Initial Environmental Examination

June 2015

PAK: Regional Improving Border Services Project

Chaman 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 Chaman 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. Chaman 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 Chaman 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 Chaman Border Improvement Project is estimated at US $ 88.4 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
2. Monitoring	Cost during pre-construction and construction phases is to	576,000.00 per monitoring occasion

	be shouldered by the Contractor	
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**.

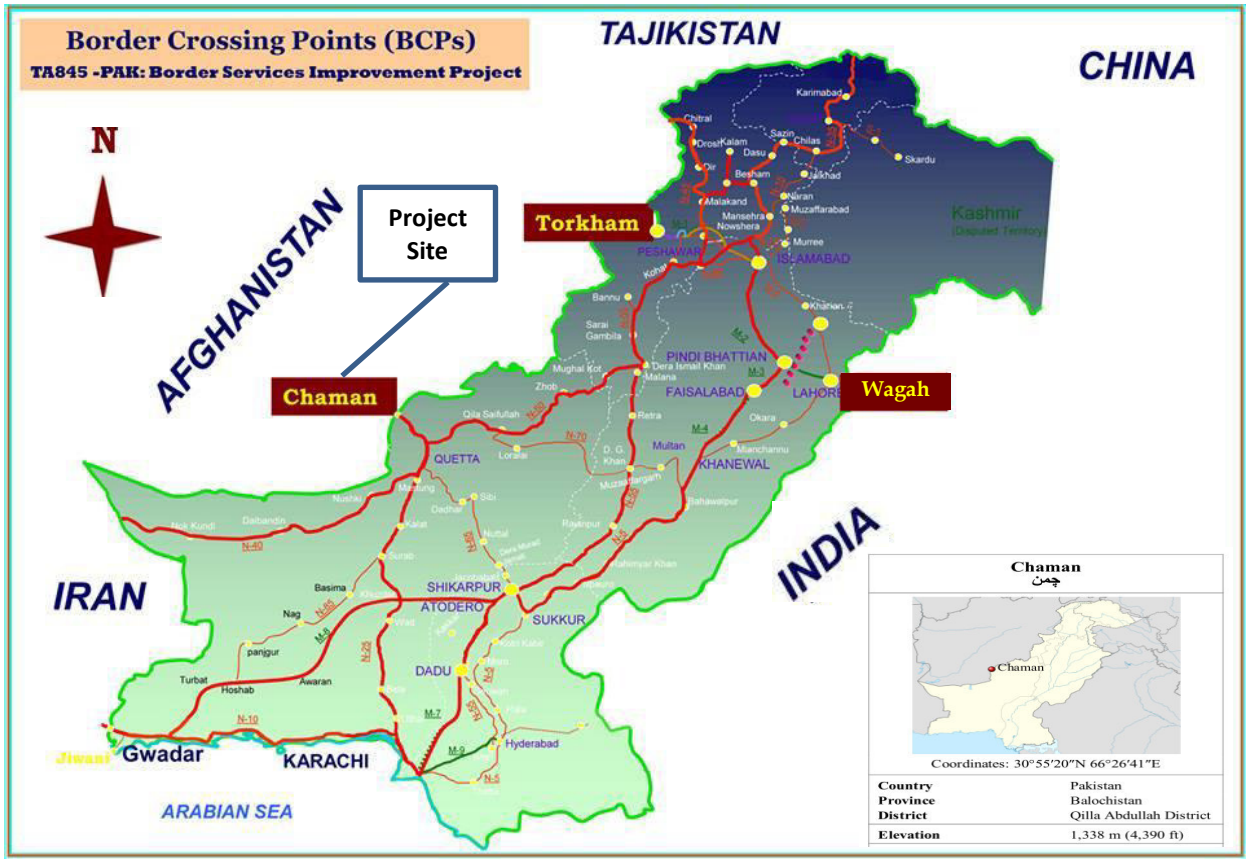


Figure ES-1: BCPs Location Map

17. Given the limitations in terms of physical fieldworks for Chaman 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 Chaman BCP is void of environmentally sensitive and precious ecology while most of its surrounding environs is surrounded by agricultural area. Chaman 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
Chaman	101	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, Chaman 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

Chaman 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 Chaman 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. Chaman 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 Chaman BCP and Pakistan in general. By improving Chaman BCP operational capability, the Chaman 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. Chaman 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 Chaman 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 Chaman 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 Chaman 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

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.

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 **Annex 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, Balochistan EPA (BEPA)

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 BEPA 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 BEPA. The same IEE submission shall be the basis of the subsequent issuance of NOC by BEPA 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, 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.	These are covered under Sections 4.0 and 5.0 of this report.

Environmental Policy Safeguard Principles	IEE Document Compliance
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 implementation of corrective actions, and disclose monitoring reports.	The EMP provided in Section 9 presents the responsible institutions in its implementation as well as the monitoring mechanisms and parameters.

Environmental Policy Safeguard Principles	IEE Document Compliance
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 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.	Covered under Section 5.0, subsection 5.3.5, Cultural Heritage Resources

Chapter 3
DESCRIPTION OF THE PROJECT

3. DESCRIPTION OF PROJECT

3.1 Project Location

66. Chaman border crossing point is located in Chaman, Qilla Abdullah District, Balochistan. The town is an important trade point in the Balochistan region, providing a gateway on the trade rou tes between Afghanistan and Karachi. The location map is provided in **Figure 3.1.1**.

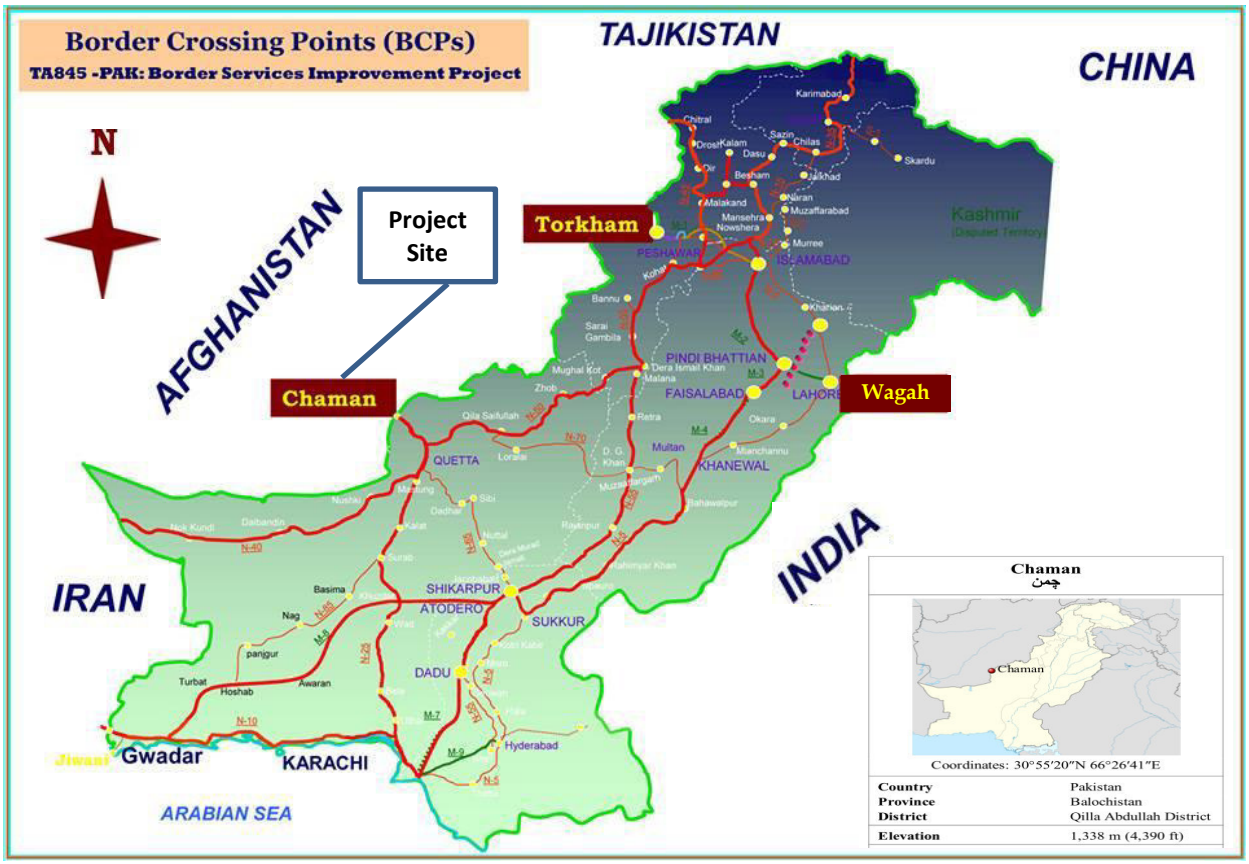


Figure 3.1.1: BCPs Location Map

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

3.2 Project Components

68. Chaman 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. No.	Item	Unit	Quantity
1	DEVELOPMENTAL WORKS		
1.1	Earthworks	m^3	1300

Ref. No.	Item	Unit	Quantity
1.2	Approach Road	m²	51552
1.3	Approach Road (3+3 Lane) Cement Road Incl. Fencing & Signage	m²	0
1.4	Overhead Water Reservoir (100000 Gallon)	Each	2
1.5	Street Lights 150 Watt LED	Each	110
1.6	Flood Lights 100 Watt LED	Each	135
1.7	Bridge	m²	4460
1.8	Parking Area (Tuff Pavers Min. 7000 PSI)	m²	220600
1.9	Retaining Wall for Road (1.5mx3m)	m	370
1.10	Boundary Wall (0.9mx3m)	m	4425
1.11	Toll Booth (Pre Fab in uPVC)	Each	12
1.12	Toll Canopy	m²	1464
1.13	Secondary Inspection Canopy	m²	1130
1.14	Cargo Immigration Canopy	m²	0
1.15	Quarantine Shed	m²	1200
1.16	Surface Drainage Works	m²	220600
1.17	Solar Power System Incl. Panels, Inverters & deep Cycle Batteries (De-centralized System for each block/ area)	Watt	80000
1.18	Power Supply Network	m²	220600
2	BUILDINGS		
2.1	Central Administration Building	m²	2055
2.2	Seized Goods Warehouse	m²	5250
2.3	Commercial Warehouse	m²	10480
2.4	Small Offices	m²	300
2.5	Customs Lab	m²	400
2.6	Passenger Terminal Building	m²	2100
2.7	Services Area (Pray Area,Café,Maint Shop)	m²	2300
2.8	Services	m²	1200
2.9	Watch Tower	m²	400
2.10	Security Gates	m²	9
2.11	Business Center	m²	1950
3	COLONY/ ACCOMODATION		
3.1	Accommodation	m²	1200
3.2	Pavement	m²	1600
3.3	Approach Road (2 Lane)	km	0.5
4	Equipment		
4.1	Short Term: Data Connectivity MRC Per Year and ICT Equipment		
4.2	Long Term: Data Connectivity MRC Per Year, ICT Equipment and IT Systems		

