Initial Environmental Examination

June 2015

PAK: Regional Improving Border Services Project

Wagah Border Crossing Point (BCP)

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

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(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 Wagah 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. Wagah 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 Wagah 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 to Passenger Terminal / Approach Road (3+3 Lane)/ Fencing & Signage / Internal Road / 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 Wagah Border Improvement Project is estimated at US $ 93.65 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 be shouldered by the Contractor	926,000.00 per monitoring occasion
3. EMP	Cost is to be shouldered by the Contractor	Part of the project cost

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

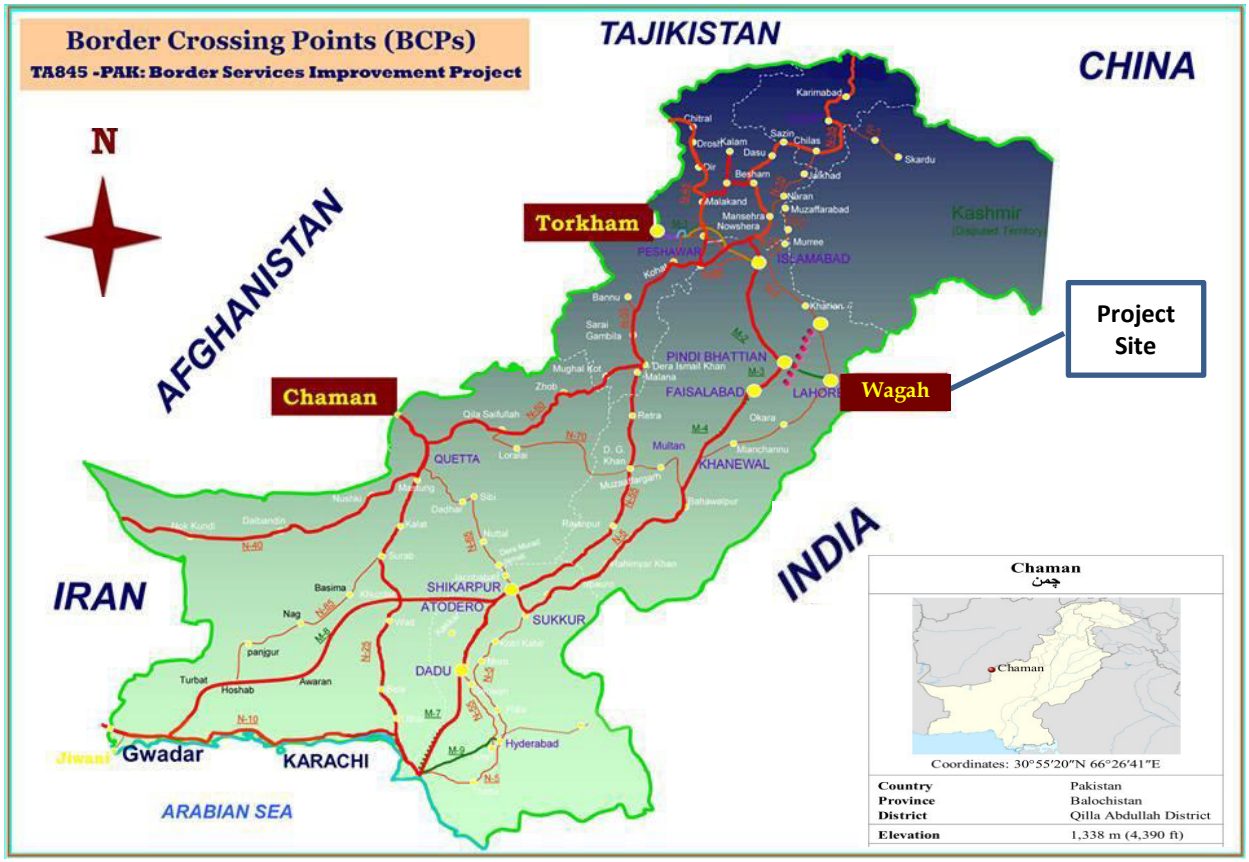


Figure ES-1: BCPs Location Map

17. Given the limitations in terms of physical fieldworks for Wagah 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 Wagah BCP is void of environmentally sensitive and precious ecology while most of its surrounding environs is surrounded by agricultural area. Wagah 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
Wagah	141.5	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, Wagah 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 Wagah 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 Wagah 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. Wagah 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 Wagah BCP and Pakistan in general. By improving Wagah BCP operational capability, the Wagah 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. Wagah 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 Wagah 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 Wagah 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 Wagah 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, Punjab EPA

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

2.4.2.2 Provincial Governments

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

2.5 ADB Environmental Requirements

2.5.1 General

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

2.5.2 Screening and Categorization

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

2.5.3 IEE Compliance with Environmental Policy Safeguard Principles

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

Table 2.5.1: Environmental Policy Safeguard Principles and IEE Document Compliance

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

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

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

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

Chapter 3
DESCRIPTION OF THE PROJECT

3. DESCRIPTION OF PROJECT

3.1 Project Location

66. Wagah border crossing point is located 24 kilometres of Lahore and 32 kilometres from Amritsar. It is also 3 kilometers away from the Bordering Village of Attari. The location map is provided in **Figure 3.1.1**.

