Initial Environmental Examination

June 2015

PAK: Regional Improving Border Services Project

Torkham Border Crossing Point (BCP)

Prepared by Federal Board of Revenue, Revenue Division, Government of Pakistan for the Asian Development Bank.

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CURRENCY EQUIVALENTS

(As of March 3, 2014)

$1.00 (US Dollar)	–	101.88 Pakistani rupees (PKR)
1 Pakistani rupees (PKR)	–	$ 0.0098 (US Dollar)

ACRONYMS / ABBREVIATIONS

ADB	Asian Development Bank
AIDS	Acquired Immunodeficiency Syndrome
BCP	Border Crossing Point
BEPA	Basic Environmental Policy act
CCTV	Close Circuit Television
CSC	Construction Supervision Consultant
DN	Do Nothing
DS	Do Something
EA	Executing Agency
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPA	Environmental Protection Agencies
FBR	Federal Board of Revenue
GCC	General Conditions of the Contract
GFP	Grievance Focal Points
GOP	Government of Pakistan
GRC	Grievance Redress Committee
GRM	grievance redress mechanism
HIV	Human Immunodeficiency Virus
ICT	Information and Communications Technology
IEE	Initial environmental examination
IPCC	Intergovernmental Panel on Climate Change
IT	Information Technology
IUCN	International Union for Conservation of Nature
MRC	Marshal Reporting Console
NEQS	National Environment Quality Standards
NGOs	non-government organizations
NLC	National Logistics Cell
NWFP	North-West Frontier Province
ORS	Oral Rehydration Salts
PA	Political Agent

Pak-EPA	Pakistan Environmental Protection Agency
PEPA	Pakistan Environmental Protection Act
PIU	Project Implementing Unit
SPS	Safeguard Policy Statement
UNICEF	United Nation Children's Emergency Fund
WHO	World Health Organization
WTO	World Trade Organization

Executive Summary

1. An environmental assessment was made for the proposed Torkham border crossing point (BCP) improvement project. This BCP is envisioned to become part of a more progressive and improved regional transport corridors for Pakistan's products to international markets covering areas in Central Asia and other neighboring trading partners.

2. The Project is a component of PAK: Improving Border Services Project to be financed under a loan agreement by the Asian Development Bank (ADB) with the Government of Pakistan (GoP) through its Federal Board of Revenue (FBR) as the Executing Agency (EA).

3. This BCP plays an important and strategic role in Pakistan's endowments and development potential. However, this BCP is facing significant economic and security obstacles which greatly impede the achievement of the desired development outcomes.

4. Torkham BCP lacks the necessary facilities and equipment to serve as efficient regional transport corridors. This BCP can no longer process the current volumes of export, import and transit cargo and pedestrians. Under this background, the primary objective of the project is to provide both structural and non-structural interventions to address the inadequacies that are restricting trade operation and hampering full potential of the transit trade of this BCP and Pakistan in general. By improving Torkham BCP's operational capability, it is expected that the project will enhance the economic growth and in the long term reduce poverty in the project area.

5. Under the proposed improvement project, the works consist of (i) developmental works, (ii) buildings and (iii) colony/accommodations. The goods consist of the provision of short-and long-term equipment and system for data connectivity Marshal Reporting Console (MRC), Information and Communications Technology (ICT) and Information Technology (IT).

6. The implementation of the proposed improvement works which involve earth and civil works is not expected to generate significant environmental impacts.

7. With the type of improvement works as described and with the understanding that the project will generate limited impact and risks significance to the existing environment, based on ADB

Environmental Safeguards Policy (2009), the project falls under Category B project. The type of assessment warranted the preparation of an Initial Environmental Examination (IEE) report. Hence, this IEE was carried out as part of the process of compliance with the ADB's Safeguards Policy of 2009 and within the policy, legal, and administrative frameworks relevant to the environmental assessment of the Government of Pakistan.

8. Subproject Description. For this BCP, the proposed scope of improvement consists of the provision of developmental works, buildings, colony/ accommodation and equipment. The list of the proposed improvement works and goods is provided below:

Structural Intervention	Developmental Works	Earthworks / Approach Road / Approach Road (3+3 Lane) Cement Road / Fencing & Signage / Overhead Water Reservoir / Street Lights / Flood Lights / Weighing Bridge / Parking Area / Retaining Wall for Road / Boundary Wall / Toll Booth / Toll Canopy / Secondary Inspection Canopy / Cargo Immigration Canopy / Quarantine Shed / Surface Drainage Works / Solar Power System / Power Supply Network
	Buildings	Central Administration Building / Seized Goods Warehouse / Commercial Warehouse / Small Offices / Customs Lab / Passenger Terminal Building Renovation / Services Area (Pray Area, Café, Main Shop) / Services Watch Tower / Security Gates / Business Center
	Colony/ Accommodations	Accommodation / Pavement / Approach Road
Equipment		Short Term (Data Connectivity MRC, ICT Equipment)
		Long Term (Data Connectivity MRC, ICT Equipment and IT Systems)

9. As of July 2014, project cost for Torkham Border Improvement Project is estimated at US $ 80.02 M. This cost includes funds for the integration and implementation of environmental management plan (EMP) in the overall project design to ensure compliance with safeguard requirements of ADB and the Government of Pakistan. EMP costs, especially those EMPs to be undertaken during construction phase, will be incorporated into the Contractors' cost while some will be built to specifically manage solid and wastewater wastes during operation phase where funds shall be likewise allocated by the EA.

10. Impact Assessment. Environmental Impact Assessment is the process of identifying, predicting, evaluating and mitigating the physical, biological, social and other relevant effects of any development projects prior to major decisions, commitment and implementation. The EIA aims to provide information to decision makers and the public about the environmental implications of the project before critical decisions are made. As part of the EIA process, methodologies include: (i)

screening, (ii) scoping, (iii) examination of alternatives, (iv) impact analysis, (v) mitigation and management, (vi) evaluation, (vii) reporting, (viii) review, (ix) decision making, and (x) follow up or monitoring.

11. Based on ADB Environmental Safeguards Policy (2009), this project falls under Category B project of which an Initial Environmental Examination (IEE) report is required for submission. In the documentation, an IEE report contains the same outline as the full blown EIA report required under the Category A projects but has a narrower scope and may be conducted for projects with limited impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation measure.

12. The Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMoP) together with the recommended Institutional Plans focused on the mitigation and management of identified potential impacts that include solid waste management, water pollution management, dust control, noise management, employment opportunities, occupational health and hazard management, traffic problem and management and enhancement of economic benefits of the project.

13. The main objective of the EMP is to ensure that the environmental and social concerns about the project are incorporated in the overall project design and these concerns are eliminated and reduced to levels that are acceptable during implementation and operation of the project.

14. In the performance of the EMP by the Executing Agency (EA), the scope of EMP works includes the implementation of the mitigation measures for each phase of the project and the undertaking of environmental monitoring works including capacity building on EMP implementation. The EA will be responsible to monitor and supervise the implementation of the EMP.

15. The EMP shall cover capacity-building, monitoring and EMP implementation of the approved safeguard plans. The cost of EMP is presented below:

EMP	Details	Cost (PKR)
1. Capacity Building	Includes hiring of third party entities; Cost is to be shouldered by the Contractor	1,500,000.00

EMP	Details	Cost (PKR)
2. Monitoring	Cost during pre-construction and construction phases is to be shouldered by the Contractor	576,000.00 per monitoring occasion
3. EMP	Cost is to be shouldered by the Contractor	Part of the project cost

16. Environmental and Socioeconomic Conditions of the Project Area. The location map of BCPs is depicted in **Figure ES-1**.

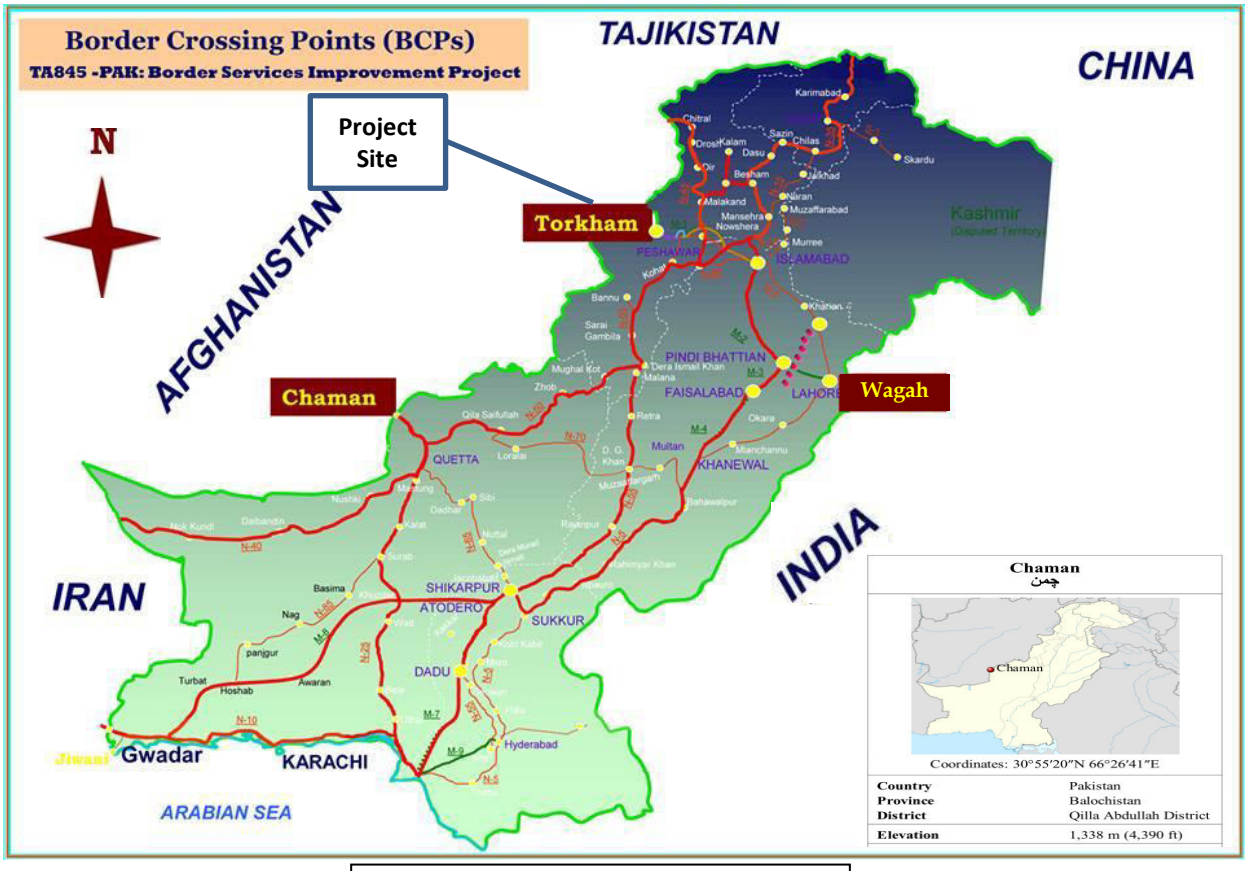


Figure ES-1: BCPs Location Map

17. Given the limitations in terms of physical fieldworks for Torkham BCP, environmental data collection and gathering approach include the use of satellite imagery and secondary data from previous recent studies and works.

18. As the BCP is operational at the moment, it can be said that the proposed improvement works are not incursions to the project area's present land use and environment. The existing environment at Torkham BCP is void of environmentally sensitive and precious ecology while most of its surrounding environs is surrounded by agricultural area. Torkham BCP is found void of

ecologically sensitive environment and physical cultural heritage. Thus the issue on impacts and risks to ecological and biodiversity conservation is not applicable to this project.

BCP	Space Requirements (in acres)	Brief Description of Environment
Torkham	56.0	Void of ecologically sensitive environment and precious physical cultural resources

19. Impacts and EMP. Screening for environmental impacts is made through a review of the parameters associated with the proposed works of the BCPs improvement project. Screening is used as an important tool to identify environmental impacts so as to plan the necessary mitigation measures.

20. Important considerations that are factored-in during the analysis of potential environmental impacts of the proposed improvement project are the (i) magnitude and nature of works to be done in the project area and, (ii) the existing environmental conditions in the project area.

21. During detailed design and pre-construction phase, it will be ensured that the EMP shall form part of the provisions of the tender documents and contractual obligations of the Contractors. This inclusion of the EMP in the tender documents and construction contract documents will oblige the Contractor to adhere and implement the requirements of the EMP.

22. During construction, construction works during site preparations are the main impact-generating activities. Construction works will inevitably lead to the generation of dust, noise, construction wastes and accidental spillage of machine oil and lubricants, solid and wastewater disposal on the construction site, pollution of surface waters and soil. Mitigation measures for such anticipated impacts have been analyzed and recommended to be implemented during construction period. For instance, dust control will be addressed by regular spraying of exposed surfaces with water to mitigate this impact. While for the management of wastes, the Contractor may install temporary wastes management system (i.e., temporary septic tanks for domestic wastewater management and receptacles for solid wastes) which can be cleaned-up immediately after project construction completion.

23. During operation phase, Torkham BCP shall be equipped with routine facilities and waste management system to manage both domestic solid waste and domestic wastewater. For the management of reject, spoiled and damaged food commodities, it is highly recommended that

Torkham BCP should continue the practice of returning said commodities within the dwell time period of 24 hours to its origin.

24. On social impact assessment and management, an inventory of losses and required land for acquisition were made during the planning phase. These are to be ascertained and updated during detailed design phase. A separate plan for compensation and other assistance corresponding to the losses of the affected people will be prepared under the Land Acquisition and Resettlement Plan (LARP).

25. Anticipated positive socio-economic impacts of the project include employment opportunities, short-term jobs created during the construction period, improved access and commodity trading to the border and improved levels of social services.

26. An Environmental Management Plan (EMP) is developed to provide guidance to the environmental measures needed to prevent and/or mitigate negative environmental effects associated with the project implementation, as well as provides a detailed description of the direct and indirect environmental effects during the conduct of the construction. The plan includes: (i) mitigating measures to be implemented, (ii) required monitoring associated with the mitigating measures, and (iii) implementation arrangement. Institutional set-up discusses the requirements and responsibilities during pre-construction, construction, and operation phases. The plan includes tabulated information on: (i) required measures for each environmental impact that requires mitigation, (ii) locations where the measures apply, (iii) associated cost, and (iv) responsibility for implementing the measures and monitoring.

27. The proposed environmental monitoring plan will become part of the construction supervision TOR and Contract Technical specifications.

28. Consultation and Participation. Project planning and the subsequent IEE preparation for the proposed Torkham BCP improvement project recognized the need for public consultation and participation as central to effective environmental and social safeguard. Within the context of "meaningful consultation", the Federal Board of Revenue initiated a process of consultation during project preparation and intends to continue it during the construction phase.

29. Grievance Redress Mechanism. Implementation of the proposed project will be fully compliant to ADB's safeguards requirement on grievance redress mechanism. The FBR shall disclose

the proposed mechanism in public consultations during detailed design and in meetings during the construction phase.

30. *Conclusion and Recommendation*. Analysis of potential environmental impacts revealed no significant adverse impacts to people and environment from the proposed BCP improvement project. The IEE concludes that adverse environmental impacts arising from the location, design, construction, operation, and maintenance of the proposed project can be mitigated to less significant levels and the corresponding mitigation measures are doable. Monitoring can easily be done. The project can be implemented in an environmentally and socially acceptable manner.

Chapter 1
INTRODUCTION

1. INTRODUCTION

1.1 Project Background

31. Pakistan is strategically located in the heart of Asia thus providing the country with competitive economic potential to become the regional trade hub of significant importance. It provides a communication link to the two largest global economies, i.e. China and India; and is a natural transit hub for Afghanistan and other Central Asian States. Pakistan is also the gateway to the energy rich, financially liquid and economically advanced neighboring countries in Central Asia. This strategic advantage alone makes Pakistan a marketplace of countless economic advancement possibilities.

32. The Government of Pakistan requested the Asian Development Bank to finance the Border Services Improvement Project to provide improvement works on three (3) important border crossing points (BCPs), namely: Chaman, Torkham and Wagah. The 3 BCPs play an important and strategic role in Pakistan's endowments and development potential. However, all of the three BCPs are facing significant economic and security obstacles which greatly impede the achievement of the desired development outcomes.

33. Torkham BCP lacks the necessary facilities and equipment to serve as efficient regional transport corridors and it can no longer process the current volumes of export, import and transit cargo and pedestrians.

34. The primary objective of the project is provide both structural and non-structural interventions to address the inadequacies that are restricting trade operation and hampering full potential of the transit trade of Torkham BCP and Pakistan in general. By improving Torkham BCP operational capability, the Torkham BCP is expected to become part of a more active, progressive and improved regional transport corridors for Pakistan's products to international markets.

1.2 Need for the Project

35. Torkham BCP is currently chaotic and disorganized. Partly for cultural/ historical reasons, and partly due to poor infrastructure and lack of resources, the flow of people across the border is largely unchecked, yet delays for goods in transit are excessive.

36. Without addressing the security issue and the current poor infrastructures of Torkham BCP, it mean lost opportunities for Pakistan and its neighbors as existing and forecasted volumes of transit cargo to/from the emerging economies of Central Asia, China and India constitute a sizeable portion of global trade.

37. New policies and strategies are being developed by the Government of Pakistan (GOP) to capitalize on the potential for increased transit trade. Among these strategies, the improvement of Torkham BCP is seen as a priority.

38. Current border crossing points are not fit for purpose because they can no longer process the volumes of export, import and transit cargo and pedestrians. Cargo dwell times are long and commercial trucks and pedestrians suffer long waiting times often in challenging climatic environments. Improved border crossing point infrastructure, equipment and procedures are required to reduce cargo dwell time and increase throughput. The benefits to traders and manufacturers in Pakistan will be lower transaction costs and more predictable export and import supply chains so they can get products to markets faster; this should help increase exports. For the project affected people and communities, the project will increase employment opportunities and intensify trading and commerce.

39. Current border crossings do not have the space to cope with the current volume of exports, imports and transit cargo, never mind coping with predicted future increases. They are a confusion of mixed traffics and pedestrians. The current border crossings lack modern good practice infrastructure and procedures. Customs and other border agencies lack appropriate equipment, ICT infrastructure and IT Systems that would help them make the border crossings more efficient, safer and more secure.

40. Under the proposed improvement project, the works consist of the provisions for (i) developmental works, (ii) buildings and (iii) colony/accommodations. The goods consist of the

provision of short-and long-term equipment and system for data connectivity Marshal Reporting Console (MRC), Information and Communications Technology (ICT) and Information Technology (IT).

1.3 Purpose of the IEE and Methodology

1.3.1 Purpose of the IEE

41. The aim of the Project is to enable the potential benefits of improved trade and transit at Torkham BCP while ensuring that adverse social and environmental impacts are avoided or appropriately mitigated. The conduct of environmental assessment is an important component of the project in order to lessen the project's negative impacts on the environment and most importantly to the people.

1.3.2 Methodology

42. In carrying out the project's environmental assessment, a project screening was first undertaken to categorize the project in accordance with Appendix 1, Safeguards Requirements: Environment of the Asian Development Bank (ADB) Safeguard Policy Statement of June 2009. Based on the project screening, the required environmental outputs was determined as Initial Environmental Examination (IEE). The IEE was undertaken through the specific methodologies described below.

1.3.2.1 Review of Project Related Documents and Literature

43. Project related documents were reviewed to gain understanding of the project and the specific components included. Of particular importance are the feasibility study and the field visit (environmental) reports. Project background and description as discussed in the IEE document were derived from these studies. Review of ADB safeguard policy statement and relevant national and local laws was also undertaken and discussed under the Policy, Legal and Administrative Framework (Section 2.0) of this report.

1.3.2.2 Data Collection

44. Data collection was done through project field visit, walk-through inspections, discussion with key government resource persons and donor agency representatives, web searches, and actual

collection of socio-economic and environmental profiles from local governments in the study area. Particular importance in the primary data gathering are the inputs required in the preparing the description of existing environment and project site appreciation relevant in assessing project environmental and social impacts in accordance with the ADB safeguard policies and national and local environmental laws.

1.3.2.3 Impact Prediction and Environmental Management Plan

45. The project area of influence in terms of impacts was delineated. Potential impacts of infrastructure development works and building construction were identified and classified as (1) construction phase and (2) operation phase. Impacts from dust, noise, construction wastes and accidental spillage of machine oil and lubricants, wastewater disposal on the construction site, pollution of surface waters and soil were analyzed and mitigation measure were proposed. Management of the potential adverse impacts were addressed by formulating an Environmental Management Plan (EMP). The EMP contains mitigation measures that will address all relevant environmental measures in accordance with the requirements of the Government of Pakistan and of the Asian Development Bank (ADB).

46. Analysis of the Do Nothing (DN) scenario and Do Something (DS) scenario was undertaken to highlight the relevance of the project and its social and economic importance.

1.3.2.4 Stakeholder Consultations

47. Stakeholders were identified which includes the local people or communities within the periphery of the BCP, the users of the BCP, local representatives, political agents, government officials, NGOs and the general public. Local consultations were undertaken with these stakeholders. The approaches adopted by the study team towards public participation are as follows:

- meeting the major users of the BCP through consultation with FBR key personnel and public meetings to solicit inputs and getting consensus on issues and propose mitigation measures;
- consultation and public meetings with influential people of the districts, consultations with pedestrians and the public who are using the BCP; and
- interview with truck and bus drivers, roadside vendors.