71. Proposed improvement works will be constructed within 101 acres of lot as depicted in **Figure 3.2.1**.

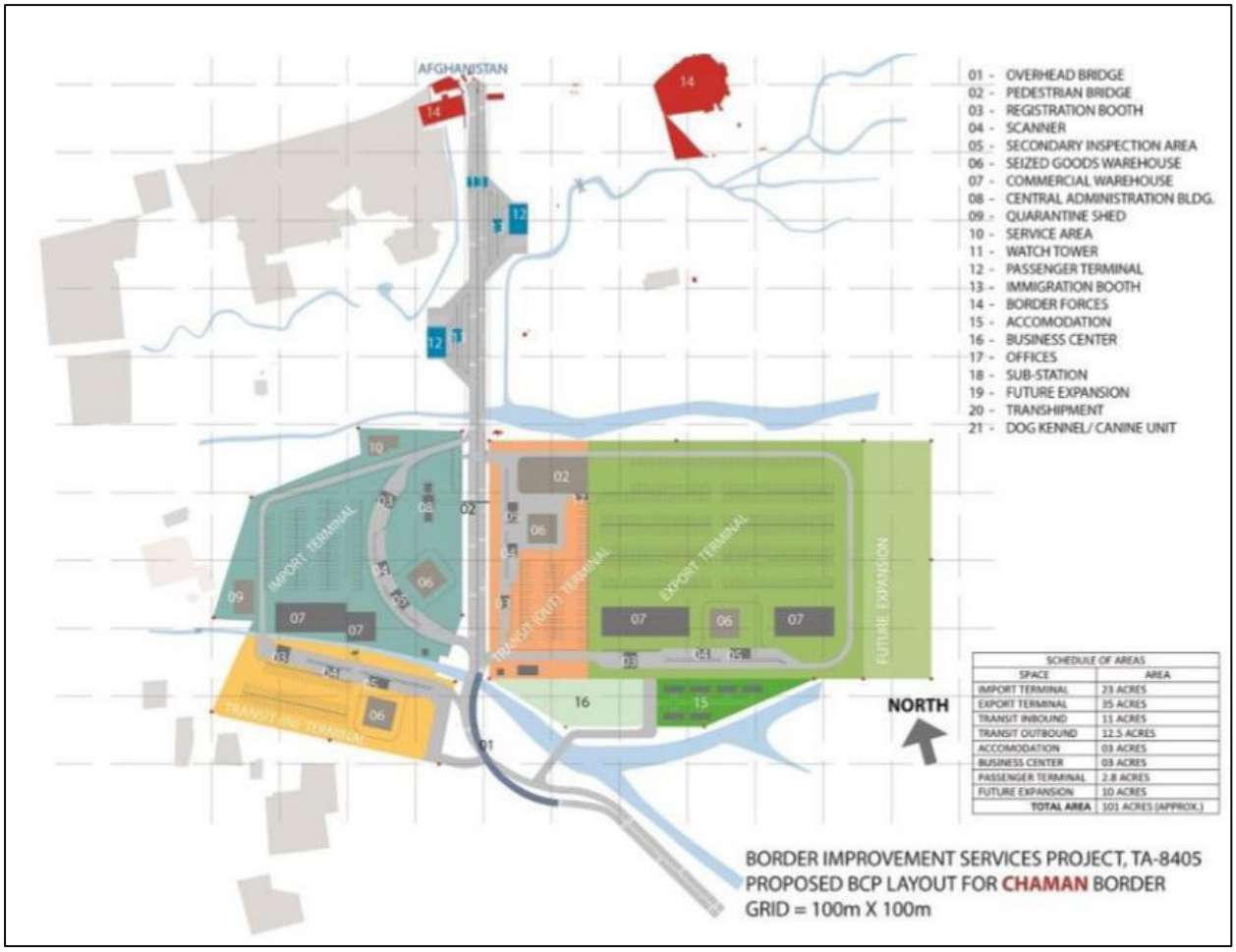


Figure 3.2.1: Chaman Border Crossing Design and Layout Proposal

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 terminal	23
b) Export terminal	35
c) Transit inbound	11
d) Transit outbound	12.5
e) Accommodation	3
f) Business center	3
g) Passenger terminal	2.8
h) Future expansion	10
Total Area	**101**

74. As of July 2014, project cost for Chaman Border Improvement Project is estimated at US $ 88.4 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 ENVIRONMENT

4.1 Physiography

4.1.1 Topography

75. The project is located in border city of Chaman, which is located in the western foothills of Khojak Pass. Chaman is a town located in Killa Abdullah District, Balochistan, Pakistan. Chaman is situated on the border with Afghanistan and lies between 30º55'20"N longitude, 66º26'41E latitude. Location of Killa Abdullah is at 690 kms (aerial distance) south-west of Pakistan's Capital City Islamabad and 70 kms north from Quetta city, provincial capital of Balochistan. The district is bordered by districts Pishin in the east, Quetta in the south and by Afghanistan in the west.

76. The province of Balochistan has a highly diversed topography and rugged terrain, with a rolling down landscape from north to south and west to east. Its southern base runs along with the Indian Ocean, north and north-west is bordering with NWFP and Afghanistan. Punjab and Sindh skirt the eastern perimeter, and Iran falls at its western corridor.

77. The geographical area of the district is 5,264 km². It is composed of two tehsils[1]: Gulistan and Chaman. The Toba Plateau covers its northern flanges. The general character of the district is mountainous, where descending spurs sub-divide the wide and arid valleys. These spurs vary in elevation from 1,500 to 3,000 meters[2]. The valley floor is covered with unconsolidated alluvial sediments that are mostly composed of clay, silt, silt-clay and clayey-silt.

78. The project site, however, is a flat valley surrounded with dry mountainous area in the distance.

[1] A tehsil or tahsil/tahasil, also known as taluka or mandal, is an administrative division of India, Pakistan and some historical states of South Asia
[2] District Census Report, Killa Abdullah District, Government of Balochistan.

4.1.2 Geology

79. Pakistan lies on a recognized high seismic belt bordering various active plates, characterized by its seismic instability. It has been the source of a number of destructive earthquakes. Based on a geological and geo-morphological evidence many seismological sources have been recognized in Pakistan (**Figure 4.1.1**).

80. The collision of Indian plate with Eurasian plate which started 30-40 million years ago has produce a remarkable verity of active folds and thrust wedges within Pakistan.

81. In Pakistan, several segment of the Himalayan plate boundary have active faults superimposed on plate boundary faults. Examples of Neotectonic are primary well developed at Makran coast, Quetta Syntax, Kala bagh Reentrant, Peshawar plain, Naga Parbet and Kashmir. The Chaman fault system is a major fracture zone which begins near Kalat in Northern Makran range, passes near Quetta and extend along Pakistan border with Afghanistan in a northnortheastern direction to the Kabul, where it join the Herat fault and ultimately the Hindu Kush and Pamir ranges. It is a continuation on land of an extensive transform fault system in Arabian sea known as the Owen fault zone and Ornach-Nal fault (**Figure 4.1.2**).

82. In Western Pakistan Quetta and the other town which were devastated in 1935, earthquake (Mw8.1) are in close proximity to the most active Chaman and Chilton fault.

83. Seismic activity in Pakistan is shown in **Figure 4.1.3**. Mostly earthquakes felt in northern parts and adjoining areas of Punjab are generated by Hindu Kush region which is regularly generating very large earthquakes, mostly lies up to the depth of 300 Km.

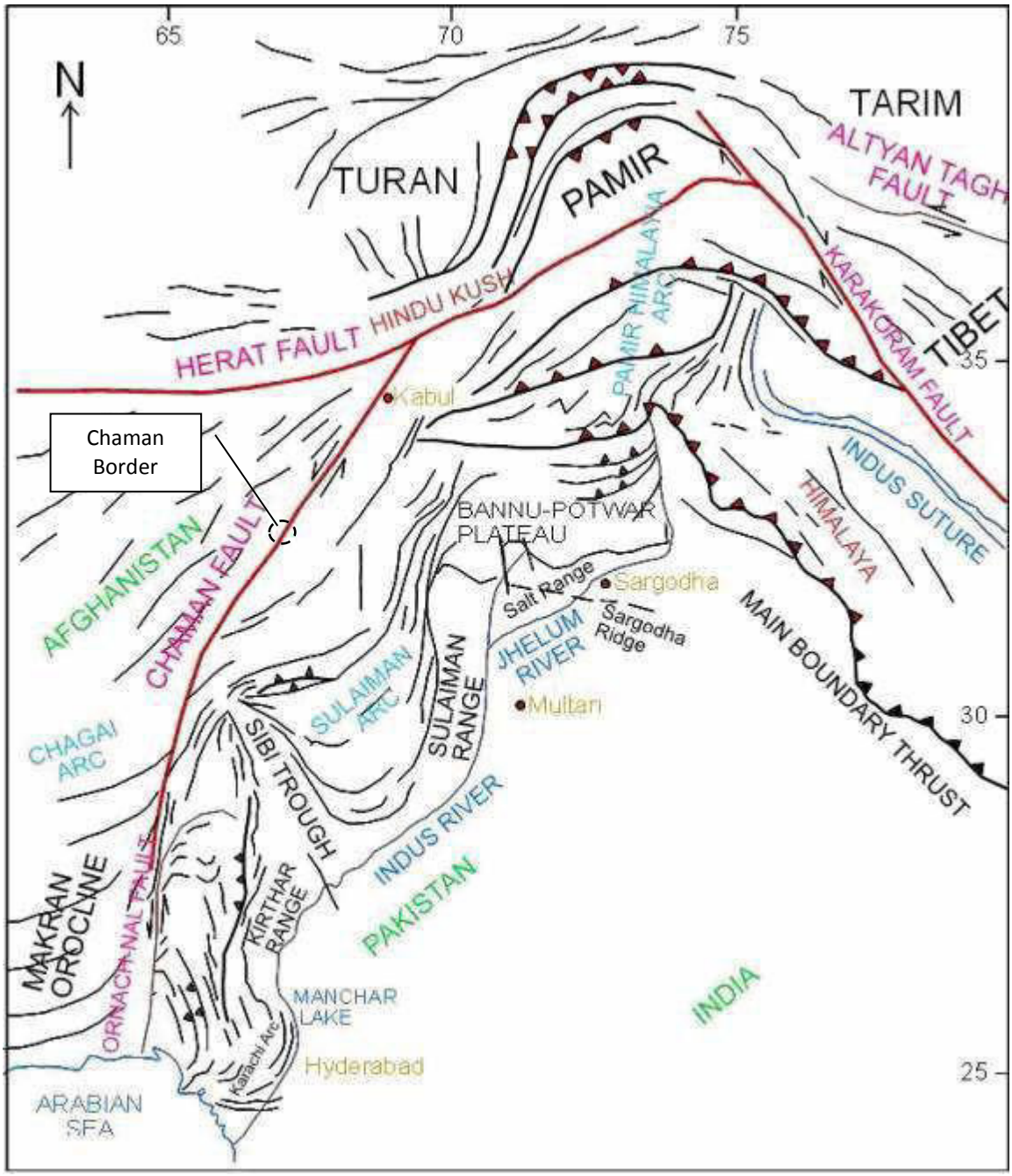
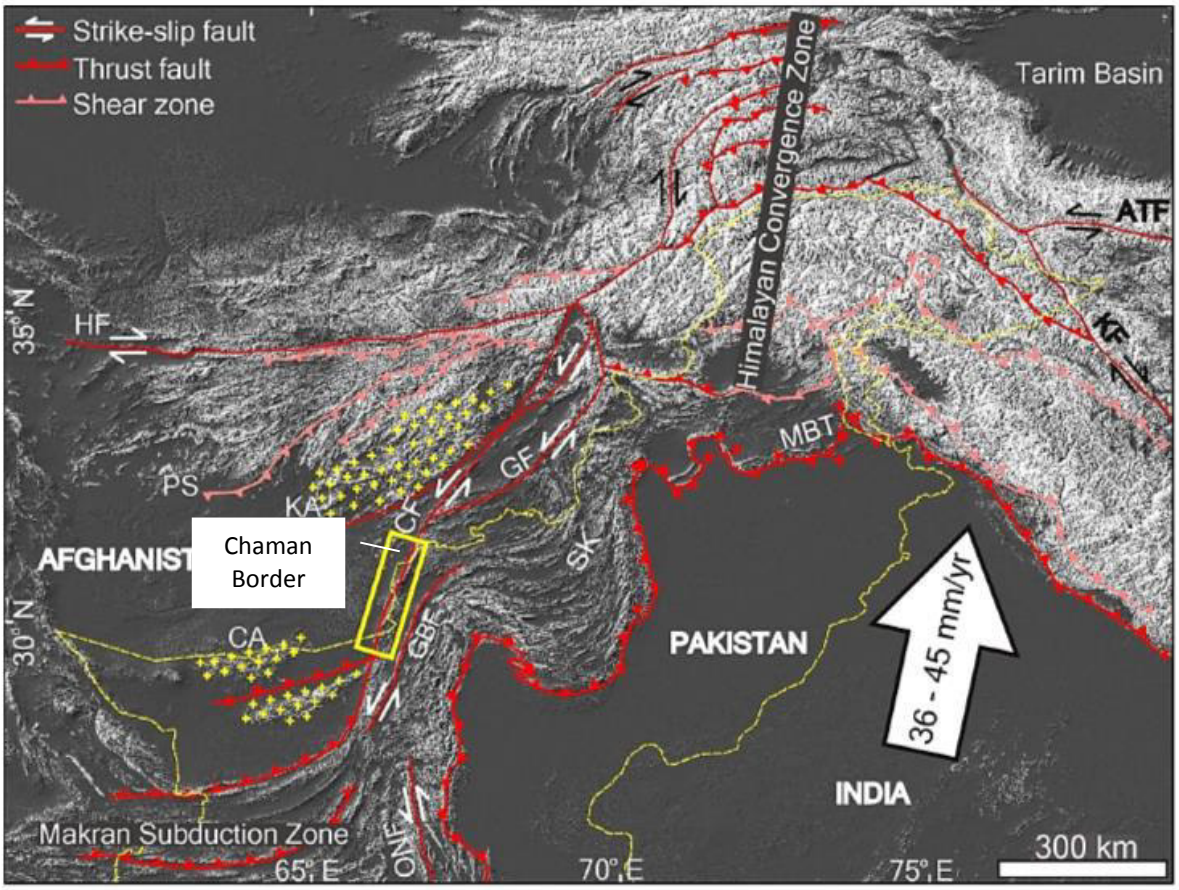


