehicle	Category / Class	Tiers	CO	HC+ NOx	Measuring Method	Applicability
Passenger	M 1: With reference mass (RW) upto 2500 kg. Cars with RW over 2500 kg. to meet N1 category standards	Pak-II	2.20	0.50	NEDC (ECE 15 + EUDCL)	All imported and new models* locally manufactured petrol vehicles with effect from 1st July, 2009**
Light Commercial Vehicles	N1-I (RW<1250 kg)	Pak-II	2.20	0.50		
	N1-II (1250 kg>RW <1700 kg)	Pak-II	4.00	0.65		
	N1-III (RW>1700 kg)	Pak-II	5.00	0.80		
Motor Rickshaws & motor Cycles	2.4 strokes <150 cc	Pak-II	5.50	1.50	ECER 40	
	2.4 strokes>150 cc	Pak-II	5.50	1.30		

Parameters	Standard (maximum permissible limit)	Measuring Method
Noise	85 db (A)	Sound meter at 7.5 meters from the source

Explanations:	
DI:	Direct Injection
IDI:	Indirect Injection
EUDCL:	Extra Urban Driving Cycle

NEDC:	New Urban Driving Cycle
M:	Vehicles designed and constructed for the carriage of passengers and comprising no more than eight seats in addition to the driver's seat
N:	Motorvehicles with at least four wheels designed and constructed for the carriage of goods.
*	New model means both model and engine type change
**	The existing models of petrol driven vehicles locally manufacturedwill immediately switch ever to Pak-II emission standards but not later than 30th June, 2012

Source: Government of Pakistan (2009) (SRO 72 (KE)/2009).

Table C.5: National Standards for Drinking Water Quality4

Properties/Parameters	**Standard Values for Pakistan**
Bacterial	
All water intended for drinking (e.Coli or Thermotolerant Coliform bacteria)	Must not be detectable in any 100 ml samples
Treated water entering the distribution system (E.Coli orthermotolerant coliform and total coliform bacteria)	Must not be detectable in any 100 ml samples
Treated water in the distribution system (E.Coli orthermo tolerant coliform and total coliform bacteria)	Must not be detectable in any 100 ml samples In case of large supplies, where sufficient samples are examined, must not be present in 95% of the samples taken throughout any 12- month period.
Physical	
Color	≤15 TCU
Taste	Non objectionable/Accept able
Odor	Non objectionable/Accept able
Turbidity	< 5 NTU
Total hardness as $CaCO_3$	< 500 mg/l
TDS	< 1000
pH	6.5 – 8.5
Chemical	
Essential Inorganic	***mg/Litre***
Aluminum (Al)	≤0.2
Antimony (Sb)	≤0.005 (P)
Arsenic (As)	≤ 0.05 (P)
Barium (Ba)	0.7
Boron (B)	0.3
Cadmium (Cd)	0.01
Chloride (Cl)	<250

4 Full text of the Standards is available at the Pak-EPA website: (http://www.environment.gov.pk/info.htm).

Properties/Parameters	Standard Values for Pakistan
Chromium (Cr)	≤0.05
Copper (Cu)	2
Toxic Inorganic	***mg/Litre***
Cyanide (Cn)	≤0.05
Fluoride (F)*	≤1.5
Lead (Pb)	≤0.05
Manganese (Mn)	≤ 0.5
Mercury (Hg)	≤0.001
Nickel (Ni)	≤0.02
Nitrate (NO_3)*	≤50
Nitrite (NO_2)*	≤3 (P)
Selenium (Se)	0.01 (P)
Residual chlorine	0.2-0.5 at consumer end; 0.5-1.5 at source
Zinc (Zn)	5.0
Organic	
Pesticides mg/l	PSQCA No. 4639-2004, Page No. 4 Table No. 3 Serial No. 20- 58 may be consulted.**
Phenolic compound (as phenols) mg/l	WHO standards: ≤ 0.002
Polynuclear Aromatic hydrocarbon (as PAH) g/L	WHO standards: ≤ 0.01v(by GC/MS method)
Radioactive	
Alpha Emitters bq/L or pCi	0.1
Beta Emitters	1

* indicates priority health related inorganic constituents which need regular monitoring.