1.3.2.5 EMP Implementation Planning

48. Responsible bodies, organizations and institutions in the EMP implementation were identified and their respective roles were discussed. Specific activities were enumerated and EMP costs were estimated and provided in this IEE. Information disclosure mechanism was also provided. In compliance with ADB social policy safeguards, grievance redress mechanisms were also discussed in this report. An EMP monitoring system taking into account the required EMP activities and programs as well as the monitoring parameters were spelled out.

Chapter 2
POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1 General

49. This section provides an overview of the policy framework and national legislation that applies to the proposed project. The project is expected to comply with all national legislation relating to environment in Pakistan, and to obtain all the regulatory clearances required.

2.2 Legal Framework for Environmental Management

50. In Pakistan, the supreme document for environmental legislation and policy is the Constitution of Islamic Republic of Pakistan. The Constitution safeguards the fundamental rights as to life and health of a citizen. The Eighteenth Amendment of the Constitution, other known as Constitution (Eighteenth Amendment) Act, 2010, gives the provincial governments' exclusive powers to legislate on the subject of "environmental pollution and ecology".

2.3 National Environmental Regulatory Framework

2.3.1 General

51. Prior to the enactment of Constitution (Eighteenth Amendment) Act, 2010, the federal government had enacted the Pakistan Environmental Protection Act (PEPA), 1997. Under this enactment, PEPA 1997 established a comprehensive framework for environmental management. The 1997 law, which is applicable to numerous forms of pollution, empowered the GOP to develop and enforce regulations to protect the environment. Among other things, Pak-EPA, 1997 included provisions for creating Provincial Sustainable Development Funds, establishing environmental tribunals, and developing an environmental impact assessment (EIA) system.

52. After passage of the 18th Amendment, this environmental management framework began to be replaced by institutions at the provincial level. Per the amended constitution, while devolution occurs, all environmental laws, regulations and other legal instruments having the force of law can "continue to remain in force until altered, repealed or amended by the competent authority."

53. Provinces have assumed their full responsibilities for environmental protection under the 18th Amendment, while the umbrella responsibility for regulatory enforcement rests with the Pak-EPA. In addition to overseeing PEPA, 1997 implementation, Pak-EPA had functions that included environmental monitoring and the preparation of an annual national environmental report.

2.3.2 Pakistan Environmental Protection Act, 1997

54. The Pakistan Environmental Protection Act (PEPA) of 1997 is the basic legislative tool empowering the government to frame regulations for the protection of environment. The Act is broadly applicable to air, water, soil and noise pollution, as well as to handling of hazardous wastes. Penalties have been prescribed for those who violate the provisions of the Act. The powers of the Federal and Provincial Environmental Protection Agencies (EPAs) were also considerably enhanced under this legislation. Both have been given the power to conduct inquiries into possible breaches of environmental laws either of their own accord, or upon the registration of a complaint.

55. Specifically, Section 12 of this Act requires that every proponent of the project shall submit an Initial Environmental Examination (IEE) or an Environmental Impact Assessment (EIA) before commencement of construction and operation of any new project which is likely to cause adverse environmental effects. Section 11 of Pakistan Environmental Protection (PEPA, 1997) prohibit the discharge or emission of any effluent or wastes to environment including hospital waste or air pollutant or noise in an amount, concentration or level which is in excess of the National Environmental Quality Standards (NEQS) of Pakistan. Other important sections in the Act dealing with various environmental protection issues are:

- Section 11: Prohibition of Certain Discharges & Emissions
- Section 12: Review of IEE & EIA
- Section 13: Prohibition of Import of Hazardous Waste
- Section 14: Handling of Hazardous Substances
- Section 15: Regulation of Motor Vehicles
- Section 16: Environmental Protection Order
- Section 17: Penalties
- Section 20: Environmental Tribunals

56. Other major policy and legal acts on Environmental Protection in the country are:

- National Environment Policy 2005
- National Energy Conservation Policy 2006
- National Sanitation Policy 2006 - approved
- National Drinking Water Policy 2009
- National Environmental Quality Standards (NEQS) for Municipal and Industrial Effluents, 2000
- NEQS for Industrial Gaseous Emission, 2000
- Certification of Environmental Laboratories Regulations, 2000
- Environmental Samples Rules, 2001
- Self-Monitoring & Reporting by Industry Rules, 2001
- Provincial Sustainable Development Fund Board (Procedure) Rules, 2001
- Provincial Sustainable Development Fund Board (Utilization) Rules, 2003
- Hospital Waste Management Rules, 2005
- Pakistan Biosafety Rules, 2005
- National Standards for Drinking Water Quality, 2010
- NEQS for Ambient Air, 2010
- NEQS for Noise, 2010
- NEQS for Motor Vehicle Exhaust & Noise (Amended), 2010

2.4 Administrative Framework for Environmental Management

2.4.1 Territorial Jurisdictions and Environmental Assessment (EA) Requirements

57. Under the Constitution (Eighteenth Amendment) Act 2010, the Pakistan Environmental Protection Agency (Pak-EPA) is responsible for Islamabad and the "special areas", while provincial EPAs have not been delegated powers with respect to matters on the Federal List.

58. Under the latest issuance of the Pak-EPA (F.No. 1(A-1)/96-L/E dated 23 July 2014 (as presented in Chapter 2- Appendix 1), the territorial jurisdiction of Pak-EPA on "special areas" are clarified. As listed in Pak-EPA (F.No. 1(A-1)/96-L/E dated 23 July 2014, any project falling under Federally Administered Tribal Areas and boarder zone areas alongside the international boundaries

among others will be dealt by Pak-EPA. The proposed BCPs improvement projects are either or both located in these areas.

59. The Pak-EPA review of IEE & EIA under the Regulations 2000 defines the procedures for categorization, preparation, review and approval of environmental assessments reports of all developmental projects. Under these regulations projects have been categorized into Schedule I and Schedule II depending upon the nature and scale of environmental impacts.

60. Projects included in Schedule-I require initial environmental examination, whereas those included in Schedule-II require full scale environmental impact assessment. Under these circumstances, the proposed BCPs improvement project shall be under the control and jurisdiction of Pak-EPA. This means that on matters related to the securing of environmental clearances. Pak-EPA has the rightful jurisdiction. Further, the BCPs improvement project falls under Schedule-I and would require an Initial Environmental Examination (IEE).

2.4.2 Interaction with other Agencies

2.4.2.1 Regulatory Clearances, Environmental Protection Agency (EPA) – Government of Khyber Pakhtunkhwa (NWFP-EPA)

61. Although the proposed border improvement project shall be under the control and jurisdiction of Pak-EPA PEPA, the Federal Board of Revenue shall be likewise responsible for providing the complete environmental documentation required by the NWFP-EPA and remain committed to the approved project design. The submission of the IEE will ensure that there will be no environmental deviation is incurred during project implementation without prior and explicit permission of the NWFP-EPA. The same IEE submission shall be the basis of the subsequent issuance of NOC by NWFP-EPA before the commencement of the project construction.

2.4.2.2 Provincial Governments

62. The Federal Board of Revenue and its contractors must ensure that the project meets the criteria of provincial/district governments as related to the establishment of construction camps and other project ancillary component, and the safe disposal of wastewater, solid waste, and toxic materials.

2.5 ADB Environmental Requirements

2.5.1 General

63. This IEE is prepared in accordance with ADB's Safeguard Policy Statement 2009 (ADB SPS). The SPS contains three main policy safeguard components, namely: Environment, Involuntary Resettlement, and Indigenous People. This report deals with the Environmental Policy Safeguard of the ADB SPS.

2.5.2 Screening and Categorization

64. This project falls under Category B as determined during the project screening activity done at the outset of this environmental assessment. This project will generate limited impact and risks to the existing environment, given the extent of planned development works. The impacts are limited and site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily. The type of assessment warranted is the preparation of an Initial Environmental Examination (IEE) report.

2.5.3 IEE Compliance with Environmental Policy Safeguard Principles

65. In the preparation of the IEE, the Environmental Policy Safeguard policy principles were complied with. The policy principles and the consultant's outputs in this document are summarized in **Table 2.5.1**.

Table 2.5.1: Environmental Policy Safeguard Principles and IEE Document Compliance

Environmental Policy Safeguard Principles	IEE Document Compliance
1. Use a screening process for each proposed project, as early as possible, to determine the appropriate extent and type of environmental assessment so that appropriate studies are undertaken commensurate with the significance of potential impacts and risks.	The screening process placed the proposed project under Category B and calls for the preparation of Initial Environmental Examination (IEE)
2. Conduct an environmental assessment for each proposed project to identify potential direct, indirect, cumulative, and induced impacts and risks to physical, biological, socioeconomic (including impacts on livelihood through environmental media,	These are covered under Sections 4.0 and 5.0 of this report.

Environmental Policy Safeguard Principles	IEE Document Compliance
health and safety, vulnerable groups, and gender issues), and physical cultural resources in the context of the project's area of influence. Assess potential transboundary and global impacts, including climate change. Use strategic environmental assessment where appropriate.	
3. Examine alternatives to the project's location, design, technology, and components and their potential environmental and social impacts and document the rationale for selecting the particular alternative proposed. Also consider the no project alternative.	These are covered under Sections 4.0 and 5.0 of this report. Section 6.0 deals with the analysis of no project alternative.
4. Avoid, and where avoidance is not possible, minimize, mitigate, and/or offset adverse impacts and enhance positive impacts by means of environmental planning and management. Prepare an environmental management plan (EMP) that includes the proposed mitigation measures, environmental monitoring and reporting requirements, related institutional or organizational arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators. Key considerations for EMP preparation include mitigation of potential adverse impacts to the level of no significant harm to third parties, and the polluter pays principle.	Section 5.0 presents the proposed impact mitigation measures while Section 9.0 presents the EMP.
5. Carry out meaningful consultation with affected people and facilitate their informed participation. Ensure women's participation in consultation. Involve stakeholders, including affected people and concerned nongovernment organizations, early in the project preparation process and ensure that their views and concerns are made known to and understood by decision makers and taken into account. Continue consultations with stakeholders throughout project implementation as necessary to address issues related to environmental assessment. Establish a grievance redress mechanism to receive and facilitate resolution of the affected people's concerns and grievances regarding the project's environmental performance.	Section 7.0 discusses the consultation meetings conducted.
6. Disclose a draft environmental assessment (including the EMP) in a timely manner, before project appraisal, in an accessible place and in a form and language(s) understandable to affected people and other stakeholders. Disclose the final environmental assessment, and its updates if any, to affected people and other stakeholders.	This document provides the environmental assessment output and will be disclosed in a medium appropriate before project appraisal.
7. Implement the EMP and monitor its effectiveness. Document monitoring results, including the development and	The EMP provided in Section 9 presents the responsible

Environmental Policy Safeguard Principles	IEE Document Compliance
implementation of corrective actions, and disclose monitoring reports.	institutions in its implementation as well as the monitoring mechanisms and parameters.
8. Do not implement project activities in areas of critical habitats, unless (i) there are no measurable adverse impacts on the critical habitat that could impair its ability to function, (ii) there is no reduction in the population of any recognized endangered or critically endangered species, and (iii) any lesser impacts are mitigated. If a project is located within a legally protected area, implement additional programs to promote and enhance the conservation aims of the protected area. In an area of natural habitats, there must be no significant conversion or degradation, unless (i) alternatives are not available, (ii) the overall benefits from the project substantially outweigh the environmental costs, and (iii) any conversion or degradation is appropriately mitigated. Use a precautionary approach to the use, development, and management of renewable natural resources.	The project activities are not in areas of critical habitats.
9. Apply pollution prevention and control technologies and practices consistent with international good practices as reflected in internationally recognized standards such as the World Bank Group's Environmental, Health and Safety Guidelines. Adopt cleaner production processes and good energy efficiency practices. Avoid pollution, or, when avoidance is not possible, minimize or control the intensity or load of pollutant emissions and discharges, including direct and indirect greenhouse gases emissions, waste generation, and release of hazardous materials from their production, transportation, handling, and storage. Avoid the use of hazardous materials subject to international bans or phaseouts. Purchase, use, and manage pesticides based on integrated pest management approaches and reduce reliance on synthetic chemical pesticides.	Covered under Section 5.0 dealing with environmental impact mitigating measures.
10. Provide workers with safe and healthy working conditions and prevent accidents, injuries, and disease. Establish preventive and emergency preparedness and response measures to avoid, and where avoidance is not possible, to minimize, adverse impacts and risks to the health and safety of local communities.	Covered under Section 5.0, subsection 5.3.6, Occupational health hazards for construction workers
11. Conserve physical cultural resources and avoid destroying or damaging them by using field-based surveys that employ	Covered under Section 5.0, subsection 5.3.5, Cultural

Environmental Policy Safeguard Principles	IEE Document Compliance
qualified and experienced experts during environmental assessment. Provide for the use of “chance find” procedures that include a pre-approved management and conservation approach for materials that may be discovered during project implementation.	Heritage Resources

Chapter 3
DESCRIPTION OF THE PROJECT

3. DESCRIPTION OF PROJECT

3.1 Project Location

66. Torkham is located in the Khyber Agency of FATA, 50 kilometers from Peshawar. The FATA area starts a few kilometers outside Peshawar at the important town of Jamrud when moving in the North West of Peshawar on the Grand Trunk Road. The location map is provided in **Figure 3.1.1**.

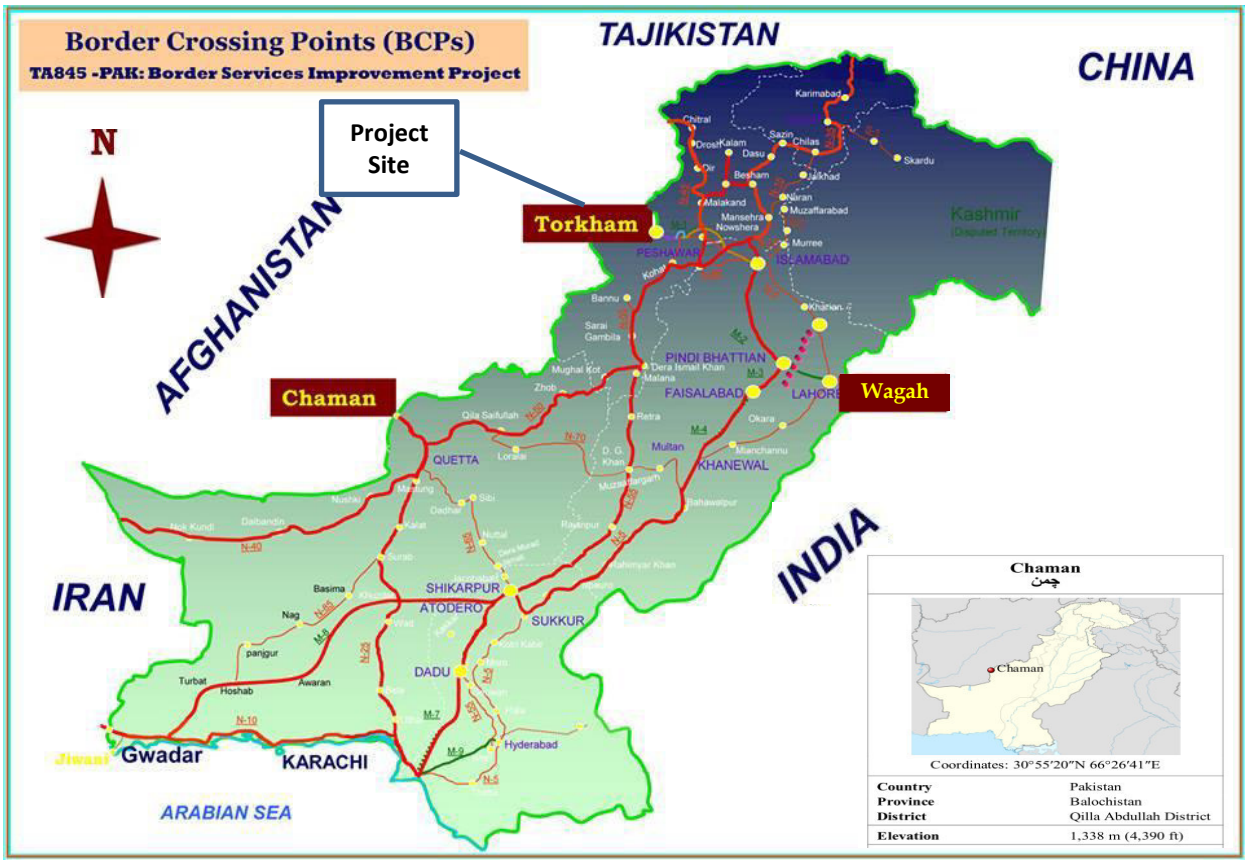


Figure 3.1.1: BCPs Location Map

67. The area to be covered by the improvement project is broken down into the following:

3.2 Project Components

68. Torkham border crossing point in its current condition lacks infrastructure and equipment in the form of administrative buildings for cargo and pedestrian processing, segregated entry and exit gates, priority (fast track) lanes, parking, secondary inspection areas, testing or detection equipment such as baggage and vehicle scanning as well as the lack of information communication technology (ICT). The lack of adequate infrastructure and equipment result in long lines of queuing trucks, longer than required processing times and security concerns.

69. The proposed project is about the provision of improvement works and goods consist of developmental works, buildings, colony/ accommodation and equipment. The list of the proposed improvement works and goods, is provided below:

Structural Intervention	Developmental Works	Earthworks / Approach Road / Approach Road (3+3 Lane) Cement Road / Fencing & Signage / Overhead Water Reservoir / Street Lights / Flood Lights / Weighing Bridge / Parking Area / Retaining Wall for Road / Boundary Wall / Toll Booth / Toll Canopy / Secondary Inspection Canopy / Cargo Immigration Canopy / Quarantine Shed / Surface Drainage Works / Solar Power System / Power Supply Network
	Buildings	Central Administration Building / Seized Goods Warehouse / Commercial Warehouse / Small Offices / Customs Lab / Passenger Terminal Building Renovation / Services Area (Pray Area, Café, Main Shop) / Services Watch Tower / Security Gates / Business Center
	Colony/ Accommodations	Accommodation / Pavement / Approach Road
Equipment		Short Term (Data Connectivity MRC, ICT Equipment)
		Long Term (Data Connectivity MRC, ICT Equipment and IT Systems)

70. The technical descriptions of the each of the proposed improvement works are presented in **Table 3.2.1**.

Table 3.2.1: Technical Description of the Proposed Improvement Works

Ref.	Item	Unit	Quantity
1	DEVELOPMENTAL WORKS		
1.1	Earthworks	m^3	7500
1.2	Approach Road	m^2	18095
1.3	Approach Road (3+3 Lane) Cement Road Incl. Fencing & Signage	m^2	21600
1.4	Overhead Water Reservoir (100000 Gallon)	Each	2
1.5	Street Lights 150 Watt LED	Each	220
1.6	Flood Lights 100 Watt LED	Each	120
1.7	Bridge	m^2	600
1.8	Parking Area (Tuff Pavers Min. 7000 PSI)	m^2	231700
1.9	Retaining Wall for Road (1.5mx3m)	m	1300
1.10	Boundary Wall (0.9mx3m)	m	2220
1.11	Toll Booth (Pre Fab in uPVC)	Each	20
1.12	Toll Canopy	m^2	900
1.13	Secondary Inspection Canopy	m^2	1130
1.14	Cargo Immigration Canopy	m^2	944
1.15	Quarantine Shed	m^2	820
1.16	Surface Drainage Works	m^2	231700
1.17	Solar Power System Incl. Panels, Inverters & deep Cycle Batteries (De-centralised System for each block/ area)	Watt	80000
1.18	Power Supply Network	m^2	231700
2	BUILDINGS		
2.1	Central Administration Building	m^2	2055
2.2	Seized Goods Warehouse	m^2	5250
2.3	Commercial Warehouse	m^2	10480
2.4	Small Offices	m^2	300
2.5	Customs Lab	m^2	400
2.6	Passenger Terminal Building	m^2	1800
2.7	Services Area (Pray Area,Café,Maint Shop)	m^2	1650
2.8	Services	m^2	1200
2.9	Watch Tower	m^2	400
2.10	Security Gates	m^2	7
2.11	Business Center	m^2	1950
3	COLONY/ ACCOMODATION		
3.1	Accommodation	m^2	1200
3.2	Pavement	m^2	1600
3.3	Approach Road (2 Lane)	km	1

71. Proposed improvement works will be constructed within 56 acres of lot as depicted in **Figure 3.2.1**.

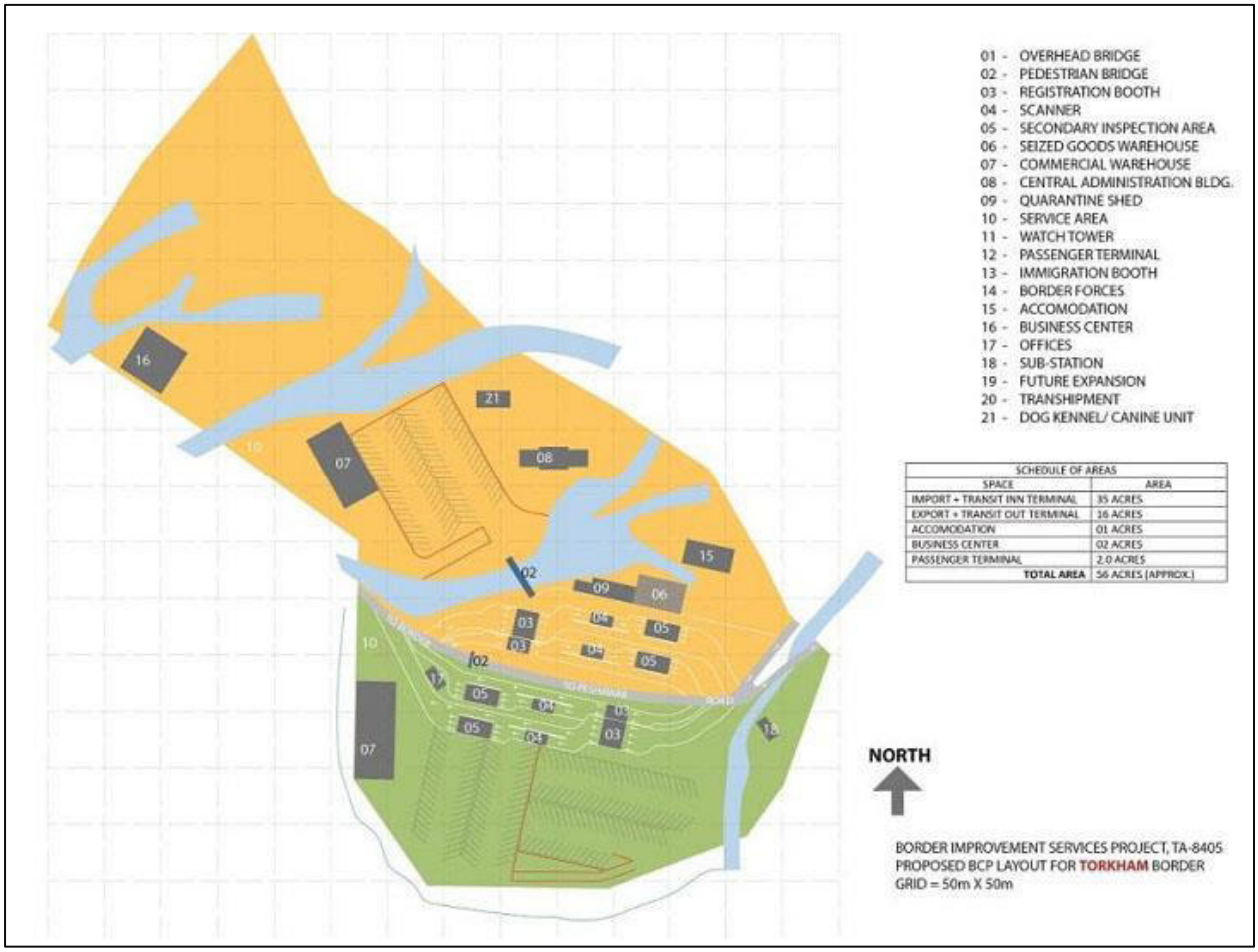


Figure 3.2.1: Torkham Border Crossing Design and Layout Proposal

72. Distribution of space requirements for the required improvement project is presented in **Table 3.2.2**.

73. The proposed design and layout were crafted with the following objectives: (i) respect for local image, local aesthetics and building materials; (ii) consideration for fit for purpose function including user friendliness, law enforcement, making easy traffic flows and a productive building layout; (iii) environmental consideration including international good practice health and safety practices; and (iv) take into consideration the local and national economy.