Figure 4.1.1: Geology of Pakistan



Source: 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

Figure 4.1.2: Location of Tectonic Faults in Pakistan

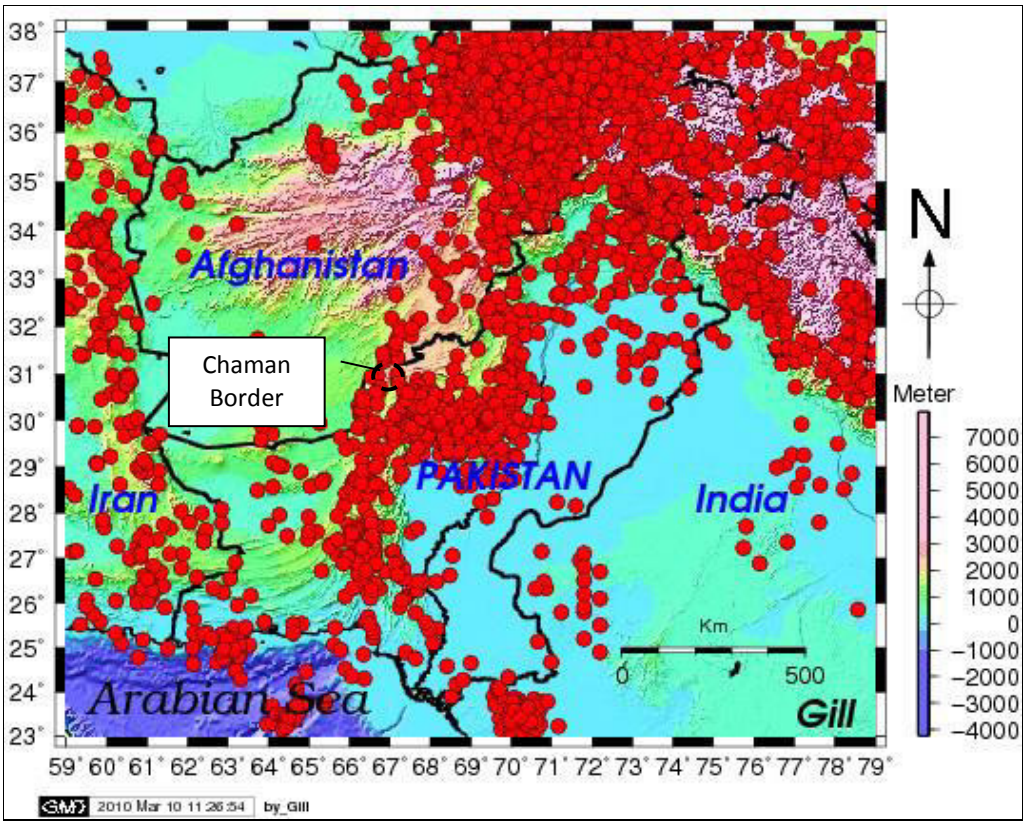


Figure 4.1.3. Seismic Activity from 1964 to 2009 in Pakistan

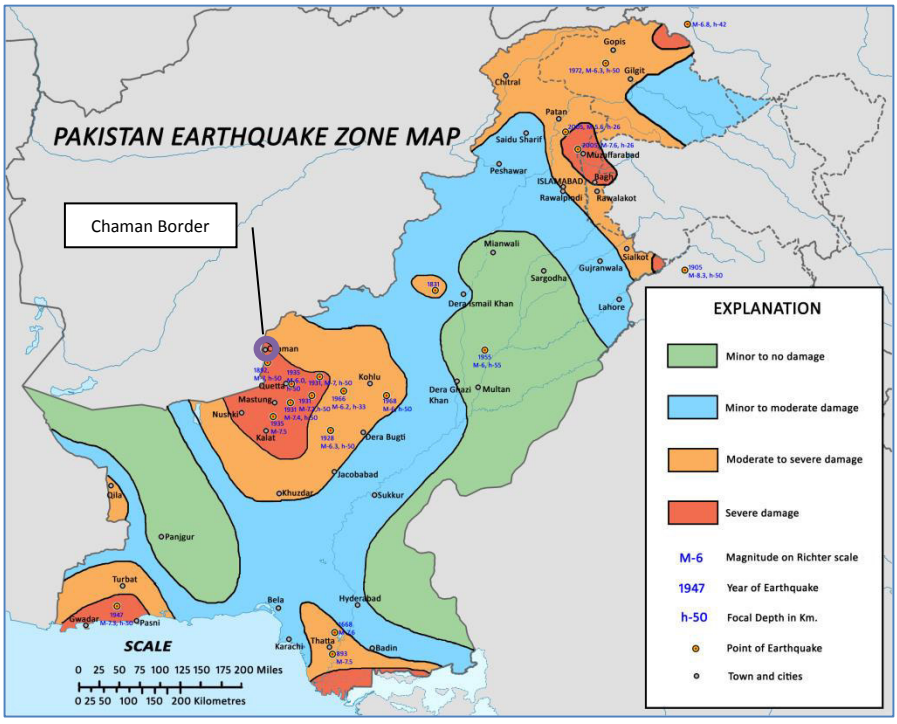


Figure 4.1.4. Seismic Zone Map of Pakistan

84. Earthquakes are a common event in the entire area with number of dormant and active faults. According to "Seismic Zone Map of Pakistan" (**Figure 4.1.4**), the project site falls under seismic zone 4, where major damages are foreseen corresponding to intensity 8 or higher on the Richter Scale. Seismic activity across this region has caused hundreds of thousands of deaths and catastrophic economic losses. In strike-slip faults, the Earth's crust moves laterally. Earthquakes along these types of faults are shallow and more damaging. Rivers can also be displaced and change course with activities related to this type of fault.

4.2 Climate

85. The climate of Pakistan is generally characterized by hot summers and cool or cold winters. Also Pakistan has wide variations between extremes of temperature at given locations. There is little rainfall.

86. Pakistan has four seasons: a cool and dry winter from December through February; a hot and dry spring from March through May; the summer and rainy season from June through September; and the retreating monsoon period of October and November. The duration of these seasons vary somewhat according to location.

87. For the District Killa Abdullah, climate is generally dry and temperate. The district lies outside the sphere of monsoon currents, so rainfall is irregular and scanty. The adjoining districts have somewhat deviating temperatures, owing to different elevations. Such climatic conditions are suitable for horticulture. Hence, it grows sizeable quantities of fruits including primarily apples, apricots, peaches, plums, grapes, cherries and vegetables such as potatoes, onions, and tomatoes. Such types of climatic conditions are equally favorable for livestock, particularly in Chaman, where cattle are important part of economic activity.

88. Occasional cold winds in late spring, badly damaging fruit orchards. Due to irregular rainfall pattern, farmers of rainfed areas cannot properly plan their crops. Maximum precipitation is received in winters by western Mediterranean winds in the shape of snow and sleet. The range of annual rainfall, maximum and minimum temperatures is displayed in the following table (**Table 4.2.1**):

Table 4.2.1: Climatic Profile

	J	F	M	A	M	J	J	A	S	O	N	D	Total
Mean Rainfall mm	58.8	46.3	68.5	38.8	5.4	0.3	19.4	23.9	6.8	2.7	3.5	33.8	308.2
Max. Temp, ºC	11.3	13.1	18.2	24.4	30.6	35.4	35.9	34.2	31.6	25.1	20.7	14.1	24.6
Min Temp, ºC	-1.7	-0.1	4.3	8.5	13.6	17.8	20.5	19.0	12.7	5.4	1.7	-0.6	8.5

Source: Pakistan Meteorological Department Quetta

89. According to Meteorological Department, total annual mean rainfall during 1983-95 has been 308.2 mm. The rainfall during the last 13 years has ranged from 0.3 mm in the month of June to 68.5 mm in the month of March.

90. The average maximum annual temperature during 1983-95 has been 24.6 ºC, ranging from 11.36 - 35.9 ºC. The average minimum annual temperature was been 8.5 ºC in to same period and ranged from -1.7 to 20.5 ºC.

Flooding and Climate Change

91. Pakistan and eastern Afghanistan are frequently hit by flooding during the monsoon season. Since 2010, the region has suffered devastating floods that have left hundreds dead each year.[2] The worst flooding in the past 80 years occurred in 2010, when flooding in Pakistan resulted in more than 1,700 deaths and widespread damage. **Figure 4.2.1** shows the flood hazard distribution map of Pakistan prepared by World Health Organization (WHO) in 2007. As can be seen in the map, flooding intensity at the vicinity of project area ranges from low to medium to high wherein high flooding usually occurs in drainage gullies and streams.

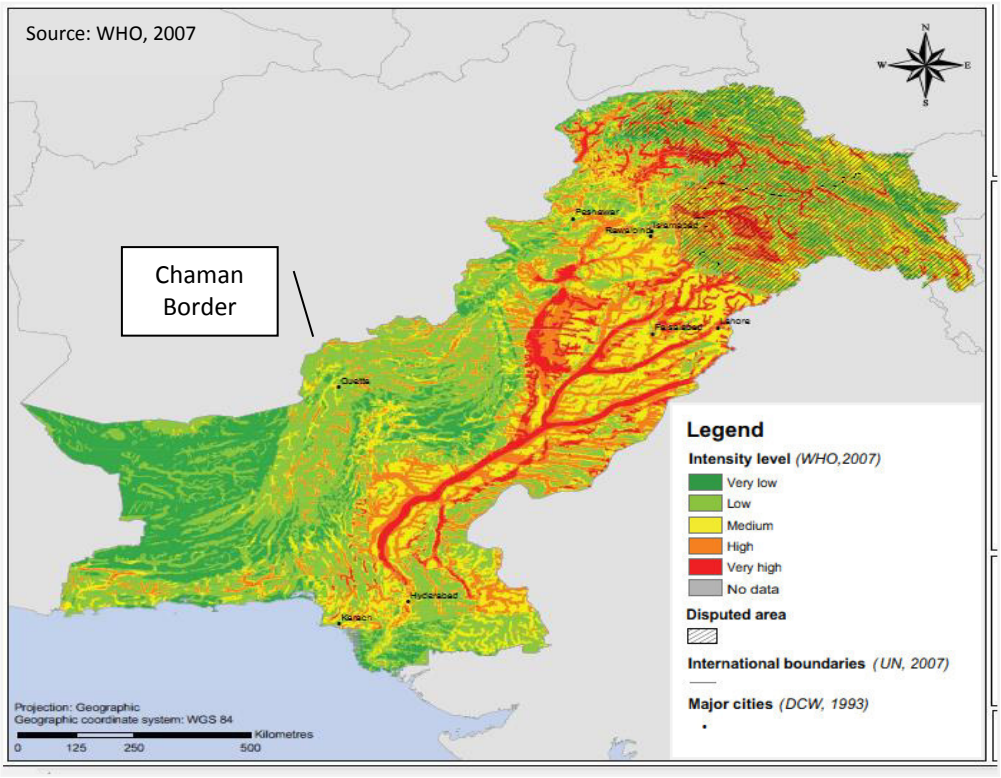


Figure 4.2.1: Flood Hazard Distribution Map

92. Beginning 31 July 2013, Pakistan and parts of eastern Afghanistan experienced unusually heavy rainfall that caused widespread flash flooding. Flood waters began to recede on 5 August, but more heavy rain was expected later in August and September, the heart of monsoon season.[3] All but one area of Khyber Pakhtunkhwa province in Pakistan was flood-free by 5 August, as the waters receded almost as quickly as they had risen.

93. The phenomenon of climate change – a direct consequence of an increase in atmospheric CO2 - is no longer a matter of scientific speculation but is fast becoming a reality[3]. The increase in Earth's surface temperature is taking place much more rapidly today than earlier in time period. The Intergovernmental Panel on Climate Change (IPCC) indicates that the average surface temperature has risen by around 0.6°C since the industrial revolution of mid 19th century and is predicted to rise further by 1.1^{0}C to 6.4^{0}C over the 21st century. According to the IPCC, 11 of the last twelve years between 1995 and 2006 have been the warmest years in the instrumental record of the Earth's surface temperature with heat waves becoming much more frequent. Greenland, West Antarctic and Himalayan glaciers are receding fast, disrupting the supply of water, whereas the incidence of extreme weather events is becoming much more frequent.

[3] Source: Malik S.M., et al. Mapping vulnerability to climate change and its repercussions on human health in Pakistan, Sept. 2012

94. Pakistan is a developing country with poor human development indicators including health. It is highly vulnerable to the adverse effects of climate change as manifested in rising temperatures, increased variability of monsoon, melting of Himalayan glaciers, and an increase in the frequency and intensity of extreme weather events and natural disasters. The greater vulnerability of Pakistan to climate change is based upon many important factors. *First*, it is a country that is highly dependent upon agriculture not only as a source of revenue and employment but also in terms of ensuring the availability of food. *Second*, Pakistan does not have adequate monitoring systems that predict the occurrence of extreme weather events in a timely manner. *Third*, the majority of the country's population is deprived in socio-economic terms thereby lacking the capacity to cope with the downside risks associated with climate change.

95. In order to plan and implement adaptation strategies, the first crucial step is to identify geographical areas on the basis of their vulnerability to climate change. Pakistan is a highly diverse country not only in terms of its geographical and climatic features but also in terms of the development of various regions and the socio-economic conditions of people inhabiting those regions. Due to these variations, the impact of climate change is not likely to be uniform across regions within Pakistan.

96. Flooding and droughts, that may occur more frequently due to climate variability, has a direct impact on human health as it increases the risk of drowning and physical injury in addition to exacerbating water-borne infectious diseases such as Diarrhea; Malaria; Dengue; Cholera; and Gastroenteritis. In Pakistan, a dramatic increase in transmittable eye infection termed as a*cute conjunctivitis* has been reported and this increase has primarily been attributed to heavy rains and floods in Pakistan. Indirect impact of flooding on health includes reduction in food intake and health care use due to loss in livelihoods, property and employment etc. Similarly droughts increase food insecurity, malnutrition and lack of safe water thereby giving rise to various infectious diseases.