** PSQCA: Pakistan Standards Quality Control Authority.

Source: Government of Pakistan (2010) (SRO 1063(I)/2010).

Table C.6: National Environmental Quality Standards for Noise 5

Limit in dB(A) Leq *

Category of Area/Zone	Effective from 1st July 2010		Effective from 1st July 2012	
	Day time	Night time	Day time	Night time
Residential area	65	50	55	45
Commercial area	70	60	65	55
Industrial area	80	75	75	65

5 Full text of the Standards is available at the Pak-EPA website: (http://www.environment.gov.pk/info.htm).

Silence zone	55	45	50	45

Notes:

1. Day time hours: 6:00 a.m. to 10:00 p.m.
2. Night time hours: 10:00 p.m. to 6:00 a.m.
3. Silence zone::Zones that are declared as such by the competent authority. An area comprising not less than 100 m around the hospitals, educational institutions, and courts.
4. Mixed categories of areas may be declared as one of the four above-listed categories by the competent authority.

* dB(A) Leq: Time weighted average of the level of sound in decibels on Scale A which is relatable to human hearing.

Source: Government of Pakistan (2010) (SRO 1064(I)/2010).

ANNEXURE D TORs for Sub-Project Site Specific Environment and Social Impact Assessment

A. Background

Pakistan by virtue of its geo-strategic location is a junction of South Asia, West Asia and Central Asia. A strategic program of regional connectivity is envisaged to connect Pakistan through enhanced physical infrastructure development. The pillar-VII of GOP's Vision 2025 is aimed at Modernization of Transportation Infrastructure & Greater Regional Connectivity. This Pillar includes the China Pakistan Economic Corridor (CPEC). Furthermore, the Central Asia Regional Economic Cooperation (CAREC) initiative has identified various corridors from CARs to Pakistan through Afghanistan and China. Each corridor improves access for CAREC countries to at least two large Eurasian markets.

Eastern corridor of the road project includes Peshawar-Kabul motorway, a 4-lane, access-controlled, 281 km long motorway connecting Peshawar, capital city of the Khyber-Pakhtunkhwa (KPK) Province in Pakistan with Kabul, capital city of Afghanistan via Torkham (border between Pakistan and Afghanistan in KPK Province). The proposed motorway can be termed the Gateway to Central Asia. It is divided in three parts, 50 km long Peshawar-Torkham (Pakistan), 76 km Torkham-Jalalabad and 155 km Jalalabad-Kabul (Afghanistan).

B. Project Overview

The project has two components. The Component I focuses on the development of a 50 km motorway from Torkham to Peshawar while Component II encompasses the development of economic activities in the vicinity of the motorway corridor.

Component 2: Allied Facilities - Activities will focus on four areas (i) Development economic plan for FATA (ii) vocational training and skill enhancement (with a focus on FATA) and (iii) microfinance (also with a focus on FATA) and (iv) rehabilitation/upgrading of infrastructure (in particular secondary roads and industrial zones along the economic corridor.

Additional transport infrastructure to connect the Peshawar Torkham Expressway to local communities and the CPEC. Such activities will be financed by the government. The project could support such investments starting with their feasibility studies in the context of the Economic Development plan for Fata which will be supported by the project.

Rehabilitation and upgrading of industrial zones along the Peshawar Torkham Economic Corridor. Such activities will be financed through public private partnerships. The Project will support the public share of such investments – including the provision of facilities which would make these industrial zones more inclusive (e.g. common facility centers for SMEs, day care centers for women workers) and sustainable (e.g. combined effluent treatment plants).

Development of warehouse facilities (including cold storage), trucking terminals and a dry port facility (to alleviate the need to resolve custom issues in Karachi – solution which worked well in Sialkot). Such activities should be financed primarily by the private sector. The project could support their feasibility and help mobilize and coordinate private sector financing.

C. Scope of Work

To achieve the broad aim of ensuring safeguards analysis, the consultant will:

1. **Review the Project details**

   Review the proposed project and its geographic, ecological, social, and temporal context, including any offsite investments that may be required. Identify the need for any resettlement plan or indigenous people development plan. Define **area of influence** on the basis of the project scope and extent.