Table 3.2.2: Schedule of Areas

Space	Area (Acres)
a) Import + transit Inn terminal	35
b) Export + transit out terminal	16
c) Accommodation	01
d) Business center	02
e) Passenger terminal	2.0
Total Area	**56**

74. As of July 2014, project cost for Torkham Border Improvement Project is estimated at US $ 80.02 M. This cost includes funds for the integration and implementation of environmental management plan (EMP) in the overall project design to ensure compliance with safeguard requirements of ADB and the Government of Pakistan. EMP costs, especially those EMPs to be undertaken during construction phase, will be incorporated into the Contractors' cost while some will be built to specifically manage solid and wastewater wastes during operation phase where funds shall be likewise allocated by the EA.

Chapter 4
DESCRIPTION OF THE EXISTING ENVIRONMENT

4.1 Physiography

4.1.1 Topography and Soil

75. **Topography and Soils.** The Torkham basin is surrounded by mountains on all sides. The Peshawar–Torkham area has 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 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.

76. The roads pass through dry mountains and along the Khwar channel with slate and muddy type rocks. 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/khwar beds and valleys. The soil is generally hard, brittle, and rocky (with slate). The predominant rock consists of slate and limestone.

4.1.2 Geology

77. **Geology and Seismology.** 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 Island 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.

4.2 Climate

78. **Climate and Meteorology.** No **meteorological** station exists in the subproject area. Temperatures in the area typically follow a weather pattern of being mildly hot in summer and mildly cold during the brief winters. As the region is extremely mountainous, there are considerable variations in local temperatures. Maximum temperatures range from 15–20o C in winter to 40o 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 subproject area for the years 2001/2002, 2000/2001, and 1999/2000, respectively, were 6.92, 9.58, and 18.58 mm.

4.3 Air quality

79. **Ambient Air Quality.** As there is **no** major population settlement or industrial activity in the area, air pollution is mainly due to vehicle emissions along the road corridor. No ambient air quality survey was conducted during the EIA study, however, during project implementation, that is two weeks before start of construction and during the construction stage; it is recommended that monthly monitoring on ambient air quality shall be performed at selected locations to check against the national 24-hour PM_{10} value. Pakistan's National Environmental Quality Standard (NEQS) for ambient air (2013) for maximum allowable 24 hours average concentration for respirable particulate matter as PM_{10} is 150 µg/m^3.[1] While the annual average concentration consisting of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval is 150 µg/m^3 for respirable particulate matter as PM_{10}.

[1] Statutory Notifications (S.R.O.), Government of Pakistan, Ministry of Environment Notifications, The Gazette of Pakistan, Islamabad, the 18th of October, 2010, published November 26, 2010.

4.4 Water resources

80. **Water Resources, Drainage, and Hydrology.** 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 upon 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.

81. 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.

Surface Water

82. **Water Quality.** Water quality was assessed from five different locations in the area as part of this EIA study. These included a natural spring at Jabba, surface waters at two locations, and, in two locations, water from a well or piped water supply scheme. The analysis shows that chlorides, coliforms, and total suspended solids values were high—indicating that the water is polluted by human excreta—and the water is slightly turbid due to high particulate load from soil erosion. Surface and other water samples were also polluted from bacterial contamination, making it unfit for drinking. Most surface streams in the country are polluted while groundwater is usually "sweet," with low dissolved solids, and fit for drinking. The quality of groundwater in the project corridor, however, is contaminated with untreated human waste. The sample collected shows E-coli and total suspended solids exceeding World Health Organization standards for drinking water quality.

83. For the purpose of monitoring drinking water quality of Torkham, **Table 4.4.1** contains the list of the National standards for drinking water in Pakistan as set by the Ministry of Environment.

Table 4.4.1: National Standards for Drinking Water Quality[2]

Properties Parameters	Standard Values for Pakistan	WHO Standards	Remarks
Bacterial			
All water intended for drinking (E. coli or Thermo tolerant Coliform bacteria)	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample	Most Asian countries also follow WHO standards
Treated water entering the distribution system (E. coli or thermo tolerant coliform and total coliform bacteria)	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample	Most Asian countries also follow WHO standards
Treated water in the distribution system (E. coli or thermo tolerant coliform and total coliform bacteria)	Must not be detectable in any 100 ml sample 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.	Must not be detectable in any 100 ml sample 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.	Most Asian countries also follow WHO standards
Physical			
Colour	≤ 15 TCU	≤ 15 TCU	
Taste	Non-objectionable/ Acceptable	Non-objectionable/ Acceptable	
Odour	Non-objectionable/ Acceptable	Non-objectionable/ Acceptable	
Turbidity	< 5 NTU	< 5 NTU	
Total hardness as CaCO3	< 500 mg/L	---	
TDS	< 1000	< 1000	
pH	6.5 – 8.5	6.5 – 8.5	
Chemical			
Essential inorganic:			
Aluminum (Al), mg/L	≤ 0.2	0.2	
Antimony (Sb), mg/L	≤ 0.005 (p)	0.02	
Arsenic (As), mg/L	≤ 0.005 (p)	0.01	Standard for Pakistan similar to mist Asian developing countries.
Barium (Ba), mg/L	0.7	0.7	

[2] Statutory Notifications (S.R.O.), Government of Pakistan, Ministry of Environment, The Gazette of Pakistan, Islamabad, the 18th of October, 2010, published November 26, 2010

Properties Parameters	Standard Values for Pakistan	WHO Standards	Remarks
Boron (B), mg/L	0.3	0.3	
Cadmium (Cd), mg/L	0.01	0.003	Standard for Pakistan similar to mist Asian developing countries.
Chloride (Cl), mg/L	< 250	250	
Chromium (Cr), mg/L	≤ 0.05	0.05	
Copper (Cu), mg/L	2	2	
Toxic Inorganic:			
Cyanide (CN), mg/L	≤ 0.05	0.07	Standard for Pakistan similar to mist Asian developing countries.
Fluoride (F)*, mg/L	≤ 1.5	1.5	
Lead (Pb), mg/L	≤ 0.05	0.01	Standard for Pakistan similar to mist Asian developing countries.
Manganese (Mn), mg/L	≤ 0.5	0.5	
Mercury (Hg), mg/L	≤ 0.001	0.001	
Nickel (Ni), mg/L	≤ 0.02	0.02	
Nitrate (NO3), mg/L	≤ 50	50	
Nitrite (NO2), mg/L	≤ 3 (p)	3	
Selenium (Se), mg/L	0.01 (p)	0.01	
Residual chlorine	0.2-0.5 at consumer end 0.5-1.5 at source	---	
Zinc (Zn), mg/L	5	3	Standard for Pakistan similar to mist Asian developing countries.
Organic			
Pesticides, mg/L		PSQCA No. 4639-2004.	
Phenolic compounds (as Phenols), mg/L		≤ 0.002	
Polynuclear aromatic hydrocarbons (as PAH), g/L		0.01 (by GC/MS method)	
Radioactive			
Alpha Emitters bq/L or pCi	0.1	0.1	
Beta emitters	1	1	

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

Properties Parameters	Standard Values for Pakistan	WHO Standards	Remarks

PSQCA- Pakistan Standards Quality Control Authority

4.5 Forest Vegetation and Terrestrial Ecology

84. **Flora.** In general, the areas traversed by the project corridor are poorly vegetated and/or forested with quite minimal biological species. The project is 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 in 2005, and vast rangelands provide brushy growth for grazing.

85. Forests in NWFP 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 International Union for the Conservation of Nature and Natural Resources has listed 189 protected areas, including 10 national parks, 82 wildlife sanctuaries, 83 game reserves, and 14 unclassified areas that are privately owned and are proposed or recommended for protection. These protected areas represent only nine (9) percent of the total land area. There are nine wetlands designated under the international Ramsar Convention on wetlands, to which Pakistan is a signatory. The expressway alignment does not pass through any forest or game reserve, wildlife sanctuary, or any protected area. No endangered species have been reported.

86. The rangelands and forests play an important role in the economy, as they supply firewood, habitat for wildlife, animal grazing, aesthetic value, and timber. Traditionally, lands and forests have belonged to the respective tribes in FATA/Khyber Agency, and these people had unrestricted access. They have had rights to collect fruit and to remove dead dry wood for domestic use with the permission of the Forest Department. They are to have first rights for employment and contracting opportunities, including to guard the forests. The area is to be permanently closed for grazing, and a footpath passing through the state forests will remain open for residents. According to a divisional

forest officer, an area of 800 acres was in forest reserve within Khyber Agency as of 1999–2000 (although not in the vicinity of the project route and alignment), having decreased from 900 acres in 1997–1998.

87. There is a very thin tree density in the route from 7–22 km due to limited availability of water in Khwar/khwar. Forest and tree cover is barely seen in the area, except along the Kwhar bed, while greenery and agricultural activity are noted only alongside the Khwar belt. A fairly thin vegetation cover has been noted on these farms and alongside the Khwar. Due to inadequate water supplies, avenue plantations are lacking even on the existing roadside.

88. A very small portion of the population is engaged in agriculture beside the khwar (7–22 km). On the whole, agricultural resources are scarce and agricultural productivity is low. People involved in this sector follow an integrated farming approach that includes growing grain, vegetables, and fruits, as well as planting trees on farmlands. Wheat, tomatoes, okra, and Zeera (cumin seed) are the main crops. Grapes, apples, walnuts, almonds, peaches, and apricots are major fruits and nuts grown in the vicinity. People are nevertheless unable to meet even their own food requirements from their farms, and so staple food production is insufficient even for local use.

89. **Terrestrial Fauna.** The following animals have been reported in the literature in the area of NWFP in different seasons and pockets and confirmed by the International Union for the Conservation of Nature and Natural Resources and World Wildlife Fund: red monkeys (*Macaca mulatto*), wolves (*Canis lupus pallipes*), wild boars (*Sus scrofa*), markhor (*sufaid*, Kabul), leopards (*Felispardus*), black bears (*Ursus torquatus*), ibex (*Capra aegagrus*), rabbits, foxes (*Vulpes rulpes*), jackals (*Canus aureus*), porcupines (*Hystrix indica*), snakes, lizards, gray goral (*Naemorhedus goral goral*), common leopards (*Panthera entellus*), leopard cats (*Felis bengalensis*), Himalayan lynx (*Felic lynx isabellina*) and Pallas' cat (*Felis manul*). Two species that are on the list of endangered animals are Afghan urial (ibex) and straight horn Kabul markhore (*Capra falconi megaceros*). Birds of many sorts are reported in the area, include various species of partridges (*Franlinus sp*), pheasants, chakur (*Alectoris chukor chukor*, *Caccabis chucar*), and sparrows. Some transitory birds, such as waterfowl, Sakar falcons (*Falco cherrug*), perigrene falcons, and Hobara bustards, (*Chlamydotis undulata macqueenil*), are also found in early winters and late spring. The last three species mentioned are highly endangered. Pleasure hunting for sport and meat is quite common. The region lies along a flight route for migrating waterfowl, cranes, and falcons from northern cold climates, but no protected wetland is found in the subproject area.

90. Livestock constitute an important component of the farming and social systems in the area. Every household and traveling nomad keeps a few animals, including cattle, buffaloes, goats, sheep, mules, asses, horses, camels, dogs, and poultry. Livestock provide some 30 to 40 percent of farm income for households. The livestock of farmers and of nomads (the latter of whom regularly travel to the higher altitudes in summer and to lower altitudes for the winter) all graze on unattended bushes and trees.

Aquatic Ecology

91. No aquatic **ecology** is present in the study area.

4.6 Human and Socio-Economic Conditions

92. The province **is** the western gateway of the subcontinent, a traditional route for merchants and travelers from Central Asia, the Middle East, and Europe to the Indian subcontinent. These have included Alexander the Great, Tamerlane, Babur, and Ahmad Shah Abdali. It is claimed that this area is the source of Buddhist and Ghandara civilizations in the 5th and 6th centuries BC. The Khyber Pass has rich historical traditions, particularly as a communication route between east and west.

4.6.1 Public Health Facilities

93. There four (4) hospitals in the Khyber Agency with combined capacity of 260 beds, as well as 12 dispensaries with six-bed facilities. As of 2002–2003, Khyber Agency had one tuberculosis clinic with 10 beds, 12 basic health units, two maternal and child health facilities, and one leprosy clinic. The average population per bed is about 2,475 in the agency, with 266 hospital and dispensary beds. There were 36 male and four (4) female private medical practitioners in the agency in 2001. During 2001–2002, a total of 4,545 patients were served on in-patient bases and 25,870 on out–patient bases in Khyber Agency, and 1,050 operations were performed. More than 19,300 children were covered by an expanded immunization program in Khyber Agency during 2002.

4.6.2 Land Uses and Facilities

94. **Land Use.** The total reported area of Khyber Agency is 257,654 hectares, out of which 14,954 is cultivated, 245,704 is uncultivated, 2,040 are forests and 182,325 is not available for cultivation.

Agricultural use of land is limited in the region, due to the rocky mountains, steep slopes, lack of suitable plain land, and limited water supply except along the Khwar bed. Although the valleys could support more cultivated vegetation, such activity is not a prominent feature beyond a few kilometers out of Peshawar. This is due to a lack of interest in the community, limited water availability, and the nature of the employment structure (largely based on transport and commerce).

95. **Tourism Potential.** FATA area has a high tourism potential that is untapped due to problems related to accessibility as well as the law and order situation. The valley can attract such activities as trekking, mountaineering, hiking, hunting, horseback riding, cultural tourism, historical tourism, and pursuit of special interests in the cultures of indigenous people. The impressive mountain peaks could be important sightseeing destinations. Springs in various places could also be tourist attractions. The dominant ethnic group in the area is the Afridi and Shinwari tribes.

96. **Land Tenure.** No recent land settlement has been observed or occurred in the area along the new proposed alignment (with the exception of a 4 km overlapping segment). It has been found that cultivated and other lands belong to the tribes, elders, or chief. Land holdings are becoming smaller with the passage of time due to traditional division among the family heirs. A segment of the land along the Khwar bed is used for agriculture and social forestry, while a large proportion of the land is unused, barren, and un-vegetated due to very limited water availability.

4.6.3 Infrastructure and Utilities in the Project Area

Roads and Highways

97. The roads in the area were mostly gravel surfaced (in some mountain areas, only narrow jeepable tracks). Except for the main Peshawar–Torkham highway, these require regular repair because of land, stone, and mud slides, as well as erosion of base materials. Torkham can be accessed by the N5 and N55 from Peshawar.

Air Transportation

98. The country's airline, Pakistan International Airlines, runs a few flights to Peshawar subject to weather conditions and deploys small aircraft. The proportion of the local population taking advantage of these flights is minimal since air travel cannot generally replace road traffic.

Telecommunication

99. The Torkham telephone department has a limited capacity for just a few telephone lines in the cities of Torkham, Landi Kotal, and Ali Masjid.

Water Supply and Sewerage System

100. Water is available in a few villages from surface and/or ground sources, and there is no information available as to its quality. There are piped water and sewerage facilities in Torkham, Landi Kotal, Michini check post, and Ali Masjid. However, the water has been tested and found unfit for human consumption according to World Health Organization standards. The rest have no access to appropriate drinking water and lack adequate sanitary facilities. Although some houses might have some forms of sanitation facilities, men and children generally relieve themselves in the open fields during the day while women must wait until after dark. Most urban wastewater and sewage is discharged untreated and directly into open drains that lead to khwars. These drains also act as rainwater channels, and their frequent overflow creates health hazards for residents—in particular for children who play nearby. Use of open drains for washing clothes and dishes is common. There are few wells and hot springs in the area.

101. There are 54,416 housing units in Khyber Agency, according to the 1998 census. Of this total, 13,107 use public-source piped water for drinking purposes, 712 use hand pumps, 22,274 use wells, 4,467 use pond water, and 13,856 depend on other sources. Completion of 96 water supply schemes during 1999–2000 provided service to 370,015 people, which represents 76.9 percent coverage.

4.6.4 Education

102. The literacy rate in Khyber Agency is 39.9 percent and 2.6 percent for males and females, respectively, with an average for both sexes at 22.96. There are 171 government primary schools for boys and 144 for girls. Of a total 33 government middle schools, 22 are for boys and 11 for girls. There are also 21 government high schools for boys and just 2 for girls. The student:teacher ratios in the agency's primary, middle, and high schools, respectively, are 57, 27, and 6. There exists only one government higher secondary school and two degree colleges for boys. The agency has 5 mohallah schools and 37 mosque schools. Both of FATA's elementary colleges are situated at Jamrud in Khyber Agency, one each for males and females. There is one vocational institute for males in

Khyber Agency and no female vocational institute in the whole of FATA. The Khyber Agency also has one business college for boys.

4.6.5 Energy Resources

103. Wood is used for cooking by 84.7 percent of urban housing units and 91.9 percent of rural units. Of the total, 39,310 households use electricity for lighting purposes, while 13,954 depend upon kerosene oil and 1,152 on other sources. As of 2000–2001, 15,310 connections were being provided by Peshawar Electric Supply Company for domestic, commercial, industrial (557), and irrigations purposes. This figure was 15,296 in 1999–2000. A total of 578 villages were provided electricity during 2000–2001. Access to electricity was 95% and 97% on sections 1 and 2, respectively.

4.6.6 Historical & Cultural Heritage

104. **Archaeological Sites.** 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. 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[3] 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. Art pirates dig illegally in this vicinity for archeological artifacts. There are no protected historically proven sites within 500 m of the Project corridor.

4.6.7 Communities and Stakeholders

105. Three major categories of project stakeholders were identified for the Torkham BCP: (i) government institutions who are involved in the management of border activities at Torkham (ii) border communities that reside or have commercial interests in the border environs (iii) frequent users of the border facilities.

106. The following are the identified key stakeholders:

[3] Stupa is a mound-like or hemispherical structure containing Buddhist relics, typically the ashes of Buddhist monks, used by Buddhists as a place of meditation.

- Border Managers (FBR, Office of Political Agent (Landi Kotal), Assistant Political Agent (Landi Kotal), and NLC)

- Border Communities (Jirga (communal land), residential and commercial DPs and women)
- Border user groups (truck drivers and pedestrians)

107. Consultations were conducted with all of these stakeholders using various social tools. The main objectives of these consultations were to gather the views of the stakeholders regarding the proposed border improvement plans and identify measures to ensure maximization of project benefits and minimization of project's negative impacts.

Chapter 5
ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

5.1 Project Area of Influence

108. In accordance with the Bank's safeguard policies and procedures, the proposed Project is classified as the Category B Project. For environmental assessment purposes, the project is not expected to generate significant environmental impacts and is anticipated that environmental risks by the proposed project activities will be limited to the construction phase and will be mitigated by introducing appropriate mitigation measures.