4.3 Air quality

97. Generation of fugitive dust from active vehicular activities is a present problem and is an impending problem (that may be worsened) once the proposed project is implemented. Such negative factors may affect workers health, which needs to be probed further.

98. In this EIA study, no air quality survey was conducted for the project. 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. According to Pakistan's National Environmental Quality Standard (NEQS) for ambient air (2013), the maximum allowable 24 hours average concentration for respirable particulate matter as PM_{10} is 150 µg/m^3.[4] 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}.

4.4 Soil

99. The primary rock structure of project area is of sedimentary origin, where metamorphic changes can be observed along the entire valley landscape and interjecting spurs. The rocks composing the sedimentary strata - many of them are significantly exposed and tilted include limestone, shale, sand stone, silt stone, mud-stone, marls, and tuff. The valley bottoms are mostly composed of young alluvial deposits, either from the central water tributaries or from the washed down soils from the nearby hills. At some locations conglomerate formations of sedimentary origin have also been observed.

100. Basically, the soil of Chaman is sandy clay-gravial admixture. The sandy fraction increases towards the mountain ranges. The scarcity of water in the area and the semi-desert climatic conditions has limited trees and shrubs to grow. However, a few types of less water consuming wild bushes grow in the area in a scattered way.

4.5 Water resources

4.5.1 Surface and Ground Water

101. There are no perennial surface water channels in the entire project area. At the same time there are no natural lakes, but numerous retention ponds and delay dams are constructed for irrigation and ground water recharging purposes. Watersheds in the project region are described in degraded condition due to lack of trees, removal of shrubs for fuel, intensive grazing and lack of rangeland development. As a result, the watersheds have lost their infiltration capacity.

[4] 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.

102. The hill torrents receive substantial amounts of sheet flow during rains, particularly in winter and spring months. In some agricultural lands small retention reservoirs are constructed to store irrigation water. Apart from springs, surface water of the region is unsuitable for drinking purpose, being contaminated by E. coli bacteria. For the purpose of monitoring drinking water quality from springs in Chaman and its vicinity, **Table 4.5.1** contains the list of the National standards for drinking water in Pakistan as set by the Ministry of Environment.

Table 4.5.1: National Standards for Drinking Water Quality[5]

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	

[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

Properties Parameters	Standard Values for Pakistan	WHO Standards	Remarks
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	
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			

Properties Parameters	Standard Values for Pakistan	WHO Standards	Remarks
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.
PSQCA- Pakistan Standards Quality Control Authority

103. The drainage pattern in the area is generally of trellis type, indicative of less resisting rocks, where the erosion rate is generally very high. This also prevents the vegetation from growing. The high silt content in the soil has also contributed to the scarcity of vegetation. The shallow land water is saltish with high chloride contents and other dissolved solids, especially in the vicinity of Killa Abdullah and Chaman.

104. Traditional means for tapping the groundwater are *karezes*[6], a series of individual dug- wells, which are connected through a horizontal tunnel like shaft.

105. Rain occurs in spells rather in distinct seasons, however, insufficient to recharge the groundwater, but limiting the use of rain-fed irrigation systems. Because of lack of water resources in the region, acerbated by a persistent drought during the past 8 – 10 years, agricultural activities are limited. However, vast tube-well based agricultural activities are observed in small and widely scattered oasis like towns and villages, all along the approach corridor. After electrification of the area, tube-wells became a popular means of crop irrigation and the local population started abandoning the traditional and labor-intensive *karez* irrigation system. On the other hand, the electricity company started charging all tube-wells at a flat rate, actually at Rs.4,000/month/tube-well, irrespective of usage time. Hence, all tube-wells operators tend to make maximum use with continuous 24 hrs pumping. Due to lack of restrictions for pumping quantities, ground-water resources are getting depleted at an alarming rate, particularly in dry years when rainfall is

[6] *Karez* is a traditional, clan-owned and operated irrigation system applied in hilly areas, comprising several dug wells interconnected through a horizontal shaft until it emerges out at the ground surface. Water is collected from each well, and the accumulated quantity is used for irrigation purposes.

insufficient to replenish the resource. Consequently, the water table receded down at an alarming rate.

106. Meanwhile the Government of Balochistan has initiated countermeasures and imposed restrictions upon farmers for tube-well digging. At the same electric supply companies have been advised for obtaining from the district administration a 'no objection certificate' before receive electrical connection. The initiative, however, showed low impact due to the resistance of the local community leaders and the fact that farmers resorted to employ diesel engine operated tube-wells.

4.6 Protected areas

107. There are no protected areas, wildlife sanctuaries or national parks in the vicinity of the studied Chaman border.

4.7 Forest Vegetation and Terrestrial Ecology

108. Due to its geo-physical location, intensive over-use of rangelands and its non-supportive soil strata, the project corridor has always been devoid of any significant vegetation cover. Generally, the entire project region is under severe grazing pressure, which completely alters the ecological setting. A study conducted in 2001 came to the conclusion that the carrying capacity of sparsely vegetated land would require about four ha/sheep/year, a ratio far exceeding the number of animals grazing in the area[7]. Uncontrolled rangeland grazing and use of vegetation for fuel wood and construction by both the nomadic and non-nomadic groups causes substantial damage to the biodiversity and the vegetation cover of the entire region. The poorly developed agro-pastoral practices and lack of awareness, in combination with the high incidence of poverty are the main causes for the depletion of natural resources and continuing threats to biodiversity (see **Figure 4.7.1**).

[7] Study for Exploratory Well Drilling Activities in Shaigalu Area, RDC Intl. Consulting, Lahore, 2001

Source: Field Visit Report (Environment), Chaman Border Crossing Point, 20-22 November 2014

Figure 4.7.1: The project area having no vegetation cover

109. Forestry profile of Killa Abdullah District is not very promising. There are only 2 ha of planted forest in the district. There is no tradition of commercial forestry in the district. Private sector involvement in commercial plantation is almost non-existent.

110. The soil of the district is suitable for vegetation, which is rain dependent. Nature has endowed the district with a variety of vegetation. Many areas are covered with bushes of *Tarkha sperah* (*Artemisia maritima*) and *Shora* (*Haloxyon griffithi*). These shrubs are brutally being used for fuel, including its commercial sale. *Ghaz* (*Tamarix gallica*) is used for fuel and for house roofing. Besides these, other vegetation varieties in the district are: *Huma* (*Ephedra intermedia*), *Ghurezah* (*Sophora alopecuroides*), *Shin-shob* (*Menthe sylvestris*), *Shezgi* (*Eremurus Aucherianus*), *Zawal* (*Achillea sanlolina*), *Zira siyah* (*Carum bulbo castanum*), *Zoz* (*Alhagi camelorum*), *Khakshir* (*Sisymbium sophia*), *Kharorak* (*Arnebia Cornuta*), *Makhi* (*Caragana ambigua*), *Lokhae* (*Scirpus wardianus*), *Sarghasae* (*Saecharum ciliare*), *Murgha* (*Andro pogon annuatus*), *Spina Maurai* (*Thymus sp*), *Barang* (*Shkrae plantago major*).

111. *Zira siyah, Huma* and *Khakshir* are also used as herbal medicines, which are also being exploited for commercial purposes.

Wildlife Profile[8]

112. Owing to thin vegetative and lack of forests, wildlife profile of the district is not very encouraging. For the past more than two decades it has displayed a constant decline. According to wildlife agencies, local residents and other observers, common mammals of the area consist of wolf, fox, jackal and rabbit. Some rare observations of ravine-deer, mountain sheep, and markhor on the northern hills have also been reported. These three mammals are considered as highly endangered, which also stand reflected in the IUCN (The World Conservation Union) red-list.

113. In the absence of any scientific wildlife survey in the district, no statistics are available to indicate the number of wildlife species. It is worth mentioning that wildlife has displayed considerable decrease due to (i) no clear government policy for wildlife protection, (ii) influx of Afghan refugees, (iii) massive influx of weaponry because of refugees, (iv)massive population growth and (v) illegal hunting, shooting and poaching incidents.

114. According to the Balochistan Forestry and Wildlife Department, there are some 25 bird species recorded from the project area. The common endemic birds of the area are sparrows, larks, chukar, see-see, rock doves and magpies. Occasionally quails and sand grouses could be spotted. The orchards, retaining ponds and homestead gardens provide habitat for various insect-eating birds, The endangered migratory birds are falcon, and Houbara Bustard, both being highly endangered.

115. Local people, with respect to rock lizards and snakes, few of which are poisonous, gave some anecdotal records for reptiles.

4.8 Human and Socio-Economic Conditions

4.8.1 Population

116. According to the socio-economic profile of Killa Abdullah District, the population of the district is projected using inter-census (1981-1998) growth rate. According to the **Table 4.8.1**, the estimated current population of the district is about 7 lakh (0.744 million) with an average growth rate of about 4.37 percent per annum. According to the Census of 1998 the reported population of

[8] Balochistan Forest & Wildlife Department Officers, public consultation sessions and field observations

District Killa Abdullah was 370 thousand and the designated annual growth rate was calculated to be 4.46 percent, relatively more than the rates comparative to other districts. It is perhaps of interest to know that UNICEF has also used this growth rate while compiling Balochistan's district profiles[9] for the year 2011.

Table 4.8.1: Estimated Population

	Overall	Urban	Rural
1998 – Census	370,000	57,000	313,000
2010 – Projected – UNICEF	625,000	96,000	529,000
2014 – Projected – Census Growth Rate 1981-1998	744,000	114,000	630,000
Growth Rate [1998-2014]	4.37	4.33	4.37

Source: Socioeconomic Profile of District Killa Abdullah – The Macroenvironment of Chaman Border

117. However, the report argues that "The projected statistics might be divergent from the real or current ground situation due to the existent of factors that were not present in the Census 1998. It could be factors such as: (i) the influx of Afghan refugees, (ii) exaggeration for political benefits, and (iii) concealing of actual female numbers in the rural areas, psychological effect due to illiteracy and lack of proper birth and death registration system".

118. The projected demography for Killa Abdullah District for 2014 is given below.

Demography:	
Projected population	744,000
Population density (persons per sq.km.)	141
Percentage of Rural population	86%
Percentage of female population	47%
Average percentage of children (< 5 yrs.)	21%
Average percentage of active population (15-64 years)	40%
Dependency ratio (percentage)	176

Source: Socioeconomic Profile of District Killa Abdullah – The Macroenvironment of Chaman Border

[9] "Pishin – District Development Profile, 2011" , Planning and Development Department, Government of Balochistan.

4.8.2 Ethnic Minorities

119. Killa Abdullah District is inhibited mostly by Pushtoons. The major tribes of the district are Kakar, Tareen, Syed and Achakzai. Kakars are in the majority in *Tehsil* Gulistan, while Achakzai tribe of Pathans dominate *Tehsil* Chaman. There is no ethnic differentiation among them because they speak a common language, have the same religion and share common cultural values. Pushto is the prevailing language, while Urdu is also understood and spoken in urban areas. By virtue of being a border trading city for the last more than a century, Chaman has many settlers from other parts of the country, who have been well accepted by the locals. At the same time, Chaman has also a sizeable concentration of ancient Hindu traders as well[10].

4.8.3 Economic Structure

120. Sources of livelihood represent the economic base of the district. According to the 1998 census, the Killa Abdullah district is basically dependent on agriculture, livestock, commerce and trade, hence, there are negligible industrial activities, thereby lacking in entrepreneurial skills.

121. There are flourmills in the entire district, having major concentration around Chaman and Killa Abdullah. There are retail trades being the major economic activity, wholesale, and semi-manufacturing units. The district lacks in economic contribution due to industry and manufacturing.

122. There are some small enterprises such as auto electric works, engineering workshops and transport companies, employing only male laborers. At present provincial government is involved in providing vocational training facilities to unemployed persons in Killa Abdullah, who also issue licenses for flourmills and snuff grinding mills. There are two carpet weaving training centers, for males only.

123. The only prominent economic activity undertaken by females is the hand embroidery. However, it does not fetch them a good price because of limited quantum of work and the involvement of middlemen. Carpentry activities at minor scale have been observed. There is no leather manufacturing in the district.

[10] Chaman means an orchard. The town had been named after a classical Hindu trader, Seth Chaman Das, who was amongst the earliest settlers in the valley.

124. For the last more than a century, trade has always been the hub of economic activities of District Killa Abdullah, in general, and Chaman, in particular. In the current geo-physical scenario, this trade is not being viewed as the communication link between the two traditional neighbors, alone. It is rather being seen as the shortest access corridor up to entire CARs. Besides the routine trade of large commodities between the two countries, the route is also used for transit trade.

125. District Killa Abdullah is very poor in mineral resources, where from some antimony has been explored. A production of 19 tonnes was started in 1985-86, which receded down to 5 tonnes in 1992-93, coming to zero in 1994-95.