2. **Review of the Legislative and Regulatory Framework**

   Review the policy, legal, and administrative framework within which the ESA is carried out. Review the national environmental requirements and those of any co-financier. Identify relevant international environmental agreements to which the country is a party. Also, review the WB OPs and their triggering status for the Project. Also, state the actions taken/planned in response to each OP triggered.

3. **Scoping**

   Scoping is among the first steps of the EA and is essentially the process of identifying the significant issues relating to the proposed action and of determining the scope of the issues to be addressed in the EA. The key tasks include: i) carry out reconnaissance field visit(s); ii) hold initial stakeholder consultations; iii) identify the key aspects to be studied during the detailed ESA, iv) finalize ESA ToRs in consultation with the stakeholders; v) prepare work plan for the subsequent ESA tasks; and vi) prepare the Scoping Statement compiling the process and outcome of the scoping tasks described above.

4. **Analysis of Alternatives**

   Systematically compare feasible alternatives to the proposed project site, technology, design, and operation--including the "without project" situation--in terms of their potential environmental impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. For each of the alternatives, quantify the environmental impacts to the extent possible, and attaches economic values where feasible. State the basis for selecting the particular project design proposed and justifies recommended emission levels and approaches to pollution prevention and abatement.

5. **Detailed Baselines Studies and Analysis**

   Assess the dimensions of the study area and review relevant physical, biological, land-use, and socioeconomic conditions, including any changes anticipated before the project commences. Also study current and proposed development activities within the project area but not directly connected to the project. Also, analyze the trends in the key environmental and social parameters of the area. Data should be relevant to decisions about project location, design, operation, or mitigatory measures.

   Collect secondary and primary data on the following aspects:

   Physical Environment (physiography, climate, geology and seismology, soils, hydrology, groundwater, flooding, geomorphology and sedimentation, water quality, air quality, noise, and others). Develop the necessary cartography to demonstrate the spatial linkage with the project's area of influence. Scale suggested 1:100,000.

   Biological Environment (natural vegetation - trees, shrubs, herbs, scrub, grasses, medicinal plants, others; fauna - mammals, birds including migratory birds, reptiles, amphibians, insects, fish and red listed species (in all the cases include the conservation status); biodiversity including carrying capacity; protected and non-protected areas including hunting, poaching, illegal fishing; wetlands; fish; benthic flora and fauna; and others). Given the linear nature of the proposed infrastructure, and the potential interference in the ecosystems (potential fragmentation of ecological corridors, etc.), it is recommended to present this section following a landscape or macro ecology approach. Develop the necessary

cartography to demonstrate the spatial linkage with the project's area of influence. Scale suggested 1:100,000.

Social Environment (population and demography; land use and natural resources including agriculture, livestock, grazing, forestry; other economic activities e.g. quarrying, tourism, fishing, trade, services; social infrastructure and services including education, health, communications, others; vehicular traffic; access and security; community organizations; vulnerable groups and poverty situation; gender aspects; recreation areas/potential; cultural heritage; archaeology; objects of special interest, e.g. graveyards and monuments; and others). Develop the necessary cartography to demonstrate the spatial linkage with the project's area of influence. Scale suggested 1:100,000.

6. Stakeholder Consultations

Hold two rounds of consultations. First consultation should be conducted at scoping stage with stakeholders including government agencies affected people and local non-governmental organizations (NGOs). Hold consultative workshops at the site, in Islamabad, and Peshawar. The second consultations should be held after preparing draft ESA report (during Public Hearing) – with grass-root as well as institutional stakeholders.

7. Impact Assessment

Predict and assess the project's likely positive and negative impacts on people and environment, in quantitative terms to the extent possible, associated with Project and its effect zones, design, construction, and operation. Assess potential environmental impacts such as air quality deterioration, noise and light pollution, soil erosion and contamination, water consumption and contamination, damage to natural habitat, loss of natural vegetation, and threat to wildlife, habitat fragmentation and alteration. Also, assess the climate change implications for the project. Assess impacts associated with all permanent as well as temporary facilities of the project during construction as well as O&M phase including access routes/roads if any, construction camps, offices, workshops, and others.