109. The project will include infrastructure development works and building construction to improve existing border crossing point facilities. During construction phase, the implementation of the works will result to the generation of negative impacts from dust, noise, construction wastes and accidental spillage of machine oil and lubricants, wastewater disposal on the construction site, pollution of surface waters and soil. The EMP provides guidance on avoiding the use of hazardous substances, such as toxic paints, solvents or cleaning agents; and checks the potential impacts on different media of the environment.

110. Management of the potential adverse impacts during the design phase, construction phase and operation phase of the proposed project shall be addressed the Environmental Management Plan (EMP). The EMP contains mitigation measures that will address all relevant environmental measures in accordance with the requirements of the Government of Pakistan and of the Asian Development Bank (ADB).

5.2 Impacts due to location and design

5.2.1 Impact on private and public property

111. The area required to implement the proposed development project is 56 acres. The existing area being occupied by Torkham BCP is less than the required 56 acres. In this case, land acquisition is required.

112. ***Mitigation Measure:*** The Federal Board of Revenue (FBR) shall prepare a land acquisition and resettlement action plan that will comply with statutory requirements of the Government of Pakistan on land acquisition and ADB's social safeguard requirements. This document shall be submitted to ADB for approval.

5.2.2 Potential geologic-related and other natural events impacts

113. The project area is located within area with active seismic activities. During the design phase and the construction phase of all the physical structures proposed for the project, the structural integrity and stability of the structures will be designed to withstand major seismic events in the project site.

114. ***Mitigation Measure:*** The occurrence of any geologic-related and other natural events such as earthquakes and flooding are all beyond the control of the project. In order to minimize destruction in anticipation of their occurrences, incorporation of excellent structural design during DED phase is highly recommended to comply with local and international engineering standards and protocols. Good design should also maximize the benefits the project will provide while minimizing dangers and risk once structures are constructed and operational.

5.3 Impacts and mitigation measures during construction phase

5.3.1 Air pollution

115. Short-term impact from fugitive dusts and exhaust gasses that may be generated due to construction and vehicular activities is inevitable. Presence of heavy machinery and running of various kinds of vehicles and equipment at different construction stages and sites will inevitably generate exhaust gasses, dust, noise and vibration.

116. ***Mitigation Measure:*** Good construction practices and regular sprinkling of water at the exposed areas could easily mitigate and minimize this impact rendering this impact minimal. Hauling trucks containing construction materials shall be covered with tarpaulin and will be required to run at pre-determined speed in order to minimize dust generation.

5.3.2 Noise and vibration

117. Noise and vibration from construction machinery operations can cause nuisance to the public and workers.

118. ***Mitigation Measure:*** The noise generated from construction equipment and construction machineries can be mitigated by using mufflers and regular maintenance of construction equipment and machineries. Whenever necessary, noise barriers shall be installed along the pedestrian roads to protect the public from excessive noise. Public nuisance from noise could also be limited by using good construction management practices and scheduling construction works during night time if possible.

5.3.3 Water and soil pollution (from domestic waste water and construction hazardous materials)

119. Water and soil pollution is possible from the direct discharge of domestic waste water that may be generated by construction workers and indiscriminate handling and disposal of hazardous construction materials.

120. ***Mitigation Measure:*** In order to prevent pollution from construction activities, the following measures need to be taken and should form part of contract conditions and specification works;

- All toxic and hazardous material required for construction shall be stored and secured;
- Vehicles and equipment should be maintained in good operable condition, ensuring no leakage of oil or fuel;
- All workshops will have waste disposal bins to store hydrocarbons from filters, rags, waste oil for disposal at approved locations;
- Sanitations arrangements will be made at worksites, workers campsite, and any accommodation facilities provided for all workers, ensuring that no raw sewage is released into drains;
- The locations and sewage treatment methods for sanitation facilities shall be indicated on specific plans submitted for approval prior to the commencement of works;
- Suitable treatment may be used of pit latrines, in which case plans should include details of the pit volume related to expected level of use, plugging of used pits with soil (to allow for natural treatment of the waste overtime) and siting (at least 20m from water ways.)

5.3.4 Waste handling and spill response

121. Construction activities will generate solid and liquid wastes. Predicted wastes include waste of construction materials, communal waste, machine oil, etc. Solid waste may be generated during construction of project structures. Significant quantities of rock and soil materials may be generated from earth moving during construction activities. Improper handling of on-site wastes and response to spills, excavated soil materials and other types of waste could result in negative effects on the local environment including groundwater, surface waters, soil and local residents.

122. The Contractor is required to manage all solid wastes that will be generated by the project construction. Some wastes associated with construction include unused and excess material generated during site excavation, site clearance, construction, and renovation activities. These wastes may be rubble (concrete, bricks, and asphalt), wood and wood products, plaster, metals, plastics, and insulation. If not properly handled and disposed of, these materials may cause adverse effect to the environment and nuisance to the nearby communities.

123. ***Mitigation Measure:*** To properly manage these materials, the Contractor shall employ reuse, recycling and salvaging of useful materials from these construction wastes. This is very effective in minimizing the final volume of wastes to be disposed of at the municipality's dumping site. To further minimize wastes and conserve resources, the contractor shall practice sound purchasing decisions to effect waste minimization and resource optimization (just buy the necessary and the write quality and volume/amount).

124. Hazardous materials that are to be stored at the construction site shall be properly handled and stored. Storage of these hazardous materials should be kept in storage buildings (with secondary containment and hard stands) located away from the active construction zone. Examples of these hazardous materials typically found at construction sites are petroleum products (lubricating oils and greases), fuels (gasoline, kerosene), solvents, paints, batteries, and miscellaneous equipment maintenance supplies.

125. After completion of works the site should be restored as planned in the design. All wastes and machinery should be removed from the location.

126. Temporary stored construction materials at the project site should be protected from weathering and if possible, longer storage shall be avoided for proper construction management and

housekeeping. Hazardous materials such as paints, lubricants, oils should be kept on impermeable surfaces to avoid ground contamination in case of spillage. Handling with these materials should adhere to the instructions described on Material Safety Data Sheets.

5.3.5 Cultural Heritage Resources

127. Reconstruction/construction may affect possible uncover archaeologically or culturally significant findings. Consideration of such concerns is provided in the works contracts that will include requirements that the contractor is obliged to look for chance finds and immediately stop the construction work at the contested location and alert the responsible authorities in case of chance finds.

128. According to Section 4.6.6, there are few historical and cultural sites in Torkham and vicinity, however, these historical sites are located away and not within the 500 meter radius of Torkham border crossing, therefore, these properties will not be affected.

129. Also, there is no protected area found within and around the project site.

130. ***Mitigation Measure:*** Ministry of Culture will be tapped if any related artifacts would be discovered during construction.

5.3.6 Occupational health hazards for construction workers

131. Should construction activities not adhere to strict procedures on occupational safety, impact on the safeties of construction workers will be negative. Accidents and hazards may occur on site thus there are risks facing both skilled and unskilled workers. These hazards may also be experienced in adjoining communities in activities that would generate noise, pollution and dust; hence, construction activities would have to adopt proper measures to ensure public health and safety. Another factor is whether safeguards are in place to secure the project site from outsiders and ensure that petty crimes such as theft, trespassing and other forms of illegal entry are prevented. Under strict enforcement of safe conditions on-site and off-site, the impact to occupational health hazard would be nil.

132. ***Mitigation Measures:*** When earth-moving activities are undertaken, the workers must be outfitted with the standard safety gears for protection as part of Contractor's safety policy on

Environmental Health and Safety (EHS) and oriented on the standard safety and emergency measures that will be implemented. The safety gears and orientation of workers should ensure minimization and/or prevention of accidents caused by moving machines and altered terrain. Suitable sanitation facilities will be provided at work places. Sufficient water supply will be maintained at construction camps to avoid water-related diseases and to secure workers health. Health education and preventive medical care will be provided to workers including education on Acquired Immunodeficiency Syndrome / Human Immunodeficiency Virus Infection (AIDS/HIV) prevention. The Contractor should conduct routine medical check of workers and to monitor avoidance of communicable diseases.

133. The General and Special Conditions of Contract as well as the Technical Specifications are part and parcel of the Construction Contract. In these documents, provisions for the safety of the public and the workers within the construction area should be stipulated.

5.3.7 Accidents and hazards

134. Accidents and hazards are unplanned or extraordinary event which is caused by indolence, when partial or complete absence of process control is presented, during limited space and time period. This may have negative impacts on the human health and the environment. Accidents and hazards could influent adversely the quality of watercourses, groundwater, soil and ambient air. Accident and hazard can be affected the border crossing in both phases, construction and operation phase.

135. Causes for such risks may be accidents with the transport and other vehicles circulating in the border crossing area, as well as the presence of explosive, flammable, corrosive, infectious and other substances transported by shipment. Upon extraordinary conditions spills and leakage could appear which may further contribute to the creation of:

- Fire and explosions;
- Soil, air and pollution of surface and ground water;
- Jeopardy of human and material wealth;
- Destruction of the road and facilities.

136. Similar accidents could be initiated by prolonged stay of the shipments at the parking areas, at which suitable protection measures have not been applied, especially in summer conditions.

137. ***Mitigation Measure:*** To identify and predict such risks, a plan for hazard control should be developed and attached to the technical documentation. Similar plan should be developed for firefighting. The construction site shall be fenced off in order to protect the passing public from any untoward accidents caused by construction activities. When earth-moving activities are undertaken, markers aimed at warning people against going into or near the construction site should be installed at strategic location near the project site. The markers should prevent accidents caused by moving machineries or altered terrain.

5.4 Impacts and mitigation measures during operation phase

5.4.1 Air pollution

138. During the operational phase of the border crossing exhaust gasses emitted from the traffic and dust due to vehicular activities will be the permanent polluters of the ambient air. During the operation phase, mobility of the vehicles in the area will increase due to better service, thus dust pollution will tend to increase.

139. During operation phase, increased number of incoming and outgoing vehicles crossing the border is expected to increase, considering an improved security system, faster queuing time of migrating trucks and continuing unpaved road conditions. Relative to this there will be potential increased of vehicle emissions and dust generation at the project site.

140. ***Mitigation Measure:*** To mitigate this impact, the government of Pakistan should conduct tree planting activities within the vicinity of the project site to serve as barriers and absorbers of vehicle emissions. In addition, all vehicles crossing the border should be required to be subjected to emission testing and regular maintenance to be monitored by the implementing government agency of Pakistan.

141. Ambient air quality monitoring in the future shall be regularly monitored to check compliance with the standard limit of air pollutants for ambient air as set by the Ministry of Environment of Pakistan to abate increasing air pollution problem within the project area and the country in general. **Table 5.4.1** listed down the National Environmental Quality Standards for Ambient Air.

Table 5.4.1: National Environmental Quality Standards for Ambient Air[4]

Pollutants	Time-weighted average	Concentration in Ambient Air		Method of Measurement
		Effective from 1st July 2010	Effective from 1st January 2013	
Sulphur Dioxide (SO_2)	Annual average*	80 µg/m^3	80 µg/m^3	Ultraviolet Flourescence method
	24 hours**	120 µg/m^3	120 µg/m^3	
Oxides of Nitrogen as (NO)	Annual average	40 µg/m^3	40 µg/m^3	Gas phase Chemiluminescence
	24 hours	40 µg/m^3	40 µg/m^3	
Oxides of Nitrogen as (NO_2)	Annual average	40 µg/m^3	40 µg/m^3	Gas phase Chemiluminescence
	24 hours	80 µg/m^3	80 µg/m^3	
O^3	1 hour	180 µg/m^3	130 µg/m^3	Non dispersive UV absorption method
Suspended Particulate Matter (SPM)	Annual average	400 µg/m^3	360 µg/m^3	High volume sampling (average flow rate not less than 1.1 m3/min)
	24 hours	550 µg/m^3	500 µg/m^3	
Respirable Particulate Matter, PM_{10}	Annual average	200 µg/m^3	120 µg/m^3	β ray absorption method
	24 hours	250 µg/m^3	150 µg/m^3	
Respirable Particulate Matter, $PM_{2.5}$	Annual average	25 µg/m^3	15 µg/m^3	β ray absorption method
	24 hours	40 µg/m^3	35 µg/m^3	
	1 hour	25 µg/m^3	15 µg/m^3	
Lead, Pb	Annual average	1.5 µg/m^3	1 µg/m^3	ASS method after sampling using EPM 2000 or equivalent filter paper
	24 hours	2 µg/m^3	1.5 µg/m^3	
Carbon Monoxide (CO)	8 hours	5 µg/m^3	5 µg/m^3	Non Dispersive Infra Red (NDIR) method
	1 hour	10 µg/m^3	10 µg/m^3	

Note:

*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 but not on two consecutive days.

5.4.2 Noise and vibration

142. During the operational phase, the noise from the vehicles will be constantly present at the border crossing, as a result of the increased frequency of transport means.

143. ***Mitigation Measure****:* Restriction of unnecessary vehicular activities in the area will also mitigate this impact. In order to improve aesthetics and help control air and noise pollution within

[4] Statutory Notifications (S.R.O.), Government of Pakistan, Ministry of Environment, The Gazette of Pakistan, Islamabad, the 18th of October, 2010, published November 26, 2010.

the vicinity of the project, it is recommended to undergo tree planting at surrounding vicinity. Maintenance of plantations will be ensured to serve as live screens for sustainable environmental protection. All plantations will be strictly monitored & maintained.

144. A set of standards for noise are also formulated to control noise pollution especially during construction and operation phases of all proposed developments. **Table 5.4.2** shows the National noise quality standards of Pakistan.

Table 5.4.2: National Environmental Quality Standards for Noise[5]

Serial No.	Category of Area/Zone	Effective from 1st July 2010 (Limit in dB(A) L eq)		Effective from 1st July 2012 (Limit in dB(A) L eq)	
		Day Time	Night Time	Day Time	Night Time
1	Residential area (A)	65	50	55	45
2	Commercial area (B)	70	60	65	55
3	Industrial area (C)	80	75	75	65
4	Silence zone (D)	55	45	50	45

Note:

1. Day time hours: 6:00 am to 10:00 pm.
2. Night time hours: 10:00 pm to 6:00 am.
3. Silence zone: an area not less than 100 meters around hospitals, educational institutions and courts.

5.4.3 Water pollution

145. During the operational phase, the project will not require plenty of water for the domestic water needs of facility employees. Improper discharging without mitigation however could result to adverse impacts on underground water.

146. ***Mitigation Measure:*** Multi-chambered septic tanks could easily treat generated domestic wastewater of employees. The generated wastewater must comply and fall within the effluent quality standards set by the Ministry of Environment of Pakistan through a wastewater treatment facility prior to its discharge to the receiving environment. There is however, absence of perennial surface water within and at the vicinity of the project site and effluent discharges would just evaporate to the atmosphere in due time especially during hot season. For reference purpose, **Table**

[5] Statutory Notifications (S.R.O.), Government of Pakistan, Ministry of Environment, The Gazette of Pakistan, Islamabad, the 18th of October, 2010, published November 26, 2010

5.4.3 has listed down the national effluent quality standards set for municipal and industrial wastewater.

Table 5.4.3: Pakistan National Environmental Quality Standard for Municipal and Liquid Industrial Effluents[6]

Serial No.	Parameter	Revised Standards			
		Existing Standards	Into Inland Waters	Into Sewage Treatment	Into Sea
1	Temperature (ºC)*	40	≤3	≤3	≤3
2	pH value	6-10	6-9	6-9	6-9
3	Biochemical Oxygen Demand $(BOD)_5$ [(1),] mg/L	80	80	250	80**
4	Chemical Oxygen Demand (COD)[(1)], mg/L	150	150	400	400
5	Total Suspended Solids (TSS), mg/L	150	200	400	200
6	Total Dissolved Solids (TDS), mg/L	3500	3500	3500	3500
7	Oil and Grease, mg/L	10	10	10	10
8	Phenolic compounds (as phenol), mg/L	0.1	0.1	0.3	0.3
9	Chloride (as Cl^-), mg/L	1000	1000	1000	SC***
10	Fluoride (as F^-), mg/L	20	10	10	10
11	Cyanide (as CN^-) total, mg/L	2	1	1	1
12	An-ionic detergents (MBAS)[(2)], mg/L	20	20	20	20
13	Sulphate ($SO4^{2-}$), mg/L	600	600	1000	SC***
14	Sulphide (S^{2-}), mg/L	1	1	1	1
15	Ammonia (NH_3)	40	40	40	40
16	Pesticides [(3)]	0.15	0.15	0.15	0.15
17	Cadmium [(4)], mg/L	0.1	0.1	0.1	0.1
18	Chromium (trivalent and hexavalent) [(4)], mg/L	1	1	1	1
19	Copper [(4)], mg/L	1	1	1	1
20	Lead [(4)], mg/L	0.5	0.5	0.5	0.5
21	Mercury [(4)], mg/L	0.01	0.01	0.01	0.01
22	Selenium [(4)], mg/L	0.5	0.5	0.5	0.5
23	Nickel [(4)], mg/L	1	1	1	1
24	Silver [(4)], mg/L	1	1	1	1
25	Total toxic metals, mg/L	2	2	2	2
26	Zinc, mg/L	5	5	5	5
27	Arsenic [(4)], mg/L	1	1	1	1
28	Barium [(4)], mg/L	1.5	1.5	1.5	1.5
29	Iron, mg/L	2	8	8	8
30	Manganese, mg/L	1.5	1.5	1.5	1.5

[6] Statutory Notifications (S.R.O.), Government of Pakistan, Ministry of Environment, Local Government, and Rural Development, The Gazette of Pakistan, Islamabad, the 8th of August, 2000, published August 10, 2000

Serial No.	Parameter	Revised Standards			
		Existing Standards	Into Inland Waters	Into Sewage Treatment	Into Sea
31	Boron [4], mg/L	6	6	6	6
32	Chlorine, mg/L	1	1	1	1

Explanations:

1. Assuming minimum dilution 1:10 on discharge, lower ratio would attract progressively stringent standards to be determined by the Federal Environmental Protection Agency. By 1:10 dilution means, for example that for each one cubic meter of treated effluent, the recipient water body should have 10 cubic meter of water for dilution of this effluent.
2. Methylene Blue Active Substances; assuming surfactant as biodegradable.
3. Pesticides include herbicides, fungicides and insecticides.
4. Subject of total toxic metals discharge should not exceed level given at S.N. 25.
5. Applicable only when and where sewage treatment is operational and BOD_5=80 mg/L is achieved by the sewage treatment system.
6. Provided discharge is not at shore and not within 10 miles of mangrove or other important estuaries.

* The effluent should not result in temperature increase of more that 3^0C at the edge of the zone where initial mixing and dilution take place in the receiving body. In case zone is not defined, use 100 meters from the point of discharge.

** The value for industry is 200 mg/L.

*** Discharge concentration at or below sea concentration (SC).

Note:

1. Dilution of liquid effluents to bring them to the NEQS limiting values is not permissible through fresh water mixing with effluent before discharging into the environment.
2. The concentration of pollutants in water being used will be subtracted from the effluent for calculating the NEGS limits.