126. In terms of agriculture, the district shares are about 0.5, 1 and 0.8 percent in the province respectively for cultivated, cropped and irrigated areas. Major crops in the district are shown in the **Table 4.8.2**. With the largest share in the cropped area, wheat is sown on 5335 hectares. This is followed by Apple (4531 hectares). Among fruits, pomegranate and water melon are noticeable, while among the vegetables barley, potato and tomatoes are also sown on more than 100 hectares (Table 4.8.2).

127. Livestock is also important source of livelihood in rural areas. **Table 4.8.3** displays the availability of various livestock per one thousand rural population. The table reveals that Goats, Sheep and Cattle are the major type of livestock in the district.

128. The information regarding mineral production and details of forest area in the district are not available. The District Development Profile 2011, prepared by UNICEF also confirms that due to semi-desert climate conditions the forestry sector is not applicable in this district. Only one mineral 'antimony' is described in the report with an average acreage of 1240 hectares.

Table 4.8.2: Area and Production of Major Crops [2011-12]

	Area [Hectares]	**Production ['00' Tonnes]**
Crops		
Wheat	5,335	8,846
Apple	4,531	26,336
Apricot	655	4,553
Grape	250	759

	Area [Hectares]	Production ['00' Tonnes]
Rabbi Fodders	211	3,600
Kharif Fodders	166	8,147
Potato	123	1,911
Pomegranate	119	905
Tomatoes	113	909
Barley	109	163
Water Melon	107	1,293
Musk Melon	101	1,160

Note: Those crops are included which are sow on more than 100 hectares.

Table 4.8.3: Population of Livestock - [2011-12]

	Numbers	Per thousand Rural Households
Cattle	73,766	888.7
Buffalo	767	9.2
Sheep	355,296	4,280.7
Goats	131,115	1,579.7
Camel	387	4.7
Horse	850	10.2
Mule	251	3.0
Asses	4,517	54.4
Poultry (Non-Commercial)	331,244	3,990.9

Source: Socioeconomic Profile of District Killa Abdullah – The Macroenvironment of Chaman Border

4.8.4 Employment

129. The characteristics of employed force are important to understand economic structure and potentials of any region. This section provides information with respect to distribution of labor force into sectors, occupational group and working status.

130. The distribution of employed labor force by major economic sectors is given in the **Table 4.8.4**. The table reveals that service sector contains the major labor force. About 37 percent

employment is recorded in this sector during 2012-13 (PSLM survey). About 28 percent employed labor force work in the agriculture sector in the rural areas of the district. Trade sector absorbs about 18 percent (32 in urban and 17 in rural) employed labor force. The table also reveals that about 5 percent of the urban employed labor force is absorbed in the manufacturing sector.

131. **Table 4.8.5** reports the distribution of labor force in the major occupational groups. About 18 percent rural labor force is working in the occupational group 'Skilled Agriculture and Fisheries Workers', while about 3 percent urban labor force is also reported employed as skilled agriculture and fisheries workers. About 5 percent urban labor is employed as craft and related trade workers.

132. Wage employees constitute the largest group with respect to work status of employed labor force. According to **Table 4.8.6**, about 51 and 48 percent labor force is working as employee in rural and urban areas respectively. This is followed by self-employed (own-account workers) group with an estimates of 51 and 31 for urban and rural areas respectively. Only 14 percent owner cultivators in rural areas are evident from the table, while the percentage of labor force working as sharecropper is insignificant. The table also reveals that only 3 percent of employed labor force is linked with the livestock profession.

Table 4.8.4: Percentage of Employed Labor Force by Major Sectors [2012-13]

	Overall	Urban	Rural
Agriculture	26.20	4.09	28.17
Mining	1.41		1.54
Manufacturing	1.43	5.15	1.10
Construction	15.58	10.15	16.06
Trade	18.09	32.30	16.83
Other Service Sectors	37.28	48.31	36.31

Source: Socioeconomic Profile of District Killa Abdullah – The Macroenvironment of Chaman Border

Table 4.8.5: Percentage of Employed Labor Force by Major Occupational Group [2012-13]

	Overall	Urban	Rural
Elementary (non-skilled workers)	30.41	55.19	28.21
Clerks/Sales Workers	7.36	11.56	6.99
Skilled Agriculture and Fisheries Workers	17.52	2.63	18.84
Craft and Related Trade Workers	2.24	5.41	1.95
Other	42.47	25.19	44.00

Source: Socioeconomic Profile of District Killa Abdullah – The Macroenvironment of Chaman Border

Table 4.8.6: Employment Status – [2012-13] [Percentage of Employed Persons]

	Overall	Urban	Rural
Employer			
Self Employed	32.31	50.38	30.71
Wage Employee	50.61	48.17	50.83
Un-Paid Family Worker	0.37	-	0.40
Owner cultivator	13.21	1.45	14.26
Sharecropper	0.19	-	0.21
Contract cultivator	-	-	-
Livestock	3.31	-	3.60

Source: Socioeconomic Profile of District Killa Abdullah – The Macroenvironment of Chaman Border

4.8.5 Public Health

133. According to related studies, it was estimated in 1995 that patient-population per doctor in Killa Abdullah district was 9,074, which shows that the district is very poor in terms of availability of doctors. There is a great deficiency of private facilities, 14 private clinics, 50 *Hakeems* 27 medical stores were found. According to health sector sources there are nearly 50 quacks in the district.

134. A rough sketch on child health is furnished in **Table 4.8.7** based from the socioeconomic profile of Killa Abdulla district. Only about 20 percent children in the 12-23 months age cohort reported fully immunized according to recall and record method, while the corresponding percentage is even low (14 percent) in household which provided records of immunization. In contrast, however about 95 percent households reported the use of ORS for the treatment of diarrhea, while the percentage who consulted physician in cased of diarrhea is about 85. The table also reveals gender discrimination with respect to immunization.

Few indicators of maternal health care are compiled in **Table 4.8.8**. The information in the table reveal that only 23 percent pertinent women reported having Tetanus Toxoid Injection, while this percentage is even low (19 percent) in case of rural population. About 16 percentage of women reported post-natal care, while about 32 percent pertinent women confirmed pre-natal consultation. The situation in terms of child delivery is also miserable. Child delivery at home is

reported by about 66 percent households of rural areas. The corresponding percentage for urban population is about 46.

135. Numbers of health institutions in the district during the year 2011-12 are collated in **Table 4.8.9**, while strength of health staff in the district is depicted in **Table 4.8.10**. A gloomy picture is evident in term of the strength of district in providing health facilities. Only 8 doctors and 2 nurses are available for one hundred thousand ('lakh') population, according to the statistics provided by the provincial official publications.

Table 4.8.7: Status of Child Health – Percentages [2012-13]

	Overall	Boys	Girls
Children (12-23 Months) – Fully Immunized			
Record Only	14	21	10
Recall and Record	20	34	13
Diarrhea in Children Under 5			
Physician Consulted	85	75	89
Treatment of Diarrhea – ORS	95	86	100

Source: Socioeconomic Profile of District Killa Abdullah – The Macroenvironment of Chaman Border

Table 4.8.8: Status of Maternal Health – Percentage of Women [2012-13]

	Overall	Urban	Rural
Have Received Tetanus Toxoid Injection	23	55	19
Pre-Natal Consultations	32	58	28
Child Delivery at Home	63	46	66
Post-Natal Consultations	16	6	17

Source: Socioeconomic Profile of District Killa Abdullah – The Macroenvironment of Chaman Border

Table 4.8.9: Health Institutions – Numbers [2011-12]

Hospital	3
Dispensary	12
Rural Health Centre	3
Basic Health Units	25
Maternal and Child Health Centre	2
TB Clinic	1

Source: Socioeconomic Profile of District Killa Abdullah – The Macroenvironment of Chaman Border

Table 4.8.10: Health Staffs [2011-12]

	Numbers	Per One Hundred Thousand population
Doctors	57	8
Nurses	12	2
Paramedics	84	11

Source: Socioeconomic Profile of District Killa Abdullah – The Macroenvironment of Chaman Border

4.8.6 Land Uses and Facilities

136. The land utilization statistics in terms of cultivated, cropped and irrigated areas is furnished in **Table 4.8.11**. Accordingly, the district shares are about 0.5, 1 and 0.8 percent in the province respectively, while the share of geographical area is about 1 percent.

Table 4.8.11: Land Utilization Statistics – [2011-12]

	Hectares	As percent of the Province
Geographical Area	323,800	1.0
Cultivated Area	13,855	0.5
Cropped Area	12,356	1.1
Irrigated Area	10,095	0.8
Sources of Irrigation		
Canal	0	0.0
Wells	43	0.1
Tube Wells	8,985	1.4
Karezes/Springs	1,067	3.2

Source: Socioeconomic Profile of District Killa Abdullah – The Macroenvironment of Chaman Border

4.8.7 Road Network in the Project Area

137. Chaman has a major railway station which accommodates passengers coming from Kandahar as well as other parts of Afghanistan. The slow passenger train runs between Chaman and Quetta daily. The classical Shela Bagh railways tunnel, nearly 6 km in length, is located in the same

mountains. It is believed to be the longest tunnel in South Asia, which was built in the beginning of 20th century, mainly due to strategic reasons. In 2008, it was proposed to extend this railway to Central Asia through Afghanistan.

138. At the project area, there are about 116 kilometer of asphalted road and 202 kilometer Shingle road available out of one thousand kilometer of geographical area respectively (see **Table 4.8.12**).

Table 4.8.12: Roads in Chaman

Road Type	Numbers	Per one Hundred Thousand Population
Black Topped (Asphalt)	612	116.3
Shingle	1,065	202.4
Total	1,677	318.6

Source: Socioeconomic Profile of District Killa Abdullah – The Macroenvironment of Chaman Border, 2014

139. Owing to sufficient land availability and low volume the traffic was not very congested. But due to unpaved parking area, dust observed in project area. No water sprinkling facility found on site to suppress the dust in vehicular parking yard (see **Figure 4.8.1**). These conditions were not looking suitable for working.

Source: Field Visit Report (Environment), Chaman Border Crossing Point, 20-22 November 2014

Figure 4.8.1: Unpaved parking area at Chaman Crossing Border

4.8.8 Educational Facilities

140. According to the Provincial Development Statistics in Balochistan, there are about 405 primary school, 32 middle school, 30 high school, 26 community school, 11 private school, and 5 intermediate/degree college in Killa Abdulla District. **Table 4.8.13** furnishes information regarding number and type of education institutions as well as number of teachers.

Table 4.8.13: Teaching Institutions and Staff (2011)

Schools		Teachers		
		Total	Male	Female
Primary School	405	732	613	119
Middle School	32	310	206	104
High School	30	631	494	137
Community School	26	36	16	20
Private School	11	34	30	4
Intermediate/Degree College	5	76	66	10

Source: Socioeconomic Profile of District Killa Abdullah – The Macroenvironment of Chaman Border, 2014

141. Due to data constraints in terms of various indicators of quality inputs, this section only describes the available physical facilities in schools, which is the most important pillar of quality input to education. School buildings, drinking water, boundary walls, electricity and toilets for students are considered basic facilities.

142. **Tables 4.8.14** summarizes the extent of available facilities across various levels (primary, middle and high) of education. Electricity is available in only 18 percent primary schools, while only 12 percent primary schools operate in the satisfactory condition of buildings. About 4 percent primary schools have no building, whereas about 67 percent run without boundary walls. The situation in middle and high schools is however comparatively better. Electricity is available in 34 and 53 percent middle and high schools respectively. About 75-83 percent school buildings have 'pacca' structure in middle and high schools. Similarly, boundary wall exists in more than 75 percent middle and high schools.

Table 4.8.14: School Facilities and Physical Characteristics (2011)

(Percentage of Schools)

	Primary	Middle	High	Total
Boundary Wall Exists	33.09	78.13	80.00	39.19
Building Availability	96.54	100.00	100.00	97.00
'Pacca' Structure of Schools	68.40	75.00	83.33	69.81
Satisfactory Building Condition	12.84	18.75	10.00	13.06
Electricity Availability	18.52	34.38	53.33	21.84
Drinking Water Availability	53.83	68.75	63.33	55.46
Latrine Availability	4.94	59.38	56.67	11.99

Source: Socioeconomic Profile of District Killa Abdullah – The Macroenvironment of Chaman Border, 2014

143. According to UNDP Human Development Report (2013), Pakistan has been placed at the 146th position out of 187 countries in terms of the Human Development Index with overall adult literacy rate of 54.9. Over the years, several non-formal literacy programs were launched but these suffered from lack of political commitment, adequate financial support, weak implementation structures and absence of effective supervision and monitoring.

4.8.9 Public Services and Utilities

144. For rail service, there is an existing single track Rail road from Quetta to Chaman. The border Terminal at Chaman has all the requisite facilities to handle voluminous transit trade taking place with land-locked Afghanistan. the terminal is playing a crucial role in boosting trade between the two neighboring countries. The terminal has tremendous business potential and present volume of container traffic is anticipated to increase manifold in the coming years.

145. There is no purpose built pedestrian processing facility although there is a canopy over the processing area. Approximately 2,500 pedestrians each day pass in and out through Chaman. Processing takes about 5 minutes but pedestrians might wait from between 10 to 20 minutes to get processed which is a long time in a challenging environment; hot summers and cold winters.