Also, assess potential social and socioeconomic impacts including loss of land and property, damage to crops, effects on local access routes, damage to local infrastructure and amenities, local conflicts, cultural issues, damage to sites of religious, cultural, or historical significance, impacts on vulnerable groups, safety hazards for local population and workforce, privacy/encroachment, and gender aspects.

Determine various characteristics of the potential impacts including spatial extent (local, regional, global), nature (direct/indirect), temporal extent (temporary, permanent), reversibility, severity, and sensitivity of receptors. Based on this, characterize the significance of each impact.

Assess the Project with reference to the national regulatory requirements (eg, NEQS) and all WB OPs with special reference to natural habitats, physical cultural resources, forests and involuntary resettlement.

Explore opportunities for environmental enhancement as well as socioeconomic development. Identify and estimate the extent and quality of available data, key data gaps, and uncertainties associated with predictions, and specify topics that do not require further attention.

The impact assessment and mitigation measures should address the requirements detailed in WB Ops.

8. Cumulative and Induced Impacts

Consider and assess the cumulative impacts of this and in combination with other development projects in the area (on-going and planned). In particular, review the projects envisaged under FATA Mid term Development Framework and FATA Annual Development Plan as well as consider and assess any

potential interaction of impacts of those projects with those of CAREC-5 corridor as well as part of the Asian Highway Network (AH-1).

9. **Environmental and Social Management Plan (ESMP)**

   Prepare ESMP complete with mitigation plan, compliance monitoring plan, effects monitoring plan, institutional arrangements, training needs, documentation and communication protocol, grievance redressal mechanism, cost of implementing ESMP, and mechanism to integrate ESMP with the Project (eg, through contractual clauses). The ESMP should follow the WBG EHS Guidelines.

   Identify mitigation measures and any negative impacts that cannot be mitigated, and also the significance of those impacts. The mitigation measures should be project- and site-specific, cost-effective, practical, and socially acceptable. Preparation of ESMP will consider the standard social and environmental provisions included in WB bidding documents, including criteria to manage labor influx in the project's area of influence. The SEMP and its detailed budget will be the bases to prepare the environmental and social specifications that will be part of the bidding document. Environmental and social management costs will be essential and should be provided in such a way that they could be later incorporated in the bidding document as part of the "Bill of Quantities" (BoQ).As part of the ESMP, environmental and social management capacity within NHA will be evaluated and appropriate institutional strengthening as well as capacity building arrangements will be proposed.

D. Deliverables and Proposed/Indicative Structure of ESMP Report

The consultants will be required to prepare and submit Environmental and Social Impact Assessment (ESIA) for the entire sub-project including ESMP. The suggested and indicative contents of the ESIA report is given below:

1. **Executive Summary:** Concisely discusses significant findings and recommended actions, ESIA contents and key findings, in a vocabulary that is easily understood by the public.
2. **Introduction**
   - Overview
   - Background and brief Project Description
   - Objective of ESIA
   - Methodology/Approach to work
   - Area of Influence/Corridor of Impact
   - Task Team Composition
3. **Legal and administrative framework**
   - GoP requirements (legislation; guidelines and rules; policies; international treaties signed by Pakistan; national and provincial authorities; environmental procedures), their applicability, and compliance status for the Project.
   - World Bank requirements (operational Policies and safeguard requirements; and WBG Environmental Health Guidelines) and their triggering and compliance status for the Project.
4. **Project description**
   - Need and purpose of project
   - Project location
   - Salient features

- Description of project and its components (pavement, intersections/interchanges, permanent facilities; temporary facilities -location, size, type, etc.; others)
- Construction activities
- Construction machinery, materials and other supplies (including estimated numbers/quantities)
- Waste generation and disposal (including estimated quantities)
- Manpower requirements
- Operation and maintenance (supplies; waste generation and management; manpower requirements; others).

5. Baseline description/analysis

- Study area
- Physical environment (physiography; climate; geology and seismology; soils; hydrology; groundwater; patterns of natural drainage, flooding; sedimentation; water quality; air quality; noise; others).
- Biological environment (flora including natural vegetation, planted trees, medicinal plants, different habitat types, red list species; fauna including mammals, birds including migratory birds, reptiles, amphibians, fish and red listed species; biodiversity; protected and non-protected areas including hunting, poaching, illegal fishing; wetlands; and fisheries).
- Social and economic environment (population and demography; land use and natural resources including agriculture, livestock, grazing, and forestry; other economic activities e.g. quarrying, tourism, fishing, trade, services; social infrastructure and services including education, health, communications; access and security; community organizations; vulnerable groups and poverty situation; gender aspects; recreation areas/potential).
- Cultural aspects (cultural heritage; archaeology; and other objects of special interest, e.g. graveyards, monuments).