Table 5.1.1: Environmental Management Plan

Environmental Issues & Components	Remedial Measure	Reference to Contract Document	Approximate Location	Timeframe and Frequency	Mitigation Cost	Institutional Responsibility	
						Implementation	Supervision
Design/Pre-construction Phase							
1. Land							
Land acquisition	Preparation and approval of land acquisition and resettlement action plan	To be added as a component of EMP	At the project site.	During design, contract & tendering stage (once prior to construction)	To be included in project preparation cost.	Federal Board of Revenue	PIU
Structural damages from occurrence of geologic-related hazards and calamities	Incorporation of excellent structural design that will withstand against occurrence of geologic-related hazards and natural events such as earthquakes and flooding. Maximizing the benefits the project will provide by minimizing dangers and risk	To be integrated in the DED contract	At the project site.	During design, contract & tendering stage (once prior to construction)	To be included in project preparation cost.	Design consultants	PIU
Construction Phase							
1. Soil							
Contamination of Soils from construction wastes	Implementation of effective solid waste management practices; employ reuse,		At various locations within project site.	During construction (monthly)	To be included in bid cost by the contractor.	Contractor	PIU/ Construction Supervision Consultant

Environmental Issues & Components	Remedial Measure	Reference to Contract Document	Approximate Location	Timeframe and Frequency	Mitigation Cost	Institutional Responsibility	
						Implementation	Supervision
	segregation and recycling Proper disposal plan of all construction spoils & solid wastes Solid waste must be collected, & disposed at approved sites Construction equipment will be maintained & refueled ensuring no spillage contaminates the soil Handling of hazardous construction materials should adhere to Material Safety Data Sheets						
2. Air							
Dust & Air Emissions	During/after compacting works, water spraying on all dirt surfaces will be a regular feature to prevent dust. All delivery vehicles will		At various locations within project site.	During construction (monthly)	To be included in bid cost by the contractor.	Contractor	PIU/ Construction Supervision Consultant

Environmental Issues & Components	Remedial Measure	Reference to Contract Document	Approximate Location	Timeframe and Frequency	Mitigation Cost	Institutional Responsibility	
						Implementation	Supervision
	be covered with tarpaulin. Mixing equipment will be sealed & equipped as per existing standards. All workers to be provided with safety equipment.						
3. Noise and Vibration							
Nuisance from Noise and Vibration caused by Vehicles & Construction Equipment	All construction equipment will strictly conform to NEQS noise standards. All vehicles & equipment used will be fitted with noise abatement devices. Construction workers will be provided with earplugs. Noise level will be monitored during the construction.		At various locations within project site.	During construction (monthly or when necessary)	To be included in bid cost by the contractor.	Contractor	PIU/ Construction Supervision Consultant
4. Cultural and Heritage Resources							
Uncovering of Archaeologically Significant	Tapping Ministry of Culture for related discovery		At various locations within project site.	During construction (twice a year)	To be included in bid cost by the contractor.	Contractor	PIU/ Construction Supervision

Environmental Issues & Components	Remedial Measure	Reference to Contract Document	Approximate Location	Timeframe and Frequency	Mitigation Cost	Institutional Responsibility	
						Implementation	Supervision
Findings							Consultant
5. Safety & Accident Risks							
Construction Activities & Accident Risks	Safety signals and signage will be installed on all critical locations during construction Workers will be provided helmets, masks, safety goggles etc. Appropriate training programs for workers A readily available first aid unit, dressing materials, ambulance & nursing staff will be ensured at critical locations.		At various locations within project site.	During construction (monthly)	To be included in bid cost by the contractor.	Contractor	PIU/ Construction Supervision Consultant
Health Issues	Drainage, sanitation, & waste disposal facilities will be provided at work places. Drainage will be maintained to avoid any spread of disease		At various locations within project site.	During construction (monthly)	To be included in bid cost by the contractor.	Contractor	PIU/ Construction Supervision Consultant

Environmental Issues & Components	Remedial Measure	Reference to Contract Document	Approximate Location	Timeframe and Frequency	Mitigation Cost	Institutional Responsibility	
						Implementation	Supervision
	Suitable sanitation & waste disposal facilities will be provided at camps by means of septic tanks & soakage pits etc. Sufficient water supply must be maintained at camps to avoid water-related diseases & to secure workers health Health education & preventive medical care will be provided to workers. Routine medical check-up of workers & avoidance of communicable disease.						
Operation Phase							
Dust Generation	Unnecessary vehicular activities will be reduced to minimize dust generation Development and regular cleaning of road and		At various locations within project site.	During the entire project operation (twice a year for three years)	To be included in bid cost by the contractor.	Contractor	PIU/ Construction Supervision Consultant

Environmental Issues & Components	Remedial Measure	Reference to Contract Document	Approximate Location	Timeframe and Frequency	Mitigation Cost	Institutional Responsibility	
						Implementation	Supervision
	parking pavement Dust suppression to be done on regular basis.						
Air Pollution	Unnecessary vehicular activities will be reduced to minimize dust generation Emissions will be monitored as required basis.		At various locations within project site.	During the entire project operation (twice a year for three years)	To be included in bid cost by the contractor.	Contractor	PIU/ Construction Supervision Consultant
Noise Pollution	Noise levels will be monitored at critical locations, where use of sound barriers/trees will be considered where warranted. Public awareness program will be launched.		At various locations within project site.	During the entire project operation (once a year)	To be included in bid cost by the contractor.	Contractor	PIU/ Construction Supervision Consultant

Chapter 6
ANALYSIS OF ALTERNATIVES

147. In this IEE, only two possible alternatives are considered. The Do Nothing (DN) scenario and Do Something (DS) scenario. Torkham BCP is subjected in the analysis of these 2 alternatives.

148. The DN scenario includes no infrastructure improvements to the existing border crossing point will be implemented. Torkham BCP appraisal under the Feasibility Study[7] cited the following challenges that need to be addressed:

- Absence of blast protection walls or concrete blocks along traffic lanes.
- Lack of road traffic management; no segregated truck export and import lanes and no lanes for pedestrians.
- Insufficient area and task lightning.
- No barriers to keep inbound and outbound pedestrians separate.
- Absence of a good and reliable CCTV system.
- Absence of perimeter fencing in parking areas.
- There is no armory for safe keeping of arms and ammo.
- The helipad is 3 km away but devoid of necessary navigational landing equipment, fire fighting and medical equipment or ambulance.
- There is no hand held metal scanners for pedestrian lanes or entrance to main administrative office building and to other areas.
- Absence of PA system.
- Absence of emergency alarms.
- Absence of a good and reliable telecom system which is common to all border agencies.
- Absence of Hesco bags outside buildings or traffic lanes.
- Absence of fire fighting equipment/mechanism.
- Absence of Hydraulic barriers for stopping vehicles.
- No proper pneumatic gates to entrance.
- No proper access control system to the buildings.
- Poor surveillance.
- Lack or absence of good procedures, drills and SOPs.

[7] TA – 8405 PAK: Improving Border Services Project Final Report, Asian Development Bank, July 2014, p.70

- There is no intrusion detection system of any sort.
- Access control is manual.
- Staff are not trained on security related issues.
- Absence of Chemical, Biological, Radioactive and Nuclear scanning equipment (CBRN in the exit and entry traffic lanes).
- Absence of Narcotics Particulate Trace Detection Equipment.
- Absence of Vehicle Number Plate Scanning Equipment.
- Absence of explosive, narcotic, biological, cigarette and currency sniffer dogs, kennels and veterinary support facilities.
- Absence of Hand-held explosive and narcotics Vapour Tracing Equipment.
- Absence of Bio-data reading and collection equipment.
- Absence of iris recognition equipment (long term)
- Absence of RFID tags/scanners and allied equipment.
- Absence of Quarantine areas.
- Absence of pedestrian luggage back scatter colour scanning equipment
- Absence of Hand-held Metal detectors.
- Absence of Walk-through gates.
- Document and Currency scanning equipment.
- Absence of Walk-through Explosive and narcotic trace detectors.
- Absence of drug testing kits.
- Absence of vehicle and cargo back scatter and color X-Ray scanning equipment.

149. Under the DN condition, the existing problems will persist and economic development is arrested not only in Pakistan but of the neighboring countries as well. This is inconsistent with the global trading frameworks envisioned under the World Trade Organization (WTO) conventions on international market access. At the BCP level, time delays of transport vehicles transporting goods for the cross border market will only worsen.

150. The DS scenario is comprised of various BCP components that would modernize system procedures and technologies in border crossing, expedite travel time, promote safer border crossing security, and improve market access of agricultural and industrial products of both the GoP and the cross border trading country. With the improvement in good practice infrastructure and equipment combined with international good practice export, import and transit procedures, the authorities have an opportunity to reduce the time to market for Pakistan exports. This will result to a more

predictable supply chain which will largely benefit Pakistan companies that are dependent on using imports to manufacture products for the domestic and export market.

Chapter 7
INFORMATION DISCLOSURE, CONSULTATION, AND PARTICIPATION

7.1 Introduction

151. The proposed border crossing point improvement project has been under study since 2006. It can be assumed that project has been exposed to the public especially that BCP improvement related projects are listed as one of the national priority projects by the Government of Pakistan.

152. At a local level, the Federal Board of Revenue (as the Executing Agency) shall make efforts to inform the general public, elected representatives, local councilors and informal and formal community leaders including members of non-government organizations (NGOs) about recent development of the BCP improvement project. Various stakeholders at the ground level will be allowed to share their perceptions about the project and about the likely impacts of the Project during construction and operation phases.

153. Generally, public information campaign and public consultation are being undertaken with the following objectives:

- To share the information about the proposed project, its components and activities with affected people;
- To obtain cooperation and participation of the general public in Project planning and implementation processes;
- To establish accessible and effective grievance redress procedures; and
- Create a sense of ownership among the stake holders regarding the Project.

7.2 Identification of Main Stakeholders

154. Stakeholders identified include the local people or communities within the periphery of the BCP, the users of the BCP, local representatives, political agents, government officials, NGOs and the general public. It is therefore necessary to undertake local consultations as all these stakeholders are expected to have different types of stakes according to their interests and professions.

155. The following are the key stakeholders that have been identified for Torkham BCP (**Table 7.2.1**)

Table 7.2.1: Stakeholders for Torkham BCP

S.No.	Stakeholder Type	Stakeholders
1	Border Managers	• FBR • Office of Political Agent, Landi Kotal • Assistant Political Agent, Landi Kotal • NLC
2	Border Communities	• Jirga (communal land) • Residential and Commercial DPs • Women
3	Border User Groups	• Truck Drivers • Pedestrians

7.3 Approach for Public Consultation and Objectives

156. For this project, the approaches adopted by the study team towards public participation are as follows:

- Consultative meetings
- Scoping sessions
- Focus Group Discussion
- Semi-structured interviews
- Semi-structured interviews

157. During various occasions of public consultations, the following were undertaken:

- meeting the major users of the BCP through consultation with FBR key personnel and public meetings to solicit inputs and getting consensus on issues and propose mitigation measures;
- consultation and public meetings with influential people of the districts, consultations with pedestrians and the public who are using the BCP; and,
- interview with truck and bus drivers, roadside vendors;

158. These consultation objectives were shared at the outset of each meeting as outlined below:

(i) To identify the positive and negative impacts of improvements to Torkham Border Crossing on the community;

(ii) To identify suggestions to mitigate the expected adverse impacts of the project;

(iii) To identify concerns/suggestions of the community regarding environmental impacts of the project and mitigation measures;

(iv) To identify the existing structure of grievance redress in the community ; and,

(v) To identify suggestions for public consultation and disclosure in the community with regards to the project

7.4 Meetings with Stakeholders and Key Results

159. Series of consultations meetings were held with the assigned focal person of FBR and local communities and Border Custom Officials were conducted in various dates or occasions. During discussions with these key stakeholders, it has been revealed that many of the key stakeholders are generally aware of the Project and are in favor of its implementation.

160. The accounts of site visits cum consultation meetings conducted for the project are as follows:

Date	Venue	Purpose	Attendees	Concerns	Record of Meeting
16 November 2014	Custom Office, TORKHAM BORDER CROSSING POINT	Description of the different aspects of existing trade facilities like crossing point, checking system, trade volume, trade items, custom collection procedures, and vehicular movements; Explanation about aspects of financial, social and environment at the BCP	Mr. Malik Kamran, Additional Collector Custom, and other custom officials Members of the Study Team	Several environmental and social concerns such as absence of quarantine cell for the imported goods, poor sanitary condition and traffic congestion were observed during field visit at Torkham border; see Annex 3-2 for rapid environmental appraisal.	See **Annex 3-1**
November 17, 2014	Custom Office, TORKHAM BORDER CROSSING POINT	To get a first-hand appreciation of the project site's physical location; and ii) to gather primary data related to the a) magnitude of project affected people and/or communities; and b) a situationer of the planned relocation site such as its location, size in terms of hectares, topography, the types of landowners, the contact numbers and/or e-mails of the landowners, and amenities available	Mr. Tauqueer Ahmad Dar, Deputy Director/Federal Board of Revenue, Wagha, Lahore Social Development Team (Mr. Syed Nadeem Arif and Jerry Leones. Mr. Saquib Ejaz Hussain)	Based on interview with the Custom officials, the management is planning to relocate its office some six kilometers away. The project-affected people were not yet estimated and identified during the time of survey.	See **Annex 3-2**

161. The stakeholder consultations for Torkham BCP were held in various occasions and are enumerated in **Table 7.2.**2.

Table 7.2.2: Stakeholder Consultations Conducted for Torkham BCP

S.No.	Stakeholder	Tools	Date	Venue
1	Political Agent, Khyber Agency	• Consultative Meeting	02-03-15	Office of PA, Peshawar
2	Assistant Political Agent, Khyber Agency	• Consultative Meeting	03-03-15	Office of APA, Landi Kotal
3	Deputy Collector Customs, FBR	• Consultative Meeting	02-03-15	Office of DC, Customs, Peshawar
4	Local Businesses	• Focus Group Discussion	05-03-15	Office of Tehsildar, Torkham
5	Jirga (Communal Land)	• Focus Group Discussion	08-03-15	Office of APA, Landi Kotal
6	Women	• Focus Group Discussion, Semi-structured interviews	07-03-15	Selected households in community
7	Truck Drivers	• Semi-structured-interviews	05-03-15 to 06-03-15	Trade Terminal, Torkham
8	Pedestrians	• Semi-structured interviews	05-03-15 to 06-03-15	Passenger Terminal, Torkham

162. The specific profiles of attendees who attended these consultation meetings are provided in **Table 7.2.3**.

Table 7.2.3: Participants' Profile during Public Consultations

S. #	Names	Occupation/Group
1	Haji Shan Badshah	Owner, Total Petrol Pump
2	Nadir Shah	Owner, Nadir Shah Weigh Station
3	Haji Tawab	Clearing Agent
4	Shah Muhammad	Shop Owner (Spare Parts)
5	Shahzad Gul	Shop Owner (General Store)
6	Haji Khanzad Gul	Clearing Agent
7	Haji Naseer	F.A. (representing Fatimi Khel Clan)
8	Haji Naib Shah	Middle-School (representing Fatimi Khel Clan)
9	Wali Khan	M.A. (representing Fatimi Khel Clan)
10	Shah Hussain	Graduate(representing Bassi Khel Clan)
11	Ajar Khan	Matric (representing Bassi Khel Clan)
12	Muhammad Zakria	M.A. (representing Bassi Khel Clan)
13	Haji Shafiq	Middle-School (representing Ashraf Khel Clan)
14	Zulfiqar Khan	Matric (representing Ashraf Khel Clan)
15	Tajuddin	B.A. (representing Ashraf Khel Clan)

163. **Table 7.2.4** shows the key results of the consultations meetings.

Table 7.2.4: Key Results of the Consultation Meetings

Key Stakeholders	Key Issues and Concerns
Local Business Group and Political Landlords	1. Representatives overwhelmingly welcomed the government's initiative to modernize the border facilities and were hopeful that the project would increase trade, and thereby improve business activities in the area. 2. All the representatives claimed that their businesses suffered due to the poor road conditions between Peshawar and Torkham which often resulted in delays and accidents. Improvement of this road network should complement the proposed development of Torkham BCP. 3. Business owners shared that in the existing scenario, they and their Afghan counterparts are able to cross the border easily and there are no barriers to trade between the two borders. With the development of the new facilities, immigration and fees should be devised to encourage these cross-border businesses; no actions should be taken that discourage existing business activities. 4. Business representatives also demanded that where possible, local people should be employed in various jobs during the construction and post-construction phase. 5. According to business owners, proper banking facilities and better communication infrastructure should be incorporated in the terminal. These critical factors for business activity are lacking at Torkham. Business owners have to travel all the way to Peshawar many times to avail proper banking services. 6. Business owners also urged the need for involvement of a third-party in all aspects of the land acquisition and compensation process to ensure that business interests are protected in the new project. 7. Generally, business owners do not foresee any environmental hazards to their area due to the project. 8. They were concerned about the limitations of the existing roads and when construction will begin and there will be an influx of construction vehicles; they feared there would be more delays for departure/arrival of their goods. **9.** Moreover, there is also a significant water shortage in the area; currently local people also steal water from Afghanistan to meet their needs. The new project should have a proper water supply system that incorporates the needs of local residents and businesses.
Jirga (Communal Land)	10. We are excited that the government has taken the big step of modernizing the dry port at Torkham as the livelihoods of our entire community are linked to this border. As representatives of the three major sub-tribes of the Khuga Khail tribe, we want to ensure that the stakes of our community are protected to ensure mutual benefit from this project. 11. We are glad that the government has taken proactive steps in involving the community in the development process. We have proposed to the government to enter in to a public-private partnership agreement for development of the terminal with any of the following options: 12. Construction financed by Khuga Khail tribe and benefits shared equally between government and tribe 13. Construction financed by the government and benefits shared equally between government and tribe 14. Construction costs and project benefits shared 15. Thousands of households are beneficiaries of income from the communal land; therefore, we are concerned about receiving proper

Key Stakeholders	Key Issues and Concerns
	compensation from our lands that will be acquired. 16. Due to the large stakes of the community on the taxi stand, the taxi stand should not be disturbed; not only do our families benefit from the monthly income, but our people are also involved in various aspects of the transportation business related to the stand. 17. Many of our relatives live across the border and currently, we visit them easily on a frequent basis. The new facilities should ensure that border crossing remains a hassle-free process so that businessmen and immigrants from our community can cross the border with minimum documentation and waiting time. 18. The finalization of the Jirga members was done through a rigorous and transparent process. Representatives of this Jirga can be part of the Grievance Redress Committee from the community's side for the project. 19. The entire area of Torkham is water stressed. Development of the new terminal should take in to account this water shortage in the area and should ensure that water availability is not further compromised for meeting residential and commercial needs. 20. Plantation can improve the water table in the area and therefore, increase communities' access to water sources. We welcome any such initiatives that improve our environment and alleviate our water problem.
Women's Group	21. 56% of the women were aware of the project prior to the survey, while 72% were in favor of execution of the project. 22. The most pressing needs identified by women for the village are a reliable provision of water supply, availability of electricity, development of proper schools and improvement of road conditions in the area. 23. During the construction phase of the project, women viewed mobility of their family members as the biggest concern. They expressed that the project proponents should ensure that access to schools and health facilities are not hampered due to construction activities. 24. During the post-completion phase of the project, women felt that the area will get an economic uplift with increased business opportunities and improved road conditions.

164. In summary, major environment related issues and concerns tackled during these consultation meetings were focused on water supply shortage, traffic congestion that may delay goods departure and arrival, and road blockage during construction phase. For these specific issues and concerns, it was mentioned during the consultation meetings that appropriate environmental management plans such as traffic management, road re-blocking plan that will not affect business operations and water management plans shall be implemented at various stages of the project. On top of these, it was also mentioned that all identified environmental impacts shall be addressed by implementing all the EMPs that are proposed and recommended for implementation in this IEE document.

Chapter 8
GRIEVANCE REDRESS MECHANISM

8.0 GRIEVANCE REDRESS MECHANISM (GRM)

1. A grievance redress mechanism (GRM)8 for the Project shall be established by the Federal Board of Revenue as part of the overall project management system.

2. Considering the unique status of communities under FATA, the GRM shall consist of multiple layers of contact points and access points to be participated in by contractors, project implementing unit and implementing agency. The GRM will be established to address community concerns and complaints.

3. The Federal Board of Revenue's Project Director shall facilitate the establishment of Grievance Redress Committee (GRC) and Grievance Focal Point (GFP) at the project area prior to Contractor's work mobilization. The functions of the GRC and GFC include the addressing of concerns and grievances of the local communities and affected parties as necessary.

4. The GRC may be comprised of representative/s from local Political Agent (PA), affected parties/communities, well-reputed persons of the society, the Contractor's Environment Specialist, and the Project's Environment Specialist and Social Safeguard Specialist. The role of the GRC is to address the Project related grievances of the affected parties that are unable to be resolved satisfactorily through the initial stages of the Grievance Redress Mechanism (GRM). At the affected community level, they may identify local representatives to act as Grievance Focal Points (GFP).

5. The GFP shall be responsible for the following (a) as community representatives, he or she will represent the community in all formal meetings among the project team, the contractors and the affected communities; and (b) he or she will be responsible in communicating community members' grievances and concerns to the contractor during project implementation.

6. All important procedures to be adopted to operationalize the GRM shall be provided in an orientation meeting to be convened by the Federal Board of Revenue at community level. The meeting shall be attended by GFPs, contractor, Political Agents' representative and other interested parties from government agencies and non-government organizations (NGOs).

[8] This GRM is adopted from the GRM presented in the IEE for PAK: Federally Administered Tribal Areas Water Resources Development Project (FWRDP), 2014

7. In resolving complaints through GRM, the following procedures shall be followed:

Step 1: Individuals will lodge their environmental complaint/grievance with their respective community's nominated GFP;
Step 2: The GFP will bring the individual's complaint to the attention of the Contractor.
Step 3: The Contractor will record the complaint in the onsite Environmental Complaints Register or log book in the presence of the GFP;
Step 4: The GFP will discuss the complaint with the Contractor and have it resolved;
Step 5: If the Contractor does not resolve the complaint within one week, then the GFP will bring the complaint to the attention of the Project's Environmental Specialist. The Environment Specialist will then be responsible for coordinating with the Contractor in solving the issue.
Step 6: If the Complaint is not resolved within 2 weeks the GFP will present the complaint to the Grievance Redress Committee (GRC);
Step 7: The GRC will have to resolve the complaint within a period of 2 weeks and the resolved complaint will have to be communicated back to the community. The Contractor will then record the complaint as resolved and closed in the Environmental Complaints Register or log book.
Step 8: In parallel to the Contractor's ECR recording of the complaint, each GFP will maintain a record of the complaints received and will follow up on their rapid resolution.
Step 9: If the grievance is not resolved through this process, the issue will be taken to the local legal structures.

8. **Figure 8.1.1** below graphically illustrates the proposed grievance redress mechanisms.