146. In terms of environmental infrastructure in the area, there is no systematized waste management system in the project area. At present, there seems to be no visual problem on the environment – absence of scattered solid waste, foul odor from untreated wastewaters, etc.

4.8.10 Historical & Cultural Heritage

147. According to Archaeological Department in Quetta, no incidental or accidental archaeological discoveries have been found from the entire district, although the region is archeologically known for its Bronze Age pottery findings. There are no cultural or historical sites of significance.

4.8.11 Communities and Stakeholders

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

149. The following are the identified key stakeholders:

- Border Managers (FBR, NLC and FC)
- Border Communities (local landlords, residential and commercial DPs, and women)
- Border user groups (truck drivers and pedestrians)

150. 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

151. 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.

152. 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.

153. 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

154. The area required to implement the proposed development project is 101 acres. The existing area being occupied by Chaman BCP is less than the required 101 acres. In this case, land acquisition is required.

155. ***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

156. 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.

157. ***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

158. 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.

159. ***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

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

161. ***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)

162. 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.

163. ***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

164. 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.

165. 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.

166. ***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).

167. 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.

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

169. 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

170. 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. Chaman border crossing however is devoid of any cultural property and cultural sites that could possibly be affected by the project construction and operation. There is also no other important cultural sites within close proximity to the project site.

171. Similarly, there is no protected area within and around the project site except for the Chaman's geological fault.

172. ***Mitigation Measure****:* Ministry of Culture will be tapped if any related artefacts would be discovered.

5.3.6 Occupational health hazards for construction workers

173. 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.

174. ***Mitigation Measure****:* 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.

175. 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

176. 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.

177. 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.

178. 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.

179. ***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

180. 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.

181. 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.

182. ***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.

183. 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[11]

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

184. 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.

[11] 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.

185. ***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 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.

186. 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[12]

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

187. 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.

188. ***Mitigation Measure:*** Multi-chambered septic tanks could easily treat generated domestic wastewater of employees during operation phase. 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

[12] 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

discharges would just evaporate to the atmosphere in due time especially during hot season. For reference purpose, **Table 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[13]

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

[13] 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
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
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, segregation and recycling Proper disposal plan of all		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
	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 be covered with tarpaulin. Mixing equipment will be sealed & equipped as per existing standards.		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
	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 Findings	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 Consultant
5. Safety & Accident Risks							
Construction Activities & Accident Risks	Safety signals and signage will be installed on all critical locations during construction		At various locations within project site.	During construction (monthly)	To be included in bid cost by the	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
	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.				contractor.		
Health Issues	Drainage, sanitation, & waste disposal facilities will be provided at work places. Drainage will be maintained to avoid any spread of disease 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		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
	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 parking pavement Dust suppression to be done on regular 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
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

Environmental Issues & Components	Remedial Measure	Reference to Contract Document	Approximate Location	Timeframe and Frequency	Mitigation Cost	Institutional Responsibility	
						Implementation	Supervision
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

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

190. The DN scenario includes no infrastructure improvements to the existing border crossing point will be implemented. Chaman BCP appraisal under the Feasibility Study[14] cited the following challenges that need to be addressed:

- Blast protection for the BCP facility walls and BCP traffic approach lanes.
- Space constraints resulting in congestion creating targets;
- Car, truck and pedestrian lanes are not segregated or fenced.
- Absence of a good CCTV System with centralized inter agency staff control.
- Absence of an armory.
- Absence of a dedicated telecom system common to all border agencies.
- There is no helipad near the premises and its related navigational equipment, fire fighting equipment and medical facilities plus an ambulance.
- No walk through gates or hand held metal detectors for entrance to buildings or pedestrian areas.
- Poor surveillance system.
- Absence of fire fighting equipment and emergency standard operating procedures.
- There is no intrusion detection system of any sort.
- Access control to the BCP and its facilities is manual.
- Absence of Hesco bags outside buildings or along traffic lanes.
- Bad road traffic management.
- Staffs not trained on security related issues.
- Absence of Chemical, Biological, Radioactive and Nuclear (CBRN equipment in exit and entry vehicle traffic lanes) Equipment.
- Absence of Narcotics Particulate Trace Detection Equipment.
- Absence of Vehicle Number Plate Scanning Equipment.
- Absence of Sniffer dogs, kennels and veterinary support facilities.
- Absence of Hand-held explosive and narcotics Vapor Tracing Equipment.

[14] : Improving Border Services Project Final Report, Asian Development Bank, July 2014, p.78

- Absence of Bio-data reading and collection equipment.
- Absence of iris recognition equipment (long term)
- Absence of RFID tags, readers and allied equipment.
- Absence of Quarantine areas.
- Absence of pedestrian and driver luggage scanning equipment.
- Absence of Hand-held Metal detectors.
- Absence of Walk-through gates.
- Document and Currency Examination scanning equipment.
- Absence of Walk-through Explosive and narcotic trace detectors.
- Absence of Explosive Detection Equipment.
- Absence of vehicle and cargo back scatter and color X-Ray scanning equipment.
- Lack of drug testing kits.

191. 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.

192. 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

193. 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.

194. 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.

195. 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

196. 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.

197. For this project, the following stakeholders have been identified (**Table 7.2.1**.)

Table 7.2.1: Stakeholders and Consultation Tools for Chaman BCP

S.No.	Stakeholder Type	Stakeholders
1	Border Managers	• FBR • NLC • FC
2	Border Communities	• Local Landlords • Residential and Commercial DPs • Women
3	Border User Groups	• Truck Drivers • Pedestrians

7.3 Approach for Public Consultation and Objectives

198. 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

199. 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;
- interview with truck and bus drivers, roadside vendors;

200. 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. 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 Chaman 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

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

7.4 Consultation Meetings with Stakeholders

201. 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.

202. An account of site visit cum consultation meeting was conducted for the project as follows:

Date	Venue	Purpose	Attendees	Concerns	Record of Meeting
20-22 November 2014	Chaman Border crossing Point	The purpose of the site visit is to carry out project area reconnaissance in order to observe, verify and document presence of important environmental and social aspects of the project site that may require special attention in the undertaking of the EA documentation for the proposed border improvement project.	From ECIL: 1) Salman Ahmad- Financial Specialist 2) Delfin C. San Pedro- Environment Specialist 3) Gohar Ali-Junior Environment Specialist 4) Chaman BCP: Syed Talha Salman (Assistant Director Transit Trade 5) Ihsan Ullah (Deputy Collector Quetta) 6) M. Ibrahim (Custom Inspector Chaman) 7) Niaz Mohammad (Custom Clearing Agent) 8) Malik Haji Abdul Qayyum (Founder of Chaman Chamber of Commerce 9) Shahid Tufail (Superintendent Custom) 10) Engr. Daroo Khan (President Chaman Chamber of Commerce	Several environmental and social concerns include lack of facilities and equipment to monitor imported and exported goods, poor waste management system, fugitive dust and poor traffic management system; see Annex 1 for rapid environmental appraisal. The Custom officials were not aware of EPA requirements for environmental compliance but are eager to welcome the idea to improve environmental performance.	See **Annex 3-1**

203. The stakeholder consultations for Chaman BCP were held in March, 2015 as illustrated in **Table 7.2.2**.

Table 7.2.2: Stakeholder Consultations Conducted for Chaman BCP

S.No.	Stakeholder	Tools	Date	Venue
1	Deputy Collector Customs, FBR	Consultative Meeting	16-03-15	Office of DC Customs, Quetta
2	Senior Manager, NLC	Consultative Meeting	16-03-15	Office of DC Customs, Quetta
3	Assistant Commissioner (Qila Abdullah) & Tehsildar (Chaman)	Consultative Meeting	17-03-15	Office of Superintendent Customs, Chaman
4	Local Landlords	Focus Group Discussion	19-03-15	Office of Superintendent Customs, Chaman
5	Chaman Chamber of Commerce & Industry (CCC&I)	Focus Group Discussion	20-03-15	Office of CCC&I
6	Women	Focus Group Discussion, Semi-structured interviews	21-03-15	Selected households in community
7	Truck Drivers	Semi-structured-interviews	20-03-15 to 21-03-15	Trade Terminal, Chaman
8	Pedestrians	Semi-structured interviews	20-03-15 to 21-03-15	Passenger Terminal, Chaman

204. 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. No.	Names	Occupation
1	Haji Salahuddin	Tenant, Taxi-Stand
2	Salman	Kacha Shop owner
3	Abdul Rehman	Kacha Shop owner
4	Abdul Manan	Kacha Shop owner
5	Hayat ullah	Kacha Shop owner
6	Muhammad Haq	Kacha Shop owner
7	Attaullah	Kacha Shop owner
8	Allah Nazar	Kacha Shop owner
9	Muhammad Gous	Kacha Shop owner
10	Saifuddin	Kacha Shop owner
11	Habibullah	Kacha Shop owner
12	Gul Muhammad	Kacha Shop owner
13	Ahmed Shah	Kacha Shop owner

14	Najeebullah	Kacha Shop owner
15	Abdul Hakeem Jan	Kacha Shop owner
16	Nida Muhammad	Kacha Shop owner
17	Abdul Ali	Kacha Shop owner
18	Abdul Qadir	Kacha Shop owner
19	Saadullah	Kacha Shop owner
20	Abdul Razzaq	Kacha Shop owner
21	Bilal	Kacha Shop owner
22	Muhammad Ismail	Kacha Shop owner
23	Abdul Samad	Kacha Shop owner
24	Sharaftuldeen	Kacha Shop owner
25	Sanaish	Kacha Shop owner
26	Agha Muhammad	Kacha Shop owner
27	Ameer Hamza	Kacha Shop owner
28	Abdul Qadoos	Kacha Shop owner
29	Muhammad Aslam	Kacha Shop owner
30	Sadam	Push Cart
31	Sardar Muhammad	Push Cart
32	Muhammad Haq	Push Cart
33	Abdul Bari	Push Cart
34	Nazir Ahmed	Push Cart
35	Mehmood	Push Cart
36	Rais Khan	Push Cart
37	Qudratullah	Push Cart
38	Abdul Shakoor	Push Cart
39	Mohammad Sadiq	Push Cart
40	Saadullah	Push Cart
41	Abdul Bari	Push Cart
42	Abdul Ghafar	Push Cart
43	Abdul Qayyum	Executive Director, CCC&I
44	Haji Majeed	Member, CCC & I
45	Haji Muhammad Qaseem	Ex-VP, CCC&I
46	Haji Daru	Member, CCC&I

205. **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. All the representatives were well aware of the project and saw the development of the Chaman BCP as a significant step towards improving business and trade activities in the area. They had previously shared their views with the ADB consultants during the design phase of the project and were pleased to play their part this time around as well. 2. Currently, both businessmen and immigrants suffered long hours of waiting time; affecting the efficiency of their business activities. They were hopeful the new facilities will decrease waiting time and streamline the process of cross-border facilities. 3. As the largest economic activity in the area, the taxi-stand and many small shops in the area are concerned that they are given proper space within the new terminal so they can continue their business activities; they are

Key Stakeholders	Key Issues and Concerns
	concerned about being compensated for the income loss they have to suffer in the interim period. 4. Representatives of business interests demanded that the government should have a clear plan for hiring local people for jobs at the new facilities; moreover they hoped opportunities would be provided on-site for imparting trainings in skills which are deficient in the local population. 5. 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. 6. Generally, business owners do not foresee any major environmental hazards to their area due to the project. **7.** Water is scarce resource in the area all year round; water management plan should be developed for the new terminal that safeguards the water allocation for residential and commercial users.
Women's Group	1. Even though none of the women were aware of the project prior to the survey, all 100% were in favor of execution of the project. 2. The most important issues for the local women was the development of a hospital, establishment of proper educational facilities, especially for girls and provision of proper water facilities to their homes. The women view these needs as important steps to safeguard their interests. 3. During the construction phase of the project, women were concerned regarding the timely completion of the project. Moreover, women were concerned that the construction activities may create dust problems in the area and in their homes. 4. Women were also concerned regarding their security and mobility during construction activities. Alternate routes should be identified to ensure secure mobility of women keeping in view the dominant 'purdah' system amongst the women of the area. 5. During the post-completion phase of the project, women felt that roads will improve, thereby improving their access to meet their basic material and health needs. Moreover, the area will get an economic uplift with increased business and employment opportunities for their male family members.

206. In summary, major environment related issues and concerns tackled during these consultation meetings were focused on water resources scarcity in the project area. For these specific issues and concerns, it was mentioned during the consultation meetings that appropriate environmental management plan such as water utilization and 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)

207. A grievance redress mechanism (GRM)[15] for the Project shall be established by the Federal Board of Revenue as part of the overall project management system.

208. 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.

209. 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.

210. 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).

211. 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.

212. 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).

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

213. 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.