6. Project alternatives

- Without project alternative
- Other alternatives including material sourcing and temporary faciliteis

7. Other relevant issues

- Risk of earthquakes
- Risk of flooding
- Climate change

8. Public Consultation and Information Disclosure

- Description and Results of Scoping sessions
- Description and Results of Focused group discussions
- Description and Results of Public consultations
- Description and Results of Information disclosure

9. Potential environmental impacts and their mitigations

- Impact assessment, prediction, and characterization method.
- Impacts during construction phase (including but not limited to natural habitats, creation of barriers to movement in habitats; disposal areas; air quality; water quality (surface and groundwater);

vehicular traffic; noise levels for residential areas and wildlife; soil erosion and slope stability; safety hazards; public health; cultural heritage; occupational hazards; waste disposal; damage to infrastructure; and others).

- Impacts during operational phase (including changes in local climate, presence of suspended particles, smoke, noise and light pollution, reconfigured landforms and alteration of natural pattern of drainage, changes in original topography and stability of terrain, soil/surface water/groundwater contamination due to accidents and spills).
- Impacts during decommissioning phase.

10. Potential social impacts and their mitigations

- Resettlement and compensation
- Impacts and their mitigations during construction phase (land requirement for temporary and permanent facilities; noise; increased traffic: pressure on local infrastructure and services; influx of labor; employment opportunities; social and cultural issues; privacy of local population; gender issues; others).
- Impacts and their mitigations during operational phase (including but not limited to employment opportunities; additional pressure on local resources and services; damage to infrastructure; and others).

11. Cumulative and Induced Impacts

- Cumulative impacts of on-going and planned projects in the area
- Induced impacts of the Project.

12. Environmental and social management plan (ESMP)

- Types of impacts and their mitigations
- Mitigation measures
- Environmental Code of Practices (to be attached to bidding documents)
- Integration with Project (contract clauses, others)
- Monitoring Plan
- Communication and consultation
- Grievance redress Mechanism.
- Institutional strengthening (baseline situation; strengthening environmental monitoring capabilities; strengthening social monitoring capabilities; proposed institutional arrangements; and training).
- Cost of ESMP

13. REFERENCES

14. ANNEXES

E. Qualification and Skills Required

The study team should include appropriate number of specialists from different disciplines including but not limited to environmental sciences, social sciences, gender, resettlement planning, botany, biology, hydrology, soil sciences, archeology, and others. The team should have experience and understanding of the national legislative requirements as well as WB safeguard policies. The requirements for the key study team members are given below.

- Team Leader: Minimum 15 years of experience of conducting environmental and social assessment studies; previous experience of working on WB Category A projects; complete understanding of the national legislative and regulatory as well as WB Policy requirements; proven report writing skills.
- Environment Specialists (x2): Minimum 7 years of experience of conducting environmental assessment studies; understanding of the national legislative and regulatory as well as WB Policy requirements on environmental assessment; command over data collection methodology.
- Social Development and Resettlement Specialists (x2): Minimum 7 years of experience of conducting social assessment studies and resettlement planning; understanding of the national legislative and regulatory as well as WB Policy requirements on socioeconomic and resettlement aspects; command over data collection methodology and stakeholder consultation techniques.
- Ecologist(s)/biologist(s): Minimum 7 years of experience of conducting ecological/biological studies as part of environmental studies; understanding of the national legislative and regulatory as well as WB Policy requirements on environmental assessment particularly on natural habitat and forests; command over data collection methodology.
- GIS Expert: Minimum 7 years of experience of developing maps, data gathering, spatial modeling, calculation of impact magnitude, and impact assessment.