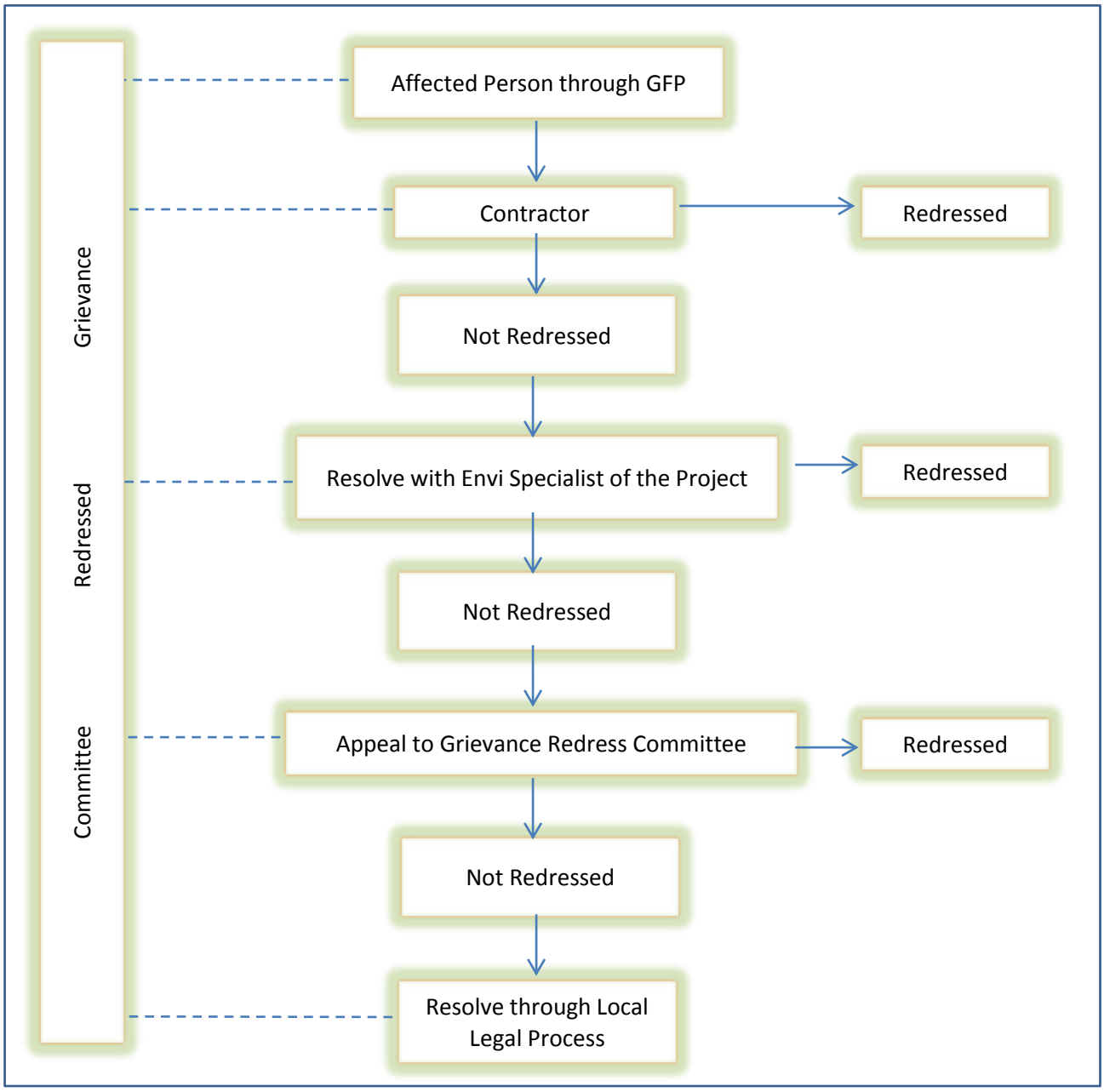


Figure 8.1.1: Proposed grievance redress mechanisms

Chapter 9
ENVIRONMENTAL MANAGEMENT PLAN

9. The Environmental Management Plan (EMP) provides guidance on how to mitigate identified environmental issues and concerns in connection with the implementation of the proposed border improvement project. The EMP deals with mitigation and monitoring measures to be taken at various stages of the Project implementation to avoid, reduce, and mitigate adverse environmental impacts.

9.1 Responsibilities for EMP Implementation

10. The Environmental Management Plan (EMP) is developed to eliminate and/or mitigate the impacts envisaged at the design, construction and the operation stages and provide specific guidelines for long-term monitoring by identifying the roles and responsibilities of the Proponent, Supervision Consultant, and Contractor(s). Their specific responsibilities for EMP implementation are presented in **Table 9.1.1**.

Table 9.1.1: Environmental Management Plan

Entry/Organization	EMP Responsibility
BFR	• Executing agency with overall responsibility for the Project • Ensure that sufficient funds are available to properly implement the EMP • Ensure that EMP provisions are implemented for the entire Project regardless of financing source. • Ensure that Project implementation complies with the GoP and ADB's environmental policy principles and requirements
PIU	• Project implementing agency with overall responsibility for project construction and operation including environmental performance • Allocation of adequate financial and human resources to fulfill environmental commitments during project construction and operation • Establish a grievance redress mechanism as described in the IEE • Designate an environmental and safeguard officer to oversee implementation of the EMP • Ensure that tender and contract documents include the EMP • Undertake monitoring of the implementation of the EMP (mitigation and monitoring measures) • Submit biannual monitoring reports on EMP implementation to ADB
Construction Supervision Consultant (CSC)	• Incorporate into the project design the environmental protection and mitigation measures identified in the EMP for the design stage; • Assist BFR/PIU to ensure that all environmental requirements and mitigation measures from the IEE and EMP are incorporated in the bidding and contracts documents • Prior to construction, review and approve in writing the updated EMP prepared in consultation with contractors

Entry/Organization	EMP Responsibility
	• Implement all mitigation and monitoring measures for various project phases • Work within PIU to execute any additional environmental assessment prior to project construction as required in the EMP • On behalf of BFR/PIU prepare and submit statutory EIA and obtain environmental clearance certification prior to project construction as required in the EMP • Undertake environmental management capacity building activities for FBR/PIU as described in the IEE and EMP
Contractor	• Recruit qualified environmental safeguard specialist to ensure compliance with environmental statutory and contractual obligations and proper implementation of the EMP • Provide sufficient funding and human resources for proper and timely implementation of required mitigation measures in the EMP • Implement additional environmental mitigation measures for unexpected impacts, as necessary

9.2 Environmental Monitoring

9.2.1 Objective and Rationale

11. The main objective of environmental monitoring works is to ensure that the environmental mitigation measures during construction are implemented through a systematic supervision by FBR/PIU with assistance from CSC during the construction phase. Environmental issues also are anticipated to be identified in advance for avoidance and ensure timely completion of the project. Consequently, the environmental monitoring framework for this project will form part of the basis of the construction supervision ToR, General Conditions of the Contract (GCC), Technical specifications and the project IEE.

12. The screening and assessment of environmental impacts establishes that construction impacts are the main environmental issues arising from the project. The assessment also shows that these impacts substantially manageable through the implementation of the recommended mitigation measures. Compliance monitoring during construction is therefore important, as it is a means of ensuring adherence to the EMP.

13. The screening and assessment process for construction impacts showed that water pollution risks, air pollution risks, noise generation and public safety issues are the main concerns. In this case, the proposed border improvement project is expected to either improve the existing situation, or to mitigate the negative effects of forecasted economic growth in the border crossing area. It is recommended that measurements of air and noise pollution would be of most value as part of a broader monitoring scheme.

14. In the case of public safety, information on the types frequencies and locations of accidents can better be recorded using existing capabilities although they are also influenced by the attitudes of the people using the border crossing area and the actual conditions of facilities provided under the improvement project, accident data can help identify accident "hotspots" which can be addressed on a case by case basis to reduce the particular hazard. Systematic collection of the project's accident data is recommended.

9.2.2 Monitoring of Construction Impacts

15. Construction environmental monitoring is a function of supervision, and the essential purpose is to ensure adherence to the EMP. The monitoring is a day to day process, which ensures that departures from the EMP are avoided or quickly rectified, or that any unforeseen impacts are quickly discovered and remedied.

16. Specific actions in the EMP that are to be monitored are included in the Table for Monitoring Plan. These include the preparation of plans for aspects of the work, such as a site safety plan, which need to be completed and approved during the pre-construction phase. Also included are air, noise and water quality monitoring parameters. In the case of air quality, PEPA and local EPA have stringent standards and it is recommended that these standards be used for air quality monitoring. The same is true for water quality monitoring where PEPA and local EPA have water quality standards for wastewater discharges.

9.2.3 Monitoring of Impacts of Operation Phase

17. Regular monitoring of the condition of the developmental infrastructures that are provided in the border crossing area is important from an environmental management point of view. Recommended air, noise and water quality monitoring and community feedback are also included as part of the monitoring works.

9.2.4 Monitoring Parameters

18. The following environmental parameters are recommended for monitoring against the Pakistan National Environment Quality Standards (NEQS) where observation areas can be located inside the project area:

Monitoring Parameters	Pakistan National Environment Quality Standards (NEQS)	
• **Ambient Air Quality mainly PM10**	Annual average	24 hours

		120 µg/m^3	150 µg/m^3
• **Ambient noise levels:**			
Area/Zone		Day Time (Limit in dB(A))	Night Time
1	Residential area (A)	55	45
2	Commercial area (B)	65	55
3	Industrial area (C)	75	65
4	Silence zone (D)	50	45

19. The cost of monitoring works is shown in **Table 9.2.1** while the project monitoring plan is presented in **Table 9.2.2** plan indicating environmental parameters, frequency, locations and applicable standards to be used. Standards set under the NEQS and WHO for various categories of receptors to be used as reference points is attached at **Annex 4.**

Table 9.2.1: Cost of Environmental Monitoring Works

Project Stage	Parameters	Quantity per monitoring occasion	Details per monitoring occasion	Amount per monitoring occasion (PKR)
Air Quality				
Pre-Construction	PM_{10}, NOx, SOx, CO	4	4 samples x 40,000 PKR/sample	160,000.00
Construction	PM_{10}, NOx, SOx, CO	4	4 samples x 40,000 PKR/sample	160,000.00
Operation	PM_{10}, NOx, SOx, CO	4	4 samples x 40,000 PKR/sample	160,000.00
Noise Level				
Pre-construction	Noise levels on dB(A) scale	4	4 x PKR 8,000/site	32,000.00
	Noise levels on dB(A) scale	4	4 x PKR 8,000/site	32,000.00
Operation	Noise levels on dB(A) scale	4	4 x PKR 8,000/site	32,000.00
Total				**576,000.00**

9.3 Environmental Capacity Building and Training

20. Capacity building comprising of training and seminar programs on aspects of monitoring and site inspection for environmental impact management and monitoring is herewith proposed. **Table 9.3.1** shows the details.

21. During the capability building activities, the PIU with technical assistance from the Construction Supervision Consultant (CSC) should be able to prepare and submit the Monthly

Environmental Reports or the Quarterly Environmental Reports to the Federal Board of Revenue for further verification and submission to ADB.

9.4 Summary Cost of EMP

Table 9.4.1 shows the summary for EMP Cost.

Table 9.4.1: Summary of EMP Cost

EMP	Details	Cost (PKR)
1. Capacity Building	Includes hiring of third party entities; Cost is to be shouldered by the Contractor	1,500,000.00
2. Monitoring	Cost during pre-construction and construction phases is to be shouldered by the Contractor	576,000.00 per monitoring occasion
3. EMP	Cost is to be shouldered by the Contractor	Part of the project cost

Table 9.2.2: Environmental Monitoring Plan

Project Stage	Parameters	Details	Standards to be applied	location	Frequency	Duration
Air Quality						
Pre-Construction	PM_{10}, NOx, SOx, CO	Observation area must be located near receptor areas (i.e., internal roads for pedestrians, custom office area)	EPA Ambient Air Quality Standards NEQS	Two to four selected locations	Once prior to construction phase (to serve as baseline data)	Continuous 24-hr
Construction	PM_{10}, NOx, SOx, CO	Observation area must be located near receptor areas (i.e., internal roads for pedestrians, custom office area)	EPA Ambient Air Quality Standards NEQS	Two to four selected locations	Monthly during construction	Continuous 24-hr
Operation	PM_{10}, NOx, SOx, CO	Observation area must be located near receptor areas (i.e., internal roads for pedestrians, custom office area)	EPA Ambient Air Quality Standards NEQS	Two to four selected locations	Twice a year for three years	Continuous 24-hr
Noise Level						
Pre-construction	Noise levels on dB(A) scale	Two to four locations: Background noise for noise sensitive receptor area (i.e., pedestrian lanes, commercial area, custom office area)	EPA Ambient Noise Standards.	four selected locations	once, one or two weeks before start of work	24 hr reading taken at 15 sec intervals over 15min every hr. and then averaged
Construction	Noise levels on dB(A) scale	7m from equipment whose noise level is to be determined	PEPA NEQS (noise) 1993	At equipment yard and active construction site	Monthly or when necessary as instructed by FBR/PIU	readings taken at 15 sec intervals over 15min every hr. and then averaged
Operation	Noise levels on dB(A) scale	Two to four locations: Background noise for noise sensitive receptor area (i.e., pedestrian lanes, commercial area, custom office area)	PEPA NEQS (noise) 1993	Four selected locations	Once a year	24 hr reading taken at 15sec intervals over 15min every hr. and then averaged

Table 9.3.1: Proposed Capacity Building and Training

Project Phase	Provided by:	Organized By	Contents	No. of Trainees	Duration	Cost (PKR)
Pre-Construction Phase	Third Party Environment Consulting Company / Monitoring Company	Federal Board of Revenue (FBR)	Comprehensive seminars and courses on: Environmental Management Plan and Environmental Monitoring including site visit/s	Members of the Project Implementing Unit (PIU)	4 days	500,000.00
Construction Phase/Operation Phase	Third Party Monitoring Consultants on Environmental Monitoring and Audit Works	Federal Board of Revenue (FBR)	Comprehensive seminars and courses on: Environmental Management Plan, Environmental Monitoring, Compliance and Audit Works including site visit/s	Members of the Project Implementing Unit (PIU) Safeguard staff (Construction supervision) Safeguard staff (Contractor)	4 days	500,000.00
Operation Phase	Third Party Monitoring Consultants on Environmental Compliance and Occupational Health and Safety (OHS) Works	Federal Board of Revenue (FBR)	Comprehensive seminars and courses on: Environmental Compliance and OHS Works	Members of the Project Implementing Unit (PIU)	4 days	500,000.00
Total						**1,500,000.00**

Chapter 10
CONCLUSIONS AND RECOMMENDATIONS

22. The project shall be implemented within the premises and adjacent areas of the existing Torkham BCP area. The implementation of the proposed improvement works shall result in the acquisition of additional lands which are mostly part of government land and the subject of a separate documentation on land acquisition and resettlement action plan. As the project area is void of ecologically and culturally sensitive areas, there are no anticipated effects on flora and fauna or negative impacts on any ecologically sensitive, cultural or historical resources.

23. The majority of environmental impacts and risks that are associated with construction works are all manageable. Corresponding mitigation measures to address these impacts have been included in the Environmental Management Plan. Monitoring activities as a component of the EMP will focus on compliance monitoring during construction phase. The EMP, its mitigation and monitoring programs, shall be included within the Bidding documents. The implementation of EMP during this period will be the responsibility of the Contractors, who has to be made aware of the perception and understanding of environmental problems. The Bid documents shall include the requirements of the EMP thus ensuring that all potential bidders are aware of the environmental requirements of the Project and its associated environmental costs. Hence, the required environmental mitigation measures will have to be clearly defined in the Contract Documents and the EMP and all its requirements shall form part of the Contractors Contract.

24. The IEE reveals that no major negative environmental impacts are likely to occur due to construction and normal operations of the proposed Project, provided mitigation measures are implemented and the proposed monitoring program is adequately carried out. This IEE established that there are no significant environmental issues that could not be either totally prevented or adequately mitigated. As such, based on the existing ADB Safeguards Policy (2009), this Project falls under ADB's Category B. The Project is a feasible project and sustainable option from the engineering, environmental, and socioeconomic points of view. The environmental impacts associated mainly with the construction of the project need to be properly mitigated. Existing institutional arrangements are available.

BIBLIOGRAPHY

Emergency Preparedness & Humanitarian Action, WHO Regional Office for the Eastern Mediterranean. 2007. eha@emro.who.int

Federally Administered Tribal Areas, Secretariat, for ADB. Initial Environment Examination-Shangede Dam (IEE). PAK: Federally Administered Tribal Areas Water Resources Development Project (FWRDP). August 2014

Field Visit Report (Environment), Torkham Border Crossing Point. 16 November 2014

Field Visit Report (Social Development Team), Torkham Border Crossing Point. 17 November 2014

FIRUZA PASTAKIA, Environmental Protection and The Eighteenth Amendment, Impact of Constitutional Amendments on Environmental Protection Legislation, Analysis of Laws in Force, and Assessment of Implementation Issues, APRIL 2012

Khan, S., Study of Pakistan's Chaman Fault. University of Houston. August 2013.

Ministry of Economy of Kyrgyz Republic for ADB. Resettlement Plan. Kyrgyz Republic: Regional Improvement of Border Services . July 2014

Ministry of Transport of the Republic of Tajikistan for ADB. Initial Environmental Examination. TAJ: CAREC Corridor 3 (Dushanbe-Uzbekistan Border) Improvement Project. April 2014

National Highway Authority for ADB, Environmental Assessment Report, Pakistan: North-West Frontier Province Road Development Sector and Subregional Connectivity Project (Peshawar–Torkham Subproject), May 2006

National Highway Authority, Islamic Republic of Pakistan for ADB. Revised IEE Report. Improvement and Widening of Qila Saifullah-Loralai-Wahgum Rud Section of N-70. May 2014

Power Grid Corporation of India Ltd. for ADB. Initial Environmental Examination (Draft). IND: National Grid Improvement Project. January 2015

Rapid Environmental Assessment (REA). TA845 -PAK: Border Services Improvement (Phase II) Project. Torkham Border Crossing Point (BCP)

Statutory Notifications (S.R.O.), Government of Pakistan, Ministry of Environment, Local Government, and Rural Development, The Gazette of Pakistan, Islamabad, the 8th of August, 2000, published August 10, 2000.

Statutory Notifications (S.R.O.), Government of Pakistan, Ministry of Environment Notifications, The Gazette of Pakistan, Islamabad, the 18th of October, 2010, published November 26, 2010.

Tacheng Prefecture Government of Xinjiang Uygur Autonomous Region for ADB. Initial Environmental Examination. People's Republic of China: Xinjiang Tacheng Border City and Counties Development Project. February 2015

Ul-Hadi, S., et al., Slip-rates along the Chaman fault: Implication for transient strain accumulation and strain partitioning along the western Indian ..., Tectonophysics (2013), http://dx.doi.org/10.1016/j.tecto.2013.09.009

Webliography:

www.adb.org/sites/default/files/project-document/68379/36052-pak-seia.pdf

Annex 1:
Rapid Environmental Assessment (REA)
Torkham Border Crossing Point (BCP)

Annex 1

Rapid Environmental Assessment (REA)
TA845 -PAK: Border Services Improvement (Phase II) Project
Torkham Border Crossing Point (BCP)

The proposed project as a whole was subjected to environmental screening process using ADB's Classification System. Based on SPS 2009, a project category is evaluated by the category of its most environmentally sensitive component, including direct, indirect, cumulative, and induced impacts in the project's area of influence. The project is classified according to the following categories:

i. **Category A**
A proposed subproject is classified as category A if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works.

ii. **Category B**
A proposed subproject is classified as category B if its potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects.

iii. **Category C**
A proposed subproject is classified as category C if it is likely to have minimal or no adverse environmental impacts.

The environmental screening presented in Table 1 was used as basis for environment categorization. Reference must be made to the following maps:

Map 1 : Overlay of the proposed site development plan with latest satellite image of the project area.

Map 2- Map 2: Seismic Hazard Zone of Pakistan.