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

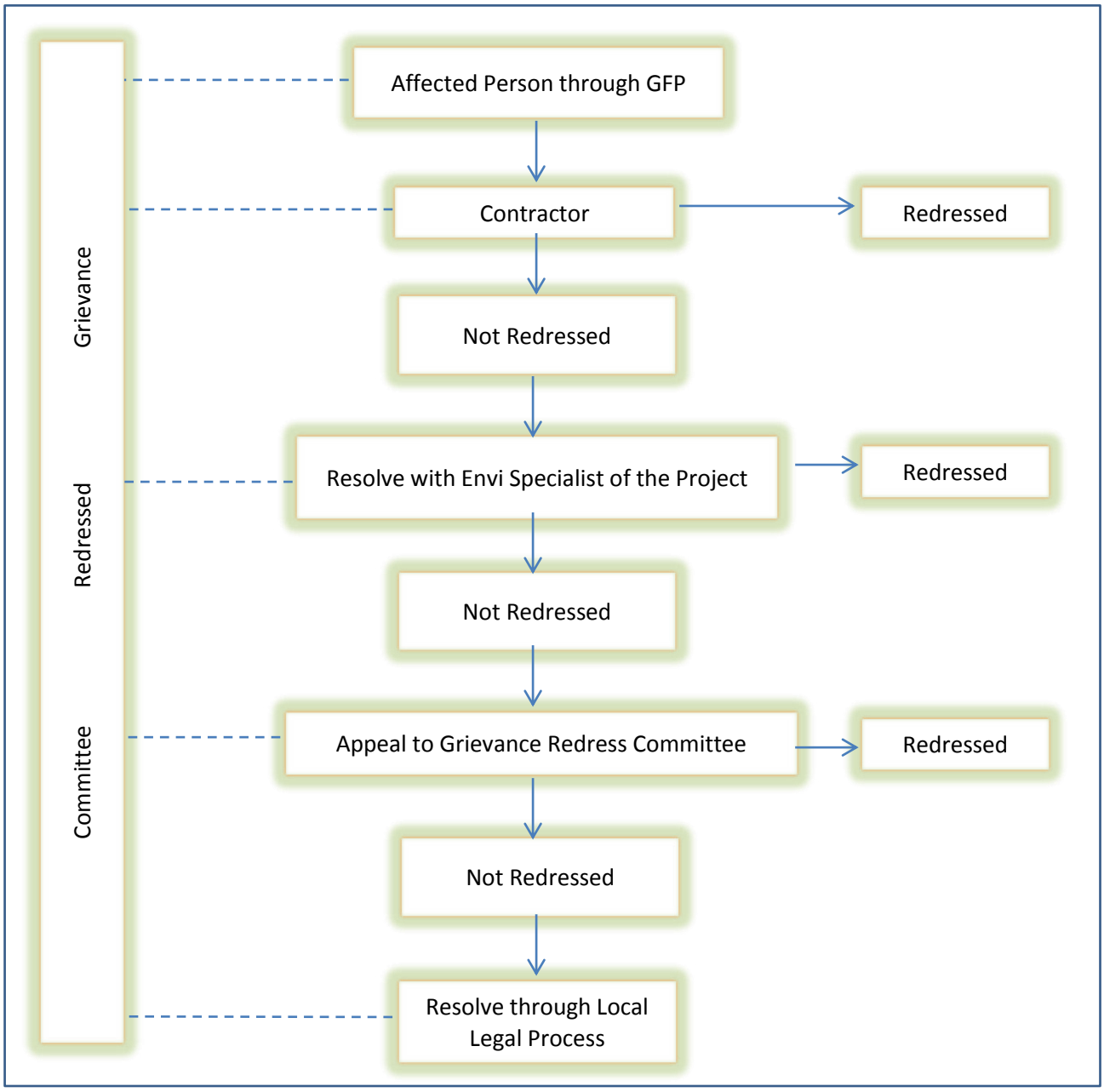


Figure 8.1.1: Proposed grievance redress mechanisms

Chapter 9
ENVIRONMENTAL MANAGEMENT PLAN

215. 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

216. 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

217. 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.

218. 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.

219. 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.

220. 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

221. 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.

222. 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

223. 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

224. 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

225. 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

226. 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.

227. 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

228. **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	PEPA NEQS (noise) 1993	Four selected locations	Once a year	24 hr reading taken at 15sec intervals over 15min every hr. and

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	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

229. The project shall be implemented within the premises and adjacent areas of the existing Chaman 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.

230. 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.

231. 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.

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Webliography:

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

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

Annex 1

Rapid Environmental Assessment (REA)
TA845 -PAK: Border Services Improvement (Phase II) Project
Chaman 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.
• 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 entire area is flat in nature; • Quarrying is not necessary.
• encroachment on precious ecology (e.g. sensitive or protected areas)?		x	• No nearby sensitive or protected areas

Annex 1

Screening Questions	Yes	No	Remarks
			• 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 to people particularly those

Screening Questions	Yes	No	Remarks
			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 drivers to be specified in

Screening Questions	Yes	No	Remarks
			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		• Chaman 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 help identify potential climate and			

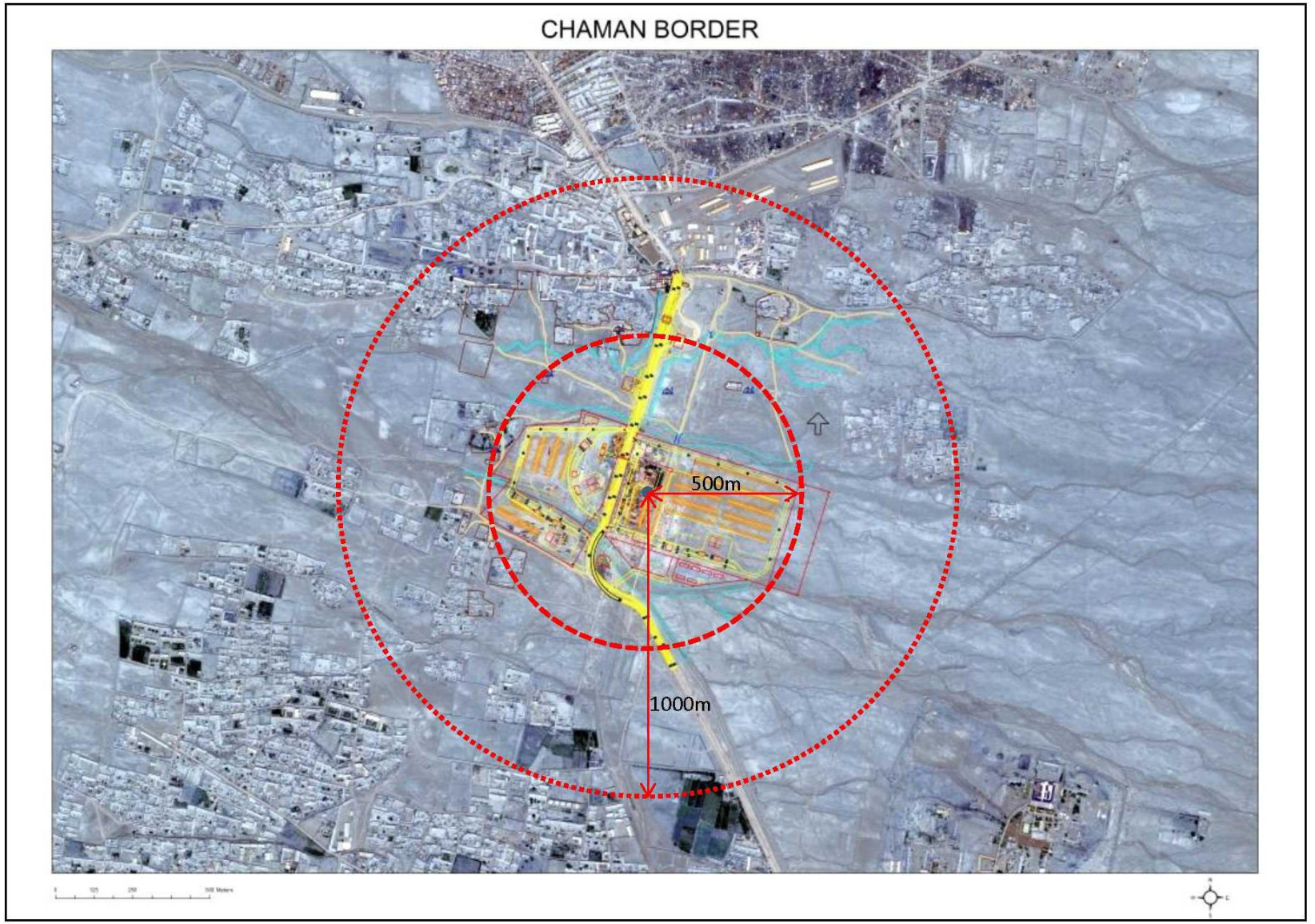
Screening Questions	Yes	No	Remarks
disaster risks			
• Is the Project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and climate changes	x		• The area is susceptible to earthquake; • Can be mitigated by incorporating 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.