F. Applicable OPs

Operational Policies (OP) /Bank Procedures (BP)

- OP / BP 4.01 Environmental Assessment
- OP 4.11 Physical Cultural Resources
- OP / BP 4.12 Involuntary Resettlement
- BP 17.50 Disclosure of Operational Information

The consultants will also make use of the WBG Environmental, Health, and Safety Guidelines.

ANNEXURE E TORs for Sub-Project Site Specific Environment and Social Management Plans

A. Background

Pakistan by virtue of its geo-strategic location is a junction of South Asia, West Asia and Central Asia. A strategic program of regional connectivity is envisaged to connect Pakistan through enhanced physical infrastructure development. The pillar-VII of GOP's Vision 2025 is aimed at Modernization of Transportation Infrastructure & Greater Regional Connectivity. This Pillar includes the China Pakistan Economic Corridor (CPEC). Furthermore, the Central Asia Regional Economic Cooperation (CAREC) initiative has identified various corridors from CARs to Pakistan through Afghanistan and China. Each corridor improves access for CAREC countries to at least two large Eurasian markets.

Eastern corridor of the road project includes Peshawar-Kabul motorway, a 4-lane, access-controlled, 281 km long motorway connecting Peshawar, capital city of the Khyber-Pakhtunkhwa (KPK) Province in Pakistan with Kabul, capital city of Afghanistan via Torkham (border between Pakistan and Afghanistan in KPK Province). The proposed motorway can be termed the Gateway to Central Asia. It is divided in three parts, 50 km long Peshawar-Torkham (Pakistan), 76 km Torkham-Jalalabad and 155 km Jalalabad-Kabul (Afghanistan).

B. Project Overview

The project has two components. The Component I focuses on the development of a 50 km motorway from Torkham to Peshawar while Component II encompasses the development of economic activities in the vicinity of the motorway corridor.

Component 2: Allied Facilities - Activities will focus on four areas (i) Development economic plan for FATA (ii) vocational training and skill enhancement (with a focus on FATA) and (iii) microfinance (also with a focus on FATA) and (iv) rehabilitation/upgrading of infrastructure (in particular secondary roads and industrial zones along the economic corridor.

Additional transport infrastructure to connect the Peshawar Torkham Expressway to local communities and the CPEC. Such activities will be financed by the government. The project could support such investments starting with their feasibility studies in the context of the Economic Development plan for Fata which will be supported by the project.

Rehabilitation and upgrading of industrial zones along the Peshawar Torkham Economic Corridor. Such activities will be financed through public private partnerships. The Project will support the public share of such investments – including the provision of facilities which would make these industrial zones more inclusive (e.g. common facility centers for SMEs, day care centers for women workers) and sustainable (e.g. combined effluent treatment plants).

Development of warehouse facilities (including cold storage), trucking terminals and a dry port facility (to alleviate the need to resolve custom issues in Karachi – solution which worked well in Sialkot). Such activities should be financed primarily by the private sector. The project could support their feasibility and help mobilize and coordinate private sector financing.

C. Scope of Work

The Consultant is required to prepare ESMP highlighting a set of mitigation, monitoring, and institutional

measures to be taken during implementation and operation to eliminate or reduce adverse environmental and social impacts to acceptable levels. The plan will also include the actions needed to implement these measures. To prepare a management plan, the Consultant will identify (a) identify the set of responses to potentially adverse impacts; (b) determine requirements for ensuring that those responses are made effectively and in a timely manner; and (c) describe the means for meeting those requirements.

An ESMP usually includes the following components:

- **Description of Adverse Effects:** The anticipated effects are identified and summarized.
- **Description of Mitigation Measures:** Each measure is described with reference to the effect(s) it is intended to deal with. As needed, detailed plans, designs, equipment descriptions, and operating procedures are described.
- **Description of Monitoring Program:** Monitoring provides information on the occurrence of environmental effects. It helps identify how well mitigation measures are working, and where better mitigation may be needed. The monitoring program should identify what information will be collected, how, where and how often. It should also indicate at what level of effect there will be a need for further mitigation.
- **Responsibilities:** The people, groups, or organizations that will carry out the mitigation and monitoring activities are defined, as well as to whom they report and are responsible. There may be a need to train people to carry out these responsibilities, and to provide them with equipment and supplies.
- **Implementation Schedule:** The timing, frequency and duration of mitigation measures and monitoring are specified in an implementation schedule, and linked to the overall subproject schedule.
- **Cost estimates and sources of funds:** These are specified for the initial subproject investment and for the mitigation and monitoring activities as a subproject is implemented. Funds to implement the EMP may come from the subproject grant, from the community, or both. Government agencies and NGOs may be able to assist with monitoring.