Map 3: Map 3: Composite Hazard Map of Pakistan

Table 1: Screening of Potential Environmental Impacts

Screening Questions	Yes	No	Remarks
A. Project sitting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
• Cultural heritage site		x	• The project area is void of environmentally, ecologically and culturally sensitive areas. • The surrounding areas are mostly barren lands of no vegetation.
• Protected Area		x	
• Wetland		x	
• Mangrove		x	
• Estuarine		x	
• Buffer zone of protected area		x	
• Special area for protecting biodiversity		x	
B. Potential Environmental Impacts Will the Project cause…			
• encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries?		x	• There is no nearby historical/ cultural areas; • No anticipated disfiguration of landscape as the facilities shall be situated in available flat area; • Quarrying is not necessary.
• encroachment on precious ecology		x	• No nearby sensitive or

Annex 1

Screening Questions	Yes	No	Remarks
(e.g. sensitive or protected areas)?			protected areas • No encroachment on precious ecology
• alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site?		x	• no nearby water body within the 500 to 1-km radius • the project will not alter the water hydrology in the area
• deterioration of surface water quality due to silt runoff and sanitary wastes from worker- based camps and chemicals used in construction?		x	• no nearby surface water • deterioration of surface water is not expected
• increased local air pollution due to rock crushing, cutting and filling works, and chemicals from asphalt processing?	x		• fugitive dust generation is the most significant concern during construction phase ; • when asphalt is used, appropriate EMP will be employed
• risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation during project construction and operation?	x		• there are potential risk and vulnerabilities from various factors; • Use of chemical, biological and radiological hazards are not expected during construction and operation phases of the project; • Personal protective equipment will be provided to workers; • The EMP will specify that regular safety training should be conducted.
• noise and vibration due to blasting and other civil works?	x		• Short term impacts from civil works are anticipated but not from blasting; • Mitigation will be specified in the EMP
• dislocation or involuntary resettlement of people?		x	• none • no relocation is needed as the project area is void of built up areas
• dislocation and compulsory resettlement of people living in right-of-way?		x	• none • however, there will be acquisition of land to be addressed under land and resettlement action plan
• disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		x	• the project will positively impact the poor, women and IPs as the project is a poverty alleviation project; • The project will be beneficial

Annex 1

Screening Questions	Yes	No	Remarks
			to people particularly those who will be involved in the project.
• other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress?		x	• Construction works have potential to increase noise level and dust concentration, but the impact will be short term. • Good construction practices to mitigate dust and other disturbances will be specified in EMP.
• hazardous driving conditions where construction interferes with pre-existing roads?		x	• the project construction can be planned to avoid this hazardous conditions • contractors will be required to prepare and implement BCP internal traffic /safety management plan.
• poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations?	x		• proper camping sites shall be provided for non-local workers, the number of them is expected to be small; • Priority in labor employment will be given to local residents.
• creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?	x		• proper camping sites with sanitation facilities shall be provided during construction phase • breeding habitats prevention to be specified in the EMP.
• accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials?	x		• Traffic in the area can be made manageable; • Expected during construction but impacts will be temporary. • Mitigation measure to be specified in EMP. • Contractors will be required to prepare and implement Traffic /Safety Management Plan and Toxic/Hazardous Wastes Management Plan
• increased noise and air pollution resulting from traffic volume?	x		• noise and dust generation are significant concerns during construction however impacts will be temporary. • Vehicle emission controls, providing orientation to

Annex 1

Screening Questions	Yes	No	Remarks
			drivers to be specified in EMP. • Traffic volume is expected to increase significantly during operation phase. Traffic mitigation measure to be specified in EMP.
• increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road?	x		• there is treat of soil and groundwater pollution from oil, grease and fuel spills, and other materials from vehicles using the road • contractors will be required to prepare/implement Toxic/Hazardous Wastes Management Plan
• social conflicts if workers from other regions or countries are hired?		x	• hiring will be restricted or prioritize to local people of Pakistani citizen
• large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?	x		• involvement of non-local workers will be minimized; • local people will be prioritized to minimize demand for social infrastructures and services; • anticipated increased in economic activities and trading will increase demand for social infrastructure and services during operation phase. Resource allocation and mitigation measure to be specified in EMP.
• risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		x	• No explosives and chemicals will be used for this project.
• community safety risks due to both accidental and natural causes, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning.	x		• Torkham is susceptible to geological hazards especially earthquake thus could result to injury; • Access to restricted areas can be controlled during construction and operation phases of the project
C. Climate Change and Disaster Risk Questions The following questions are not for environmental categorization. They are included in this check list to			

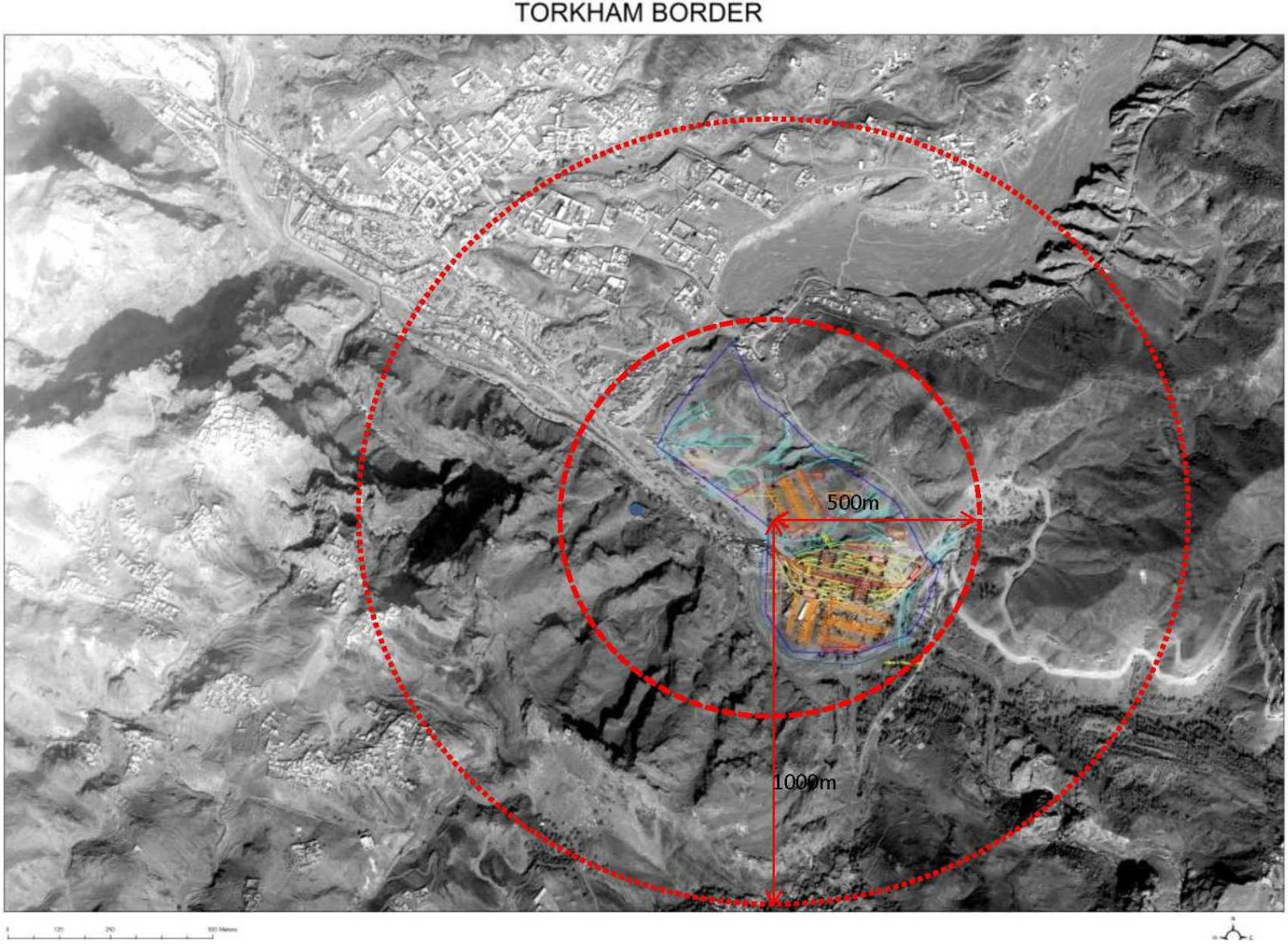
Screening Questions	Yes	No	Remarks
help identify potential climate and disaster risks			
• Is the Project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and climate changes	x		• The area is susceptible to earthquake; • Can be mitigated by incorporating this concern in the project design
• Could changes in temperature, precipitation, or extreme events patterns over the Project lifespan affect technical or financial sustainability (e.g., increased erosion or landslides could increase maintenance costs, permafrost melting or increased soil moisture content could affect sub-grade).		x	• Not applicable
• Are there any demographic or socio-economic aspects of the Project area that are already vulnerable (e.g., high incidence of marginalized populations, rural-urban migrants, illegal settlements, ethnic minorities, women or children)?		x	• Not applicable
• Could the Project potentially increase the climate or disaster vulnerability of the surrounding area (e.g., by encouraging settlement in areas that will be more affected by floods in the future, or encouraging settlement in earthquake zones)?		x	• Not applicable

D. Environment Categorization

Based on the rapid environmental assessment conducted, there are no sensitive areas that will be significantly affected by the project. During construction, earth and civil works are expected to generate minimal and short term and insignificant impact and risks to the existing environment. Mitigation measures for such impacts can be formulated and implemented; hence, the overall project categorization is Category B.

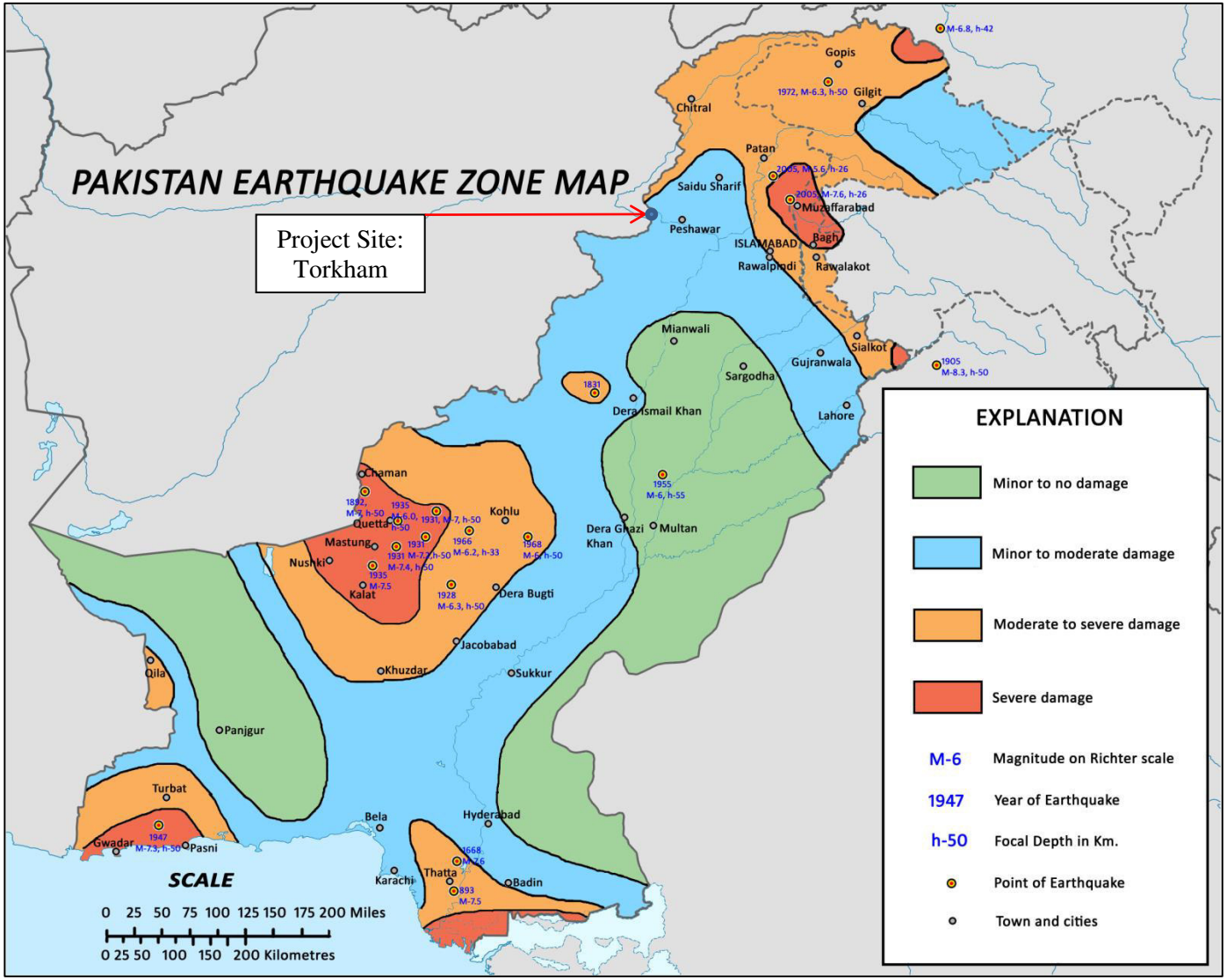
Annex 1

Map 1 – Overlay of the proposed site development plan with latest satellite image of the project area



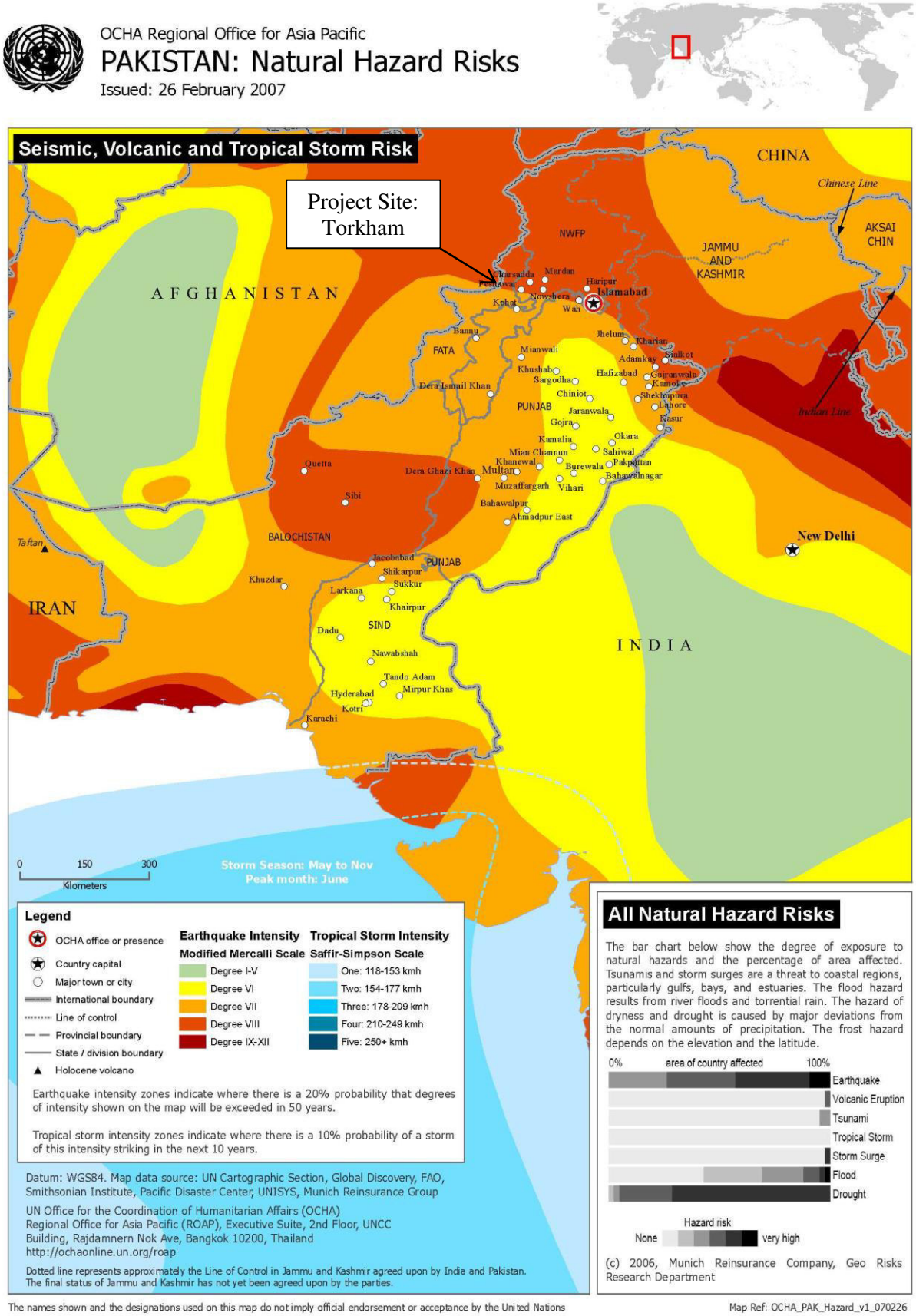
Annex 1

Map 2: Seismic Hazard Zone of Pakistan



Annex 1

Map 3: Composite Hazard Map of Pakistan



Annex 2:
Territorial Jurisdiction of PEPA
After 18th Amendment in Constitution
F.No. 1 (A-1)/96-L/E dated 23-7-2014

Annex 2

Government of Pakistan
Pakistan Environmental Protection Agency
Climate Change Division
Plot No.42 Street No.06, H-8/2, Islamabad
****

F.No. 1(A-1)/96-L/E Dated: 23-7-2014

Subject: **TERRITORIAL JURISDICTION OF PAKISTAN ENVIRONMENTAL PROTECTION AGENCY AFTER 18TH AMENDMENT IN CONSTITUTION.**

Dear Sir/Madam,

This is to bring to your kind notice and request for further dissemination to all concerned under your Ministry / Organization that after the 18th amendment in the constitution of Islamic Republic of Pakistan, the subject of Environment & Pollution has been devolved to the provinces. Now, therefore environmental issues/matters falling in the following territorial jurisdiction are dealt by Pakistan Environmental Protection Agency (i.e. the Federal Environmental Protection Agency).

(i) Islamabad Capital Territory and CDA Jurisdiction.
(ii) All Military Lands and Cantonments of Pakistan.
(iii) Railway tracks and Stations.
(iv) National Highways / Motorways, Mega dams, River systems.
(v) All Airports.
(vi) Territorial Waters/Exclusive Economic Zone/Continental Shelf.
(vii) Sea ports/Navel Bases.
(viii) Federally Administered Tribal Areas.
(ix) Boarder zone areas alongside the international boundaries.
(x) Military and Air Force estates /bases etc.
(xi) Other Federal Lands.
(xii) Any other issue which falls under the jurisdiction of Federal Government.

2. It is therefore, requested to kindly inform all concerned authorities under your control to seek environmental clearance for all development projects from this Agency which is mandatory requirement under section 12 of Pakistan Environmental Protection Act, 1997.

(Dr. Mohammad Khurshid)
Director General

1. Secretary, Ministry of Defence, Government of Pakistan, Rawalpindi.
2. Secretary, Ministry of Ports & Shipping, Government of Pakistan, Islamabad.

D.C.S D/No. 7665
Date 4-8-14

Annex 3:

1. **FIELD VISIT REPORT (ENVIRONMENT)**
   TORKHAM BORDER CROSSING POINT
   16 November 2014
2. **Result of the November 13, 2014**
   Torkham Project Site Visit
   TA-8405 PAK: Improving Border
   Services Project, November 17, 2014
   Social Development Team

FIELD VISIT REPORT (ENVIRONMENT)

TORKHAM BORDER CROSSING POINT

16 November 2014

1. Introduction

Like Wagah, Lahore, the ECIL team of consultants visited Torkham border crossing point on 16 Nov 2014. The team comprised upon financial, social and environmental experts. On site comprehensive briefing was given to the team by Mr. Malik Kamran, Additional Collector Custom, and other custom officials. Different aspects of existing trade facilities like crossing point, checking system, trade volume, trade items, custom collection procedures, and vehicular movements etc were explained. The salient aspects of financial, social and environment were also discussed in detail.

The meeting was followed by a walk through site visit of the current facilities including the border line/ crossing line, trade vehicles parking area, taxi parking, custom office and also the new proposed project site. This introductory meeting will be helpful in upcoming field visits that would be planned for environmental baseline data collection regarding the project area. From environmental point of view, the main objectives of meeting and follow on site visit were:

- Introduction and familiarization of environmental team member with customs, agency administrative and border associated officials and the project site as well.
- A Rapid Environmental Appraisal (REA) of the project site.

2. Findings of the Meeting and Rapid Environmental Appraisal

Followings are the summary findings of the meeting and the REA:

a. **General Topography and Vegetation:** Major part of the project area is barren, dry and rocky, with gently rolling mountainous terrain. The proposed site is found encapsulated by high mountains from all sides, which poses paucity of flat land availability.

Photo 1: An old acacia

b. **Quarantine Cell and Phytosanitary Department:** Questions were asked regarding the onsite office and examination/ testing of fruits and vegetables by the phytosanitary/ Quarantine Departments. A negative answer was received, explaining that there is no on site quarantine cell for examining and testing the imported fruits from Afghanistan. Similarly, it was also noticed, that there is feeble system of check and balance on importing of other hazardous items/ substances like used dry batteries, computer equipment, TV and computer monitors and / or other hazardous materials, which make significant contributions towards environmental pollution and poses health hazards for workers.

c. **Traffic Management and Associated Health & Safety Risks:** Owing to high traffic volume and limited parking space, the present traffic management is highly unsatisfactory. It is likely to cause serious safety risks for pedestrians crossing the border. The second anticipated concern observed was traffic management during construction phase of the project which is likely to aggravate it still further. However, after detail site survey, a suitable alternate route will be proposes.

Photo 2: Traffic Congestion.

d. **Vegetative Cover on Project Location:** The project corridor falls outside monsoon zone. It gets limited precipitation in winters through western Mediterranean winds, with some snowfall on mountain tops. Hence, climatic conditions do not provide adequate support to natural vegetation. However, some acacia, Dalbergia Sisso (Sheesham), and eucalyptus varieties of shrubs and trees have been observed.

Photo 3: Barren landscape of project corridor.

During recent decades the thin vegetative cover has further been thinned down, mainly by Afghan refugees for fulfilling their fuel-wood needs.

3. Conclusions

It was realized that the meeting which followed by site visit was helpful from environmental point of view, because a Rapid Environmental Appraisal was conducted for entire project area and introduction of study team with the custom, security and administrative officials of Khyber Agency, which will be useful for further assessment. A detail survey and fields visits will be conducted, in consultation with team leader and other officials, to generate a complete environmental profile and also to assess the anticipated impacts of the proposed project during construction phase, suggesting adequate mitigation measures.

Result of the November 13, 2014 Torkham Project Site Visit
TA-8405 PAK: Improving Border Services Project
November 17, 2014
Social Development Team[1]

1. Introduction

Torkham is one of the three project sites of the Border Crossing Point project under TA-8405 PAK: Improving Border Services Project of Pakistan. The other two project sites are Wagha and Chaman. Last November 16, 2014, we went to Torkham traversing the good 8-lane highway roads of Islamabad via Peshawar City. We left Islamabad City at 4:30 pm and arrived at Pearl-Continental Hotel in Peshawar City at around 8:00 pm. The hotel is a tranquil, tourist-favored, 5-star hotel in the city.

In the following morning, November 17, 2014, at 6:30 am, we were on our way to Torkham. For the most part of the journey, we travelled on the midst of bald hills and jagged mountains. The narrow roads were rough, dusty and bumpy due to on-going road construction. The slow flow of vehicle traffic on the left and right side of the road is intensified by the mixture of cars and cargo trucks bringing in assorted products to and from Afghanistan. Halfway through the journey, one can see the long and winding road packed with zigzag ascends and descends of vehicles. Ahead of us was the escort vehicle with about six military men armed AK-47 rifles. They not only provided us the security services but at the same time, facilitated the journey.

11. Objective of the Project Visit

The objective of the project site visit was two-fold: i) to get a first-hand appreciation of the project site's physical location; and ii) to gather primary data related to the a) magnitude of project affected people and/or communities; and b) a situationer of the planned relocation site such as its location, size in terms of hectares, topography, the types of landowners, the contact numbers and/or e-mails of the landowners, and amenities available.