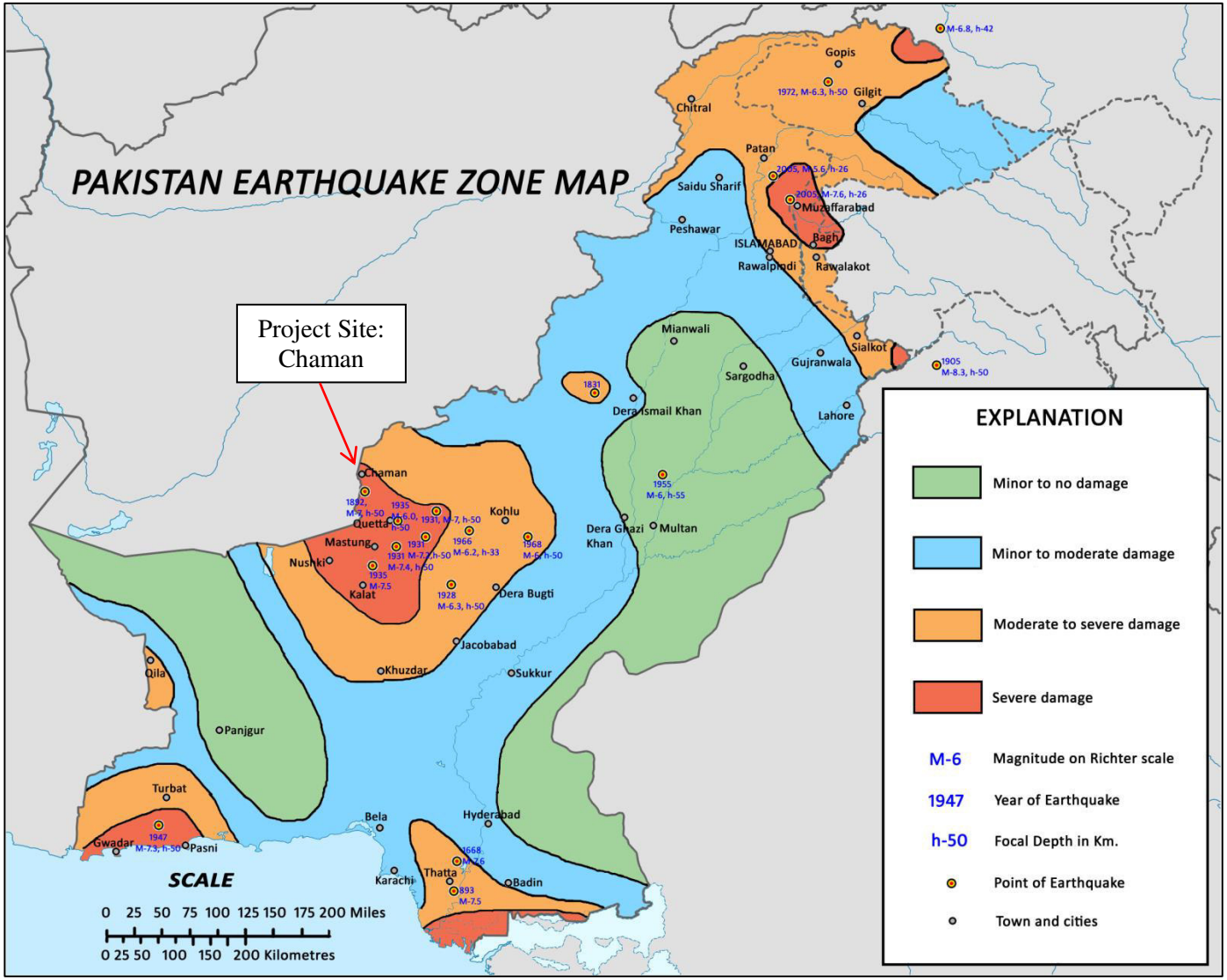
Annex 1

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



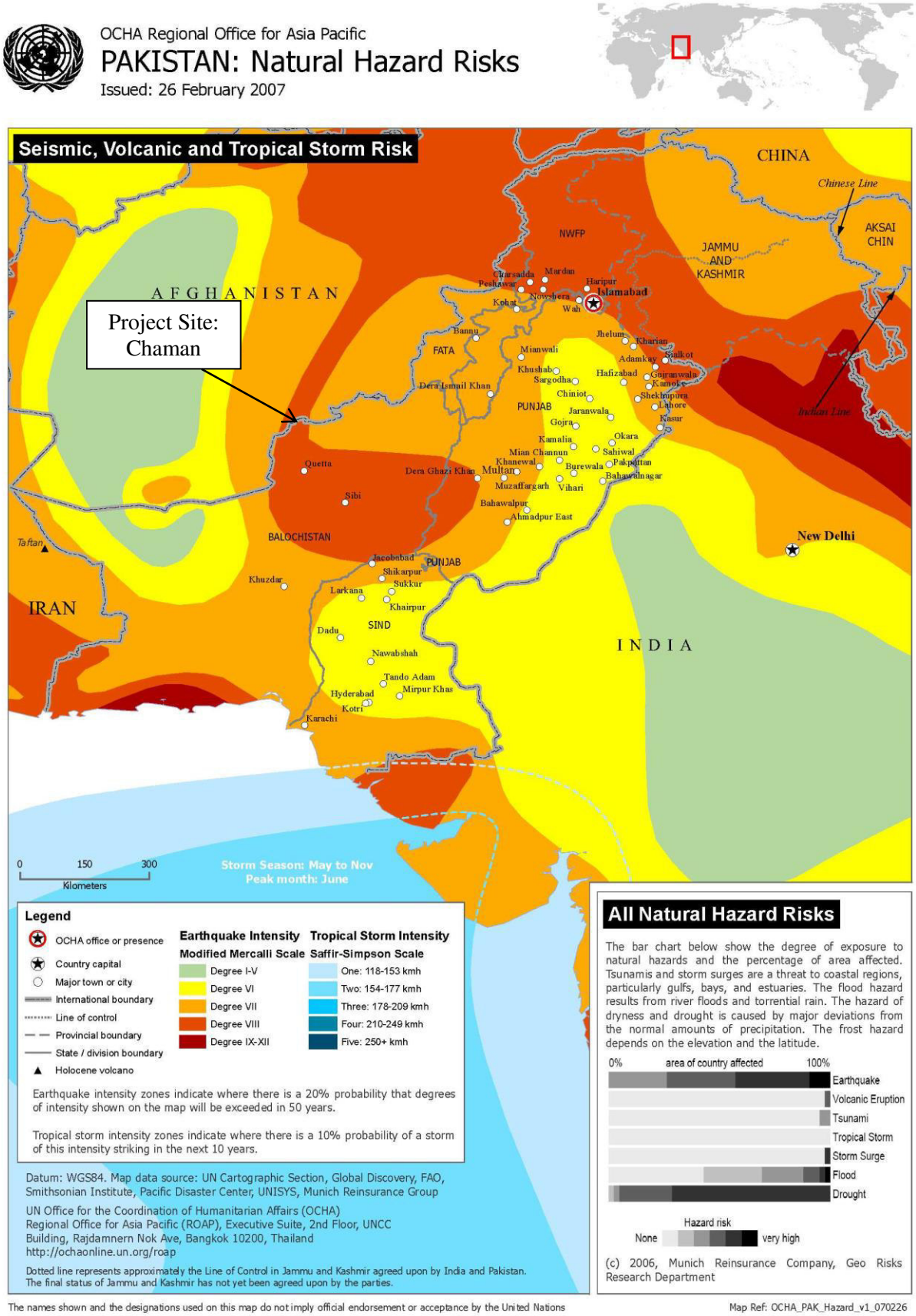
Annex 1

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:
FIELD VISIT REPORT (ENVIRONMENT)
CHAMAN BORDER CROSSING POINT
20-22 November 2014

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From ECIL	Contact Numbers
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Persons Met at the Chaman Custom Office	
1) Syed Talha Salman (Assistant Director Transit Trade 2) Ihsan Ullah (Deputy Collector Quetta) 3) M. Ibrahim (Custom Inspector Chaman) 4) Niaz Mohammad (Custom Clearing Agent) 5) Malik Haji Abdul Qayyum (Founder of Chaman Chamber of Commerce 6) Shahid Tufail (Superintendent Custom) 7) Engr. Daroo Khan (President Chaman Chamber of Commerce	0347-0070000 0334-3442035 0335-7832419 0345-8877322 0345-8977313 0300-9257105 0345-8870111
Photo documentations	

1. Purpose of the Site Visit

The purpose of the site visit is to carry out project area reconnaissance in order to observe, verify and document presence of important environmental and social aspects of the project site that may require special attention in the undertaking of the EA documentation for the proposed border improvement project.

2. Rapid Assessment of the Environment

Using ADB's Rapid Environmental Assessment (REA) matrix, the following summarized the environmental-related findings of the Consultant's site visit:

Screening Criteria	Yes	No	Observations
On project site:			
1) Densely populated		X	The project is not a built-up area as there are no residential areas; People are of transient in nature from both Pakistan and Afghanistan sides; it is said that people's presence is visible only during the border operation time which starts from sunrise up to sunset time
2) Heavy with development activities		X	The area has sporadic structures and subdivided by permanent to temporary fences; It is to my opinion that the proposed project is timely as it will bring in more order and improvement to the project site now lacking with necessary additional infrastructures and equipment to fully support the custom operation.
3) Adjacent to or within any environmentally sensitive areas?		No	The visual inspection revealed that the area is void of environmentally sensitive areas. However, there is presence of about 1 to 2 burial sites in the project area.
On the proposed			

project's potential environmental impacts			
4) Impacts on the sustainability of associated sanitation and solid waste disposal systems	Yes		At present, there is no systematized waste management system in the project area. The institutionalization of proper and more systematize sanitation and solid waste disposal systems are warranted and will be part of the EMP for the proposed border improvement project.
5) Deterioration of surrounding environmental conditions due to rapid urban population growth, commercial and industrial activity, and increased waste generation to the point that both manmade and natural systems are overloaded and the capacities to manage these systems are overwhelmed?	Yes		At present, there seems to be no visual problem on the environment – absence of scattered solid waste, foul odor from untreated wastewaters, etc. With the project, there is a large possibility of incurring environmental deterioration due to increased economic activity and population. In this sense, the proposed project has the potential to attract more people which will translate to more economic activities, more use of resources and more waste generation. Thus the proposed project must include waste management system as part of EMP.
6) Degradation of land and ecosystems (e.g. loss of wetlands and wild lands, coastal zones, watersheds and forests)		No	The project area is void of environmentally sensitive areas, vegetation and other form ecologically sensitive land and ecosystems.
7) Degradation of cultural property, and loss of cultural heritage and tourism revenues?		No	Except for the burial sites, the project area is void of important cultural property. On the other hand, the project may enhance tourism activities in the project area.
8) People exposure to increased health hazards and risks due to pollution	Yes		The project is expected to enhance trading in the area thus can be translated into more number of trucks and cars plying within the area. Treat of air pollution from vehicular emissions is anticipated thus would require EMP.
9) Water resource problems		No	Based on the Custom officials, water supply from deep wells is not a scarce resources in the area; There is no nearby surface water and groundwater is deep (at about more than 700 feet (or 213 meters depth).
10) Air pollution due from trucks and other vehicular	Yes		Generation of fugitive dust from active vehicular activities is a present problem and is an imminent problem (that may be exacerbated) once the

activities			proposed project is implemented.
11) Road blocking and temporary flooding due to land excavation during rainy season?		X	The project has plenty of vacant areas to create temporary road access thus the project can be implemented without significant disturbance from temporary road blocking of existing roads; flooding can be managed by implementing proper drainage system during rainy season.
12) Noise and dust from construction activities?	X		This is a present problem that will surely require mitigation measures. Generation of fugitive dust is a real problem during construction and operation phases of the project.
13) Traffic disturbances due to construction material transport and wastes?		X	The project has plenty of vacant areas which are available to create temporary road access and temporary storage for construction materials. Thus the project can be implemented without significant disturbance to the existing operation.
14) Temporary silt runoff due to construction?		X	The project has no nearby water bodies; However, treat of silt runoff (akin to soil erosion) will still need attention.
15) Water depletion and/or degradation?		X	The custom officials said that deep groundwater is abundantly available in the area; the use of septic tanks at present is not a treat to groundwater pollution since only deep wells are used and no shallow wells are being used in the surrounding area.
16) Overpaying of ground water, leading to land subsidence, lowered ground water table, and salinization?		X	The area is far from sea or ocean thus treat of salt water intrusion is a remote possibility. Regulated groundwater pumping should be observed in order to avoid land subsidence and lowered groundwater table. As the surrounding area is open (with minimal paved areas), recharge of groundwater is naturally happening. Investments for the construction of additional deep wells may be necessary during project implementation.
17) Contamination of surface and ground waters due to improper waste disposal?		X	No surface water is pr4sent in the area. Groundwater is too deep to be contaminated. However, there is still a need to put up economically feasible domestic treatment facility once the project is implemented
18) Pollution of receiving waters resulting in amenity losses, fisheries and marine resource depletion, and health problems?		X	There is no nearby surface water in the area.

3. Specific Findings

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

a. General Topography and Climatic Conditions: The project is located in Killa Abdullah District, in border city of Chaman, which is located in the western foothills of Khojak Pass. The district is bordered by districts Pishin in the east, Quetta in the south and by Afghanistan in the west. It is composed of two tehsils: Gulistan and Chaman. The Toba Plateau covers its northern flanges. The general character of the district is mountainous; however the project area is plane.

b. Generally, the climate of District Killa Abdullah is generally dry and temperate. Depending on water availability such climatic conditions are suitable for horticulture as orchids of apples, apricots, peaches, plums, grapes, pump granites are observed on both side of the road from Quetta to Chaman. However, due to dry conditions and insufficient water availability, very limited vegetation observed on project site.

c. Vegetation: Due to its geo-physical location, intensive over-use of rangelands and unavailability of sufficient water, the project corridor has no significant vegetation cover. Generally, due to uncontrolled rangeland grazing and use of vegetation for fuel wood and construction by both the nomadic and non-nomadic groups causes substantial damage to the biodiversity and the vegetation cover of the entire region. The poorly developed agro-pastoral practices and lack of awareness, in combination with the high incidence of poverty are the main causes for the depletion of natural resources and continuing threats to biodiversity.

Plate No. 1: The project area having no vegetation cover

d. Quarantine Cell and Phytosanitary Department: Like other project sites, Question asked regarding the onsite office and examination of fruits and vegetables by the phytosanitary/ Quarantine Departments. A neutral answer was received, explaining that onsite quarantine cell for examining and testing of fruit is present but it is not very purposeful and also not equipped with recent scientific instruments. However, a scanner is present that scan the imported scrap loaded trucks for presence of any ammunitions and explosive material.

e. Traffic Management and Associated Health & Safety Risks*:* owing to sufficient land availability and low volume the traffic was not very congested. But due to unpaved parking area, dust observed in project area. No water sprinkling facility found on site to suppress the dust in vehicular parking yard. These conditions were not looking suitable for working.

4. Specific Findings

a. In view of Pakistan Environmental Protection Act 1997, Chaman border operation is not meeting or submitting any environmental compliance requirements to local EPA. The custom officials are not aware of any of these requirements. During the discussion, the Custom officials were surprised to know that environmental considerations should be part of their operation. With the project implementation, the Consultant has explained

that the Custom Office will be required to designate an environmental compliance officer since at present; there is no assigned person to perform this function.

Plate No. 2: Unpaved parking area at Chaman Crossing Border

b. The Custom Officials when asked if there are the plans for meeting the EPA requirements for environmental compliance, the officials were not aware of these requirements. At the present operational set-up of the Chaman border crossing, there is no plan for improving the environmental performance. Fortunately, when the Consultant brought out the issue of the need to comply with the requirements of ADB and EPA, the Deputy Director of the Custom Office was eagerly welcoming the idea. The Deputy Director said that any proposal to improve the environmental performance of the Chaman area will be welcomed.

c. When asked if there are arrangements for checking import / export of toxic materials, like used batteries, computer / TV monitors and others etc., the Custom officials said there is none. In the list of materials and commodities being traded at Chaman, there is nothing about toxic chemicals. However, they admitted that there is chemical trading once in a while. The Consultant has just advised the Custom officials that chemical trading will require special checking and storage and disposal facilities (if warranted).

d. At the Chaman border, there are no laboratory facilities for checking agriculture products and food items regarding quarantine and phytosanitary concerns. At the moment, checking of these commodities is being done by visual inspection. As to the acceptability of the traded fruits and vegetables, the system being used (as explained by the Custom Officer) is the reliance to certification being issued by a third party certifying body. The certifying body, the Consultant presumed, is a known entity for both parties.

Disposal of discarded fruits and vegetables requires more environmentally friendly management system. Because of the absence of this waste management system, the Custom officer could not elaborate it further.

5. Conclusions

The site visit and meeting with custom and local official was found fruitful in undertaking Rapid Environmental Appraisal of the entire project area including the assessment of future environmental conditions when the proposed border improvement project is implemented.

In the light of above information and data, there is need to incorporate environmental consideration in the over operation of the Chaman border crossing by the Custom officials. The project when implemented should be able to comply with the environmental safeguard requirements of ADB and local EPA.

Photo-documentations

Briefing moments by the Custom Officials

Inspection of Custom Facilities

Trucks on queues to pass the X-scanning building facility

Inside the scanning building facility

In and out movements of transient people t Chaman border crossing

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

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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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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