Separate ESMP(s) will be prepared for all major sub-projects of the Component II.

Please note that the methods for monitoring the implementation of mitigation measures or environmental effects should be as simple as possible. Further guidance on preparation of ESMP can also be provided, if required. **The ESMP will be required to be reviewed and cleared by the World Bank.**

D. Deliverables and Proposed/Indicative Structure of ESMP Report

The proposed structure of the ESMP report is as follows:

- **Executive Summary:** This should provide a general summary of the ESMP contents and key findings, in a vocabulary that is easily understood by the general public. It should be clear, concise ranging from 3 to 5 pages;
- **Introduction:** An introduction describing the ESMP purpose, objectives, principles and methodology. This section should introduce the project proponents, the study team, and provide other relevant information. The layout of ESMP should also be described to facilitate its use;
- **Sub-Project Description:** A description of the subproject which will include background, purpose and

different components. Also indicate any subproject specific resource requirements such as material, manpower, equipment, etc.

- **Environmental Baseline of Subproject Area:** This section gives site specific overview of baseline covering physical and biological environment. It will include ambient air quality, noise, temperatures, rainfall, etc.
- **Socio-Economic Profile of Subproject Area:** This section describes socio-economic profile of the subproject area. It will cover community structure, planned development activities, population, occupation and livelihoods, methods of communication and transport, cultural heritage sites, etc.
- **Stakeholder consultation and Information Disclosure:** This section will describe the objective, process, and outcome of the stakeholder consultations carried out during the ESMP preparation. This section should also list arrangements for disclosing subprojects information in order to comply with the Bank's Policy of Disclosure of Information.
- **Impacts and Mitigation:** This section will identify all positive as well as negative environmental and social impacts with cost effective and feasible measures to reduce adverse environmental impact to acceptable level. It will describe with technical details mitigation measures including the type of impact to which it relates to. It will also describe methodology for social impacts
- **Environmental Management and Monitoring Plan:** This section will provide specific description and technical details of monitoring measures including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions. The monitoring and reporting procedures will ensure early detection of conditions that necessitate particular mitigation measures, and furnish information on the progress and results of mitigation.
- **ESMP Implementation Budget:** An ESMP implementation budget estimates are provided here. The budget will include funds for institutions development activities, training programs for implementation teams and local/national institutions, technical assistance to authorities, costs for preparations of EMPs and other safeguard documents; and
- **Annexures:** Technical annexes to support ESMP implementation.

E. Qualifications and Skills Required

The Consultant/Framework Team needs to demonstrate that the proposed ESMP preparation team has the expertise required to fully appreciate the requirements of *all* the Safeguards Policies to be addressed in the ESMP, and to complete *all* required sections of the ESMP. The team should include appropriate number of specialists from different disciplines including but not limited to environmental sciences, social sciences and GIS expert. The team should have complete understanding of the national legislative requirements as well as WB safeguard policies.

F. Applicable OPs

Operational Policies (OP) /Bank Procedures (BP)

- OP / BP 4.01 Environmental Assessment

- OP 4.11 Physical Cultural Resources
- OP / BP 4.12 Involuntary Resettlement
- BP 17.50 Disclosure of Operational Information

The consultants will also make use of the WBG Environmental, Health, and Safety Guidelines.

ANNEXURE F – Category C Checklist

Name of Subproject:

Proposing Agency:

Subproject Location:

Subproject Objective:

Subproject description (describe here subproject components and their dimensions/quantum, construction and O&M activities, major construction material required with approximate quantities, and other pertinent details) (Use extra pages if needed):

Environmental and social setting (describe here the key environmental and social features (land form, land use, water bodies, flora and fauna, settlements, roads, railway lines, any public buildings, schools, hospitals, graveyards, etc.) of the area where the subproject would be implemented (Use extra pages if needed):

Proposed Date of Commencement of Work:

Technical Drawing/Specifications Reviewed (circle answer): Yes __ No__

	ISSUES	None	Minor/ Small	Moderate/ Medium	Significant/ Large	Mitigation Measures	Mitigation Responsibility
A.	**Zoning and Land Use Planning**						
1.	Will the subproject affect land use zoning and planning or conflict with prevalent land use patterns?						
2.	Will the subproject result in loss of greenfield land?						