The team that went to Torkham was composed of the a) local and international social development specialist; b) local and international financial analyst; and c) a senior ECIL officer who graciously prepared for the project visit, get military escort to provide security services for the team and coordinated with the target informants of Torkham comprising the focal person, assistant customs officer, and the political agent representative the Federally Administered Tribal Association. Customs Office, the office that takes charges of the existing operations management of the border's import and export transactions.

11. Methodology

The team adopted two major data gathering techniques. The first one was the Key Informant Interview (KII); and the second one was the Reconnaissance Survey (RS) of the Torkham Border Vicinity. Along with these two techniques was the taking of relevant photographs of the site: the existing location of the cross border operations and the potential relocation site.

[1] The Social Development Team is composed of Mr. Syed Nadeem Arif and Jerry Leones. Mr. Saquib Ejaz Hussain serves as the alternate of Mr. Nadeem. The team went to Wagha Border, Lahore City, Pakistan in November 13, 2014.

The team was able to interview Mr. Malik Kamran who holds the position of "Additional Collector" and designated "focal person" of the border crossing project in Torkham. The political agent, and the assistant customs collector were also with him but it was Mr. Malik who did most of the talking.

Figure 1. Jerry Leones, international social development specialist and Saquib Ejaz Hussain, the counterpart of Jerry Leones interviewing Mr. Malik Kamran

Figure 2. Mr. Malik Kamran, Additional Customs Collector, Torkham

111. Findings

A. Geographic Location

Torkham is a border crossings between Afghanistan and Pakistan. The customs operations office is located beside the narrow and crowded road. Throngs of trucks and pedestrians passing by make the street extremely busy.

The land size where the customs operations office is 13 acres. If the infrastructure development plan is realized, they will need a total area of 56 acres. To avoid physical and economic relocation of people, the management plans to move the office operations some six (6) kilometers away. The area is allegedly owned by political landlords and the political agent is currently in the process of negotiating the purchase of the land.

According to the Mr. Malik Kamran, the landlords are happy to sell the land because in the first place, they have extra lands. At present, the target relocation site of the customs office where the Border Crossing Point (BCP) operations will be officiated is just as parking area of transit trucks.

B. Project Affected People

When asked on the magnitude of households and/or establishments that will be affected by the infrastructure development project, Mr. Malik and the political agent declined to answer the questions. They said that until they will be able to see the master plan of the project, they will not be

able to determine whether or not there will be people that will be affected. Mr. Malik was appointed as “focal person” barely two weeks past prior to the team’s visit.

However, the informants said that if ever the target relocation site will be pushed, there will be no households that will be affected being that there are no dwellers in the area.

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Annex 4:
SRO-2010-NEQS Air-Water-Noise
SRO-549-Pakistan Water Effluent Standard
NEQS and WHO Standards

REGISTERED No. M - 302
L.-7646

The Gazette of Pakistan

EXTRAORDINARY
PUBLISHED BY AUTHORITY

ISLAMABAD, FRIDAY, NOVEMBER 26, 2010

PART II

Statutory Notifications (S. R. O.)

GOVERNMENT OF PAKISTAN

MINISTRY OF ENVIRONMENT

NOTIFICATIONS

Islamabad, the 18th October, 2010

S. R. O. 1062(I)/2010.—In exercise of the powers conferred under clause (c) of sub-section (I) of section 6 of the Pakistan Environmental Protection Act, 1997 (XXXIV of 1997), the Pakistan Environmental Protection Agency, with the prior approval of the Pakistan Environmental Protection Council, is pleased to establish the following National Environmental Quality Standards for Ambient Air.

National Environmental Quality Standards for Ambient Air

Pollutants	Time-weighted average	Concentration in Ambient Air		Method of measurement
		Effective from 1st July, 2010	Effective from 1st January 2013	
Sulphur Dioxide (SO_2)	Annual Average*	80 $\mu g/m^3$	80 $\mu g/m^3$	-Ultraviolet Fluorescence method
	24 hours**	120 $\mu g/m^3$	120 $\mu g/m^3$	
Oxides of Nitrogen as (NO)	Annual Average*	40 $\mu g/m^3$	40 $\mu g/m^3$	- Gas Phase Chemiluminescence
	24 hours**	40 $\mu g/m^3$	40 $\mu g/m^3$	

[2944(2010)/Ex. Gaz.] *Price: Rs. 5.00*

Pollutants	Time-weighted average	Concentration in Ambient Air		Method of measurement
		Effective from 1st July, 2010	Effective from 1st January 2013	
Oxides of Nitrogen as (NO_2)	Annual Average*	40 $\mu g/m^3$	40 $\mu g/m^3$	- Gas Phase Chemiluminescence
	24 hours**	80 $\mu g/m^3$	80 $\mu g/m^3$	
O^3	1 hour	180 $\mu g/m^3$	130 $\mu g/m^3$	-Non dispersive UV absorption method
Suspended Particulate Matter (SPM)	Annual Average*	400 $\mu g/m^3$	360 $\mu g/m^3$	- High Volume Sampling, (Average flow rate not less than 1.1 m3/minute).
	24 hours**	550 $\mu g/m^3$	500 $\mu g/m^3$	
Respirable Particulate Matter, PM_{10}	Annual Average*	200 $\mu g/m^3$	120 $\mu g/m^3$	-β Ray absorption method
	24 hours**	250 $\mu g/m^3$	150 $\mu g/m^3$	
Respirable Particulate Matter, $PM_{2.5}$	Annual Average*	25 $\mu g/m^3$	15 $\mu g/m^3$	-β Ray absorption method
	24 hours**	40 $\mu g/m^3$	35 $\mu g/m^3$	
	1 hour	25 $\mu g/m^3$	15 $\mu g/m^3$	
Lead Pb	Annual Average*	1.5 $\mu g/m^3$	1 $\mu g/m^3$	- ASS Method after sampling using EPM 2000 or equivalent Filter paper
	24 hours**	2 $\mu g/m^3$	1.5 $\mu g/m^3$	
Carbon Monoxide (CO)	8 hours**	5 mg/m^3	5 mg/m^3	- Non Dispersive Infra Red (NDIR) method
	1 hour	10 mg/m^3	10 mg/m^3	

*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 but not on two consecutive days.

S. R. O. 1063(I)/2010.— In exercise of the powers conferred under clause (c) of sub-section (1) of section 6 of the Pakistan Environmental Protection Act, 1997 (XXXIV of 1997), the Pakistan Environmental Protection Agency, with the prior approval of the Pakistan Environmental Protection Council, is pleased to establish the following National Standards for Drinking Water Quality.

National Standards for Drinking Water Quality

Properties/Parameters	Standard Values for Pakistan	Who Standards	Remarks
Bacterial			
All water intended for drinking (e.Coli or Thermotolerant Coliform bacteria)	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample	Most Asian countries also follow WHO standards
Treated water entering the distribution system (E.Coli or thermo tolerant coliform and total coliform bacteria)	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample	Most Asian countries also follow WHO standards
Treated water in the distribution system (E. coli or thermo tolerant coliform and total coliform bacteria)	Must not be detectable in any 100 ml sample 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.	Must not be detectable in any 100 ml sample 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.	Most Asian countries also follow WHO standards
Physical			
Colour	≤ 15 TCU	≤ 15 TCU	
Taste	Non objectionable/Acceptable	Non objectionable/Acceptable	
Odour	Non objectionable/Acceptable	Non objectionable/Acceptable	
Turbidity	〈 5 NTU	〈 5 NTU	
Total hardness as $CaCO_3$	< 500 mg/l	----	
TDS	〈 1000	〈 1000	
pH	6.5 – 8.5	6.5 – 8.5	
Chemical			
Essential Inorganic	***mg/Litre***	***mg/Litre***	
Aluminium (Al) mg/l	≤ 0.2	0.2	

Properties/Parameters	Standard Values for Pakistan	Who Standards	Remarks
Antimony (Sb)	≤ 0.005 (P)	0.02	
Arsenic (As)	≤ 0.05 (P)	0.01	Standard for Pakistan similar to most Asian developing countries
Barium (Ba)	0.7	0.7	
Boron (B)	0.3	0.3	
Cadmium (Cd)	0.01	0.003	Standard for Pakistan similar to most Asian developing countries
Chloride (Cl)	< 250	250	
Chromium (Cr)	≤ 0.05	0.05	
Copper (Cu)	2	2	
Toxic Inorganic	***mg/Litre***	***mg/Litre***	
Cyanide (CN)	≤ 0.05	0.07	Standard for Pakistan similar to Asian developing countries
Fluoride (F)*	≤ 1.5	1.5	
Lead (Pb)	≤ 0.05	0.01	Standard for Pakistan similar to most Asian developing countries
Manganese (Mn)	≤ 0.5	0.5	
Mercury (Hg)	≤ 0.001	0.001	
Nickel (Ni)	≤ 0.02	0.02	
Nitrate (NO_3)*	≤ 50	50	
Nitrite (NO_2)*	≤ 3 (P)	3	
Selenium (Se)	0.01(P)	0.01	
Residual chlorine	0.2-0.5 at consumer end 0.5-1.5 at source	—	
Zinc (Zn)	5.0	3	Standard for Pakistan similar to most Asian developing countries

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

Properties/Parameters	Standard Values for Pakistan	Who Standards	Remarks
Organic			
Pesticides mg/L		PSQCA No. 4639-2004, Page No. 4 Table No. 3 Serial No. 20- 58 may be consulted.***	Annex II
Phenolic compounds (as Phenols) mg/L		≤ 0.002	
Polynuclear aromatic hydrocarbons (as PAH) g/L		0.01 (By GC/MS method)	
Radioactive			
Alpha Emitters bq/L or pCi	0.1	0.1	
Beta emitters	1	1	

*** PSQCA: Pakistan Standards Quality Control Authority.

Proviso:

The existing drinking water treatment infrastructure is not adequate to comply with WHO guidelines. The Arsenic concentrations in South Punjab and in some parts of Sindh have been found high then Revised WHO guidelines. It will take some time to control arsenic through treatment process. Lead concentration in the proposed standards is higher than WHO Guidelines. As the piping system for supply of drinking water in urban centres are generally old and will take significant resources and time to get them replaced. In the recent past, Lead was completely phased out from petroleum products to cut down Lead entering into environment. These steps will enable to achieve WHO guidelines for Arsenic, Lead, Cadmium and Zinc. However, for bottled water, WHO limits for Arsenic, Lead, Cadmium and Zinc will be applicable and PSQCA Standards for all the remaining parameters.

S. R. O. 1064(I)/2010.—In exercise of the powers conferred under clause (c) of sub-section (1) of section 6 of the Pakistan Environmental Protection Act, 1997 (XXXIV of 1997), the Pakistan Environmental Protection Agency, with the prior approval of the Pakistan Environmental Protection Council, is pleased to establish the following National Environmental Quality Standards for Noise.

National Environmental Quality Standards for Noise

S. No.	Category of Area / Zone	Effective from 1st July, 2010		Effective from 1st July, 2012	
		Limit in dB(A) Leq *			
		Day Time	Night Time	Day Time	Night Time
1.	Residential area (A)	65	50	55	45
2.	Commercial area (B)	70	60	65	55
3.	Industrial area (C)	80	75	75	65
4.	Silence Zone (D)	55	45	50	45

Note: 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 which are declared as such by the competent authority. An area comprising not less than 100 meters around hospitals, educational institutions and courts.

4. Mixed categories of areas may be declared as one of the four above-mentioned 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.

[No. F. I(12)/2010-11-General.]

MUHAMMAD KHALIL AWAN,
Section Officer (PEPC).

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ISLAMABD, THURSDAY, AUGUST 10, 2000

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PART-II

Statutory Notification (S.R.O)

GOVERNMENT OF PAKISTAN

MINISTRY OF ENVIRONMENT, LOCAL GOVERNMENT AND RURAL DEVELOPMENT

NOTIFICATION

Islamabad, the 8th August 2000

S.R.O. 549 (I)/2000.___ In exercise of the powers conferred under clause (c) of sub-section (1) of section of 6 of the Pakistan environmental Protection Act. 1997 (XXXIV of 1997), the Pakistan Environmental Protection Agency, with the prior approval of the Pakistan Environmental Protection Council, is pleased to direct that the following further amendments shall be made in its Notification No. S.R.O. 742(I)/93, dated the 24th August, 1993, namely: ___

In the aforesaid Notification, in paragraph 2._____

[4138(2000)/Ex.GAZ]

Price : Rs. 5.00

(1) for Annex, I the following shall be substituted, namely:_____

Annex-I

"NATIONAL ENVIRONMENTAL QUALITY STANDARDS FOR MUNICIPAL AND LIQUID INDUSTRIAL EFFLUENTS (mg/I, UNLESS OTHERWISE DEFINED)

S. No.	Parameter		Revised Standards		
		Existing Standards	Into Inland Waters	Into Sewage Treatment (5)	Into Sea ( )
1	2	3	4	5	6
1.	Temperature or Temperature Increase *	40^0C	≤3°C	≤3°C	≤3°C
2.	pH value (H^+) .	6-10	6-9	6-9	6-9
3.	Biochemical Oxygen Demand $(BOD)_5$ at 20^0C (1)	80	80	250	80**
4.	Chemical Oxygen Demand (COD) (1)	150	150	400	400
5.	Total Suspended Solids (TSS)	150	200	400	200
6.	Total Dissolved Solids (TDS)	3500	3500	3500	3500
7.	Oil and Grease	10	10	10	10
8.	Phenolic compounds (as phenol)	0.1	0.1	0.3	0.3
9.	Chloride (as $C1^-$)	1000	1000	1000	SC***
10.	Fluoride (as F^-)	20	10	10	10
11.	Cyanide (as CN^-) total ..	2	1.0	1.0	1.0
12.	An-ionic detergents (as MBAS) (2)	20	20	20	20
13.	Sulphate (SO_4^{2-})	600	600	1000	SC***
14.	Sulphide (S^{2-})	1.0	1.0	1.0	1.0
15.	Ammonia (NH_3)	40	40	40	40
16.	Pesticides (3)	0.15	0.15	0.15	0.15

1	2	3	4	5	6
17.	Cadmium [4]	0.1	0.1	0.1	0.1
18.	Chromium (trivalent and hexavalent [4].. ..	1.0	1.0	1.0	1.0
19.	Cooper [4]	1.0	1.0	1.0	1.0
20.	Lead [4]	0.5	0.5	0.5	0.5
21.	Mercury [4]	0.01	0.01	0.01	0.01
22.	Selenium [4]	0.5	0.5	0.5	0.5
23.	Nickel [4]	1.0	1.0	1.0	1.0
24.	Silver [4]	1.0	1.0	1.0	1.0
25.	Total toxic metals	2.0	2.0	2.0	2.0
26.	Zinc	5.0	5.0	5.0	5.0
27.	Arsenic [4]	1.0	1.0	1.0	1.0
28.	Barium [4]	1.5	1.5	1.5	1.5
29.	Iron	2.0	8.0	8.0	8.0
30.	Manganese	1.5	1.5	1.5	1.5
31.	Boron [4]	6.0	6.0	6.0	6.0
32.	Chlorine	1.0	1.0	1.0	1.0

Explanations:

1. Assuming minimum dilution 1:10 on discharge, lower ratio would attract progressively stringent standards to be determined by the Federal Environmental Protection Agency. By 1:10 dilution means, for example that for each one cubic meter of treated effluent, the recipient water body should have 10 cubic meter of water for dilution of this effluent.

2. Methylene Blue Active Substances; assuming surfactant as biodegradable.

3. Pesticides include herbicides, fungicides, and insecticides.

4. Subject to total toxic metals discharge should not exceed level given at S. N. 25.

5. Applicable only when and where sewage treatment is operational and BOD_5=80mg/I is achieved by the sewage treatment system.

6. Provided discharge is not at shore and not within 10 miles of mangrove or other important estuaries.

* The effluent should not result in temperature increase of more than 3^0C at the edge of the zone where initial mixing and dilution take place in the receiving body. In case zone is not defined, use 100 meters from the point of discharge.

** The value for industry is 200 mg/I

*** Discharge concentration at or below sea concentration (SC).

Note:_____ 1. Dilution of liquid effluents to bring them to the NEQS limiting values is not permissible through fresh water mixing with the effluent before discharging into the environment.

2. The concentration of pollutants in water being used will be substracted from the effluent for calculating the NEQS limits" and

(2) for Annex-II the following shall be substituted, namely:____

Annex-II

"NATIONAL ENVIRONMENTAL QUALITY STANDARDS FOR INDUSTRIAL GASEOUS EMISSION (mg/Nm^3, UNLESS OTHERWISE DEFINED)."

S. No.	Parameter	Source of Emission	Existing Standards	Revised Standards
1	2	3	4	5
1.	Smoke	Smoke opacity not to exceed	40% or 2 Ringlemann Scale	40% or 2 Ringlemann Scale or equivalent smoke number
2.	Particulate malter	(a) Boilers and Furnaces		
	(1)	(i) Oil fired	300	300
		(ii) Coal fired	500	500
		(iii) Cement Kilns	200	300
		(b) Grinding, crushing, Clinker coolers and Related processes, Metallurgical Processes, converter, blast furnaces and cupolas.	500	500
3.	Hydrogen Chloride	Any	400	400

1	2	3	4	5
4.	Chlorine	Any	150	150
5.	Hydrogen Fluoride	Any	150	150
6.	Hydrogen Sulphide	Any	10	10
7.	Sulphur Oxides [2] [3]	Sulfuric acid/Sulphonic acid plants		
		Other Plants except power Plants operating on oil and coal	400	1700
8.	Carbon Monoxide	Any	800	800
9.	Lead	Any	50	50
10.	Mercury	Any	10	10
11.	Cadmium	Any	20	20
12.	Arsenic	Any	20	20
13.	Copper	Any	50	50
14.	Antimony	Any	20	20
15.	Zinc	Any	200	200
16.	Oxides of Nitrogen	Nitric acid manufacturing unit.	400	3000
	(3)	Other plants except power plants operating on oil or coal:		
		Gas fired	400	400
		Oil fired	-	600
		Coal fired	-	1200

Explanations:-

1. Based on the assumption that the size of the particulate is 10 micron or more.

2. Based on 1 percent Sulphur content in fuel oil. Higher content of Sulphur will case 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 National Environmental Quality Standards (NEQS) specified above, comply with the following standards:-

A. **Sulphur Dioxide**

Sulphur Dioxide Background levels Micro-gram per cubic meter (ug/m^3) Standards.

Background Air Quality (SO_2 Basis)	Annual Average	Max. 24-hours Interval	Criterion I Max. SO_2 Emission (Tons per Day Per Plant)	Criterion II Max. Allowable ground level increment to ambient (ug/m^3) (One year Average)
Unpolluted	<50	<200	500	50
Moderately Polluted*				
Low	50	200	500	50
High	100	400	100	10
Very Polluted**	>100	>400	100	10

* For intermediate values between 50 and 100 ug/m^3 linear interpolations should be used.

** No projects with Sulphur dioxide emissions will be recommended.

B. Nitrogen Oxide

Ambient air concentrations of Nitrogen oxides, expressed as NO_x should not be exceed the following:-

Annual Arithmetic Mean	100ug/m^3 (0.05 ppm)

Emission level for stationary source discharge before missing with the atmosphere, should be maintained as follows:-

For fuel fired steam generators as Nanogram (10^0-gram) per joule of heat input:

Liquid fossil fuel	130
Solid fossil fuel	300
Lignite fossil fuel	260

Note:- Dilution of gaseous emissions to bring them to the NEQS limiting value is not permissible through excess air mixing blowing before emitting into the environment.

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National Environmental Quality Standards for Gaseous Emission

Parameter	Source of Emission	Existing Standards	Revised Standards
Smoke	Smoke Opacity not to exceed	40% or 2 on Ringlemann scale	40% or 2 on Ringlemann scale or equivalent number
Particulate matter	a) Boilers and furnaces Oil fired Coal fired Cement Kilns b) Grinding crushing, clinker, coolers and related processes, metallurgical processes, converter, blast furnaces and cupolas	 300 500 200 500	 300 500 300 500
Hydrogen Chloride	Any	400	400
Chlorine	Any	150	150
Hydrogen Flouride	Any	150	150
Hydrogen Sulphide	Any	10	10
Sulphur oxides	Sulfuric acids/sulfuric acid plants Other plants	400 400	5000 1700
Lead	Any	50	50
Mercury	Any	10	10
Cadmium	Any	20	20
Arsenic	Any	20	20
Copper	Any	50	50
Antimony	20	20	20
Zinc	Any	200	200
Oxides of Nitrogen	Nitric Acid Manufacturing Unit Gas Fired Oil Fired Coal Fired	400 400	400 400 600 1200

WHO Guideline Values for Community Noise in Specific Environment

Specific Environment	LA eq (dB)	LAmax Fast (db)
Out door living area	55	
School class rooms and pre-schools (indoor)	35	
School Playground (outdoors)	35	
Hospitals Ward rooms (indoor	30 30	40
Hospital Treatment rooms (indoors)	#1	
Industrial, commercial, shopping and traffic areas (indoors and out doors)	70	110

#1= as low as Possible

WHO Drinking Water Quality Standards

Sr. No.	Constituent, mg/L	Recommended limit (1961 European)
1	Ammonia	0.5
2	Chlorides	350
3	Copper	0.05[a]
4	Flourides	1.5
5	Iron	0.1
6	Magnesium [b]	125[b]
7	Nitrates	50
8	Oxygen	5.0
9	Phenols	0.001
10	Sulphates	250
11	Zinc	5.0

a Maybe higher for new piping
b if 250mg/L SO_4 is present, Mg not to exceed 30mg/L