	ISSUES	None	Minor/ Small	Moderate/ Medium	Significant/ Large	Mitigation Measures	Mitigation Responsibility
3.	Will the subproject involve significant land disturbance or site clearance?						
4.	Will the subproject land be subject to potential encroachment by urban or industrial use or located in an area intended for urban or industrial development?						
B	**Utilities and Facilities**						
5.	Will the subproject require the setting up of ancillary facilities?						
6.	Will the subproject make significant demands on utilities and services?						
7.	Will the subproject require significant levels of accommodation or service amenities to support the workforce during construction (e.g., contractor will need more than 20 workers)?						
C	Water and Soil Contamination						
8.	Will the subproject require large amounts of raw materials or construction materials?						
9.	Will the subproject generate large amounts of residual wastes, construction material waste or cause soil erosion?						
10.	Will the subproject result in potential soil or water						

	ISSUES	None	Minor/ Small	Moderate/ Medium	Significant/ Large	Mitigation Measures	Mitigation Responsibility
	contamination (e.g., from oil, grease and fuel from equipment yards)?						
11.	Will the subproject lead to contamination of ground and surface waters by herbicides for vegetation control and chemicals (e.g., calcium chloride) for dust control?						
12.	Will the subproject lead to an increase in suspended sediments in streams affected by road cut erosion, decline in water quality and increased sedimentation downstream?						
13.	Will the subproject involve the use of chemicals or solvents?						
14.	Will the subproject lead to the destruction of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards?						
15.	Will the subproject lead to the creation of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors?						
D.	**Noise and Air Pollution Hazardous Substances**						
16.	Will the subproject increase the levels of harmful air emissions?						

	ISSUES	None	Minor/ Small	Moderate/ Medium	Significant/ Large	Mitigation Measures	Mitigation Responsibility
17.	Will the subproject increase ambient noise levels?						
18.	Will the subproject involve the storage, handling or transport of hazardous substances?						
E.	**Fauna and Flora**						
19.	Will the subproject involve the disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes)?						
20.	Will the subproject lead to the destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development?						
21.	Will the subproject lead to the disruption/destruction of wildlife through interruption of migratory routes, disturbance of wildlife habitats, and noise-related problems?						
F.	**Destruction/Disruption of Land and Vegetation**						
22.	Will the subproject lead to unplanned use of the infrastructure being developed?						
23.	Will the subproject lead to long-term or semi-permanent						

	ISSUES	None	Minor/ Small	Moderate/ Medium	Significant/ Large	Mitigation Measures	Mitigation Responsibility
	destruction of soils in cleared areas not suited for agriculture?						
24.	Will the subproject lead to the interruption of subsoil and overland drainage patterns (in areas of cuts and fills)?						
25.	Will the subproject lead to landslides, slumps, slips and other mass movements in road cuts?						
26.	Will the subproject lead to erosion of lands receiving concentrated outflow carried by covered or open drains?						
27.	Will the subproject lead to long-term or semi-permanent destruction of soils in cleared areas not suited for agriculture?						
28.	Will the subproject lead to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles?						
G.	**Cultural Property**						
29.	Will the subproject have an impact on archaeological or historical sites, including historic urban areas?						
30.	Will the subproject have an impact on religious monuments, structures and/or cemeteries?						
31.	Have Chance Finds procedures been prepared for use in the subproject?						

	ISSUES	None	Minor/ Small	Moderate/ Medium	Significant/ Large	Mitigation Measures	Mitigation Responsibility
H.	**Expropriation and Social Disturbance**						
32.	Will the subproject involve land expropriation or demolition of existing structures?						
33.	Will the subproject lead to induced settlements by workers and others causing social and economic disruption?						
34.	Will the subproject lead to environmental and social disturbance by construction camps?						

G. LIST OF PARTICIPANTS OF PUBLIC CONSULTATION MEETING