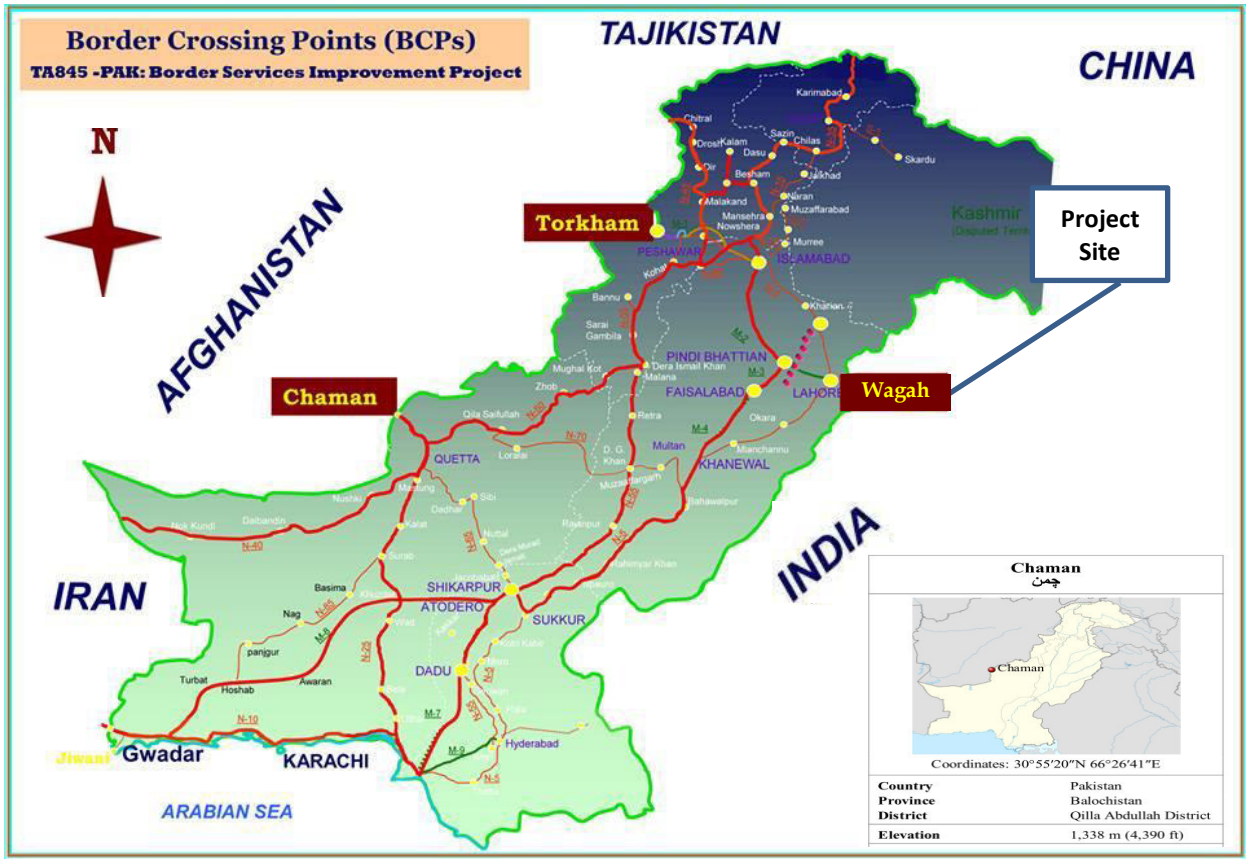


Figure 3.1.1: BCPs Location Map

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

3.2 Project Components

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

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

Table 3.2.1: Technical Description of the Proposed Improvement Works

Ref.	Item	Unit	Quantity
1	DEVELOPMENTAL WORKS		
1.1	Earthworks	m^3	1200
1.2	Approach Road to Passenger Terminal	m^2	5850
1.3	Approach Road (3+3 Lane) Incl. Fencing & Signage	m^2	19395
	Road inside BCP (4+4 Lane)	m^2	37000
1.4	Overhead Water Reservoir (100000 Gallon)	each	1
1.5	Street Lights 150 Watt LED	each	115
1.6	Flood Lights 100 Watt LED	each	120
1.7	Bridge	m^2	180
1.8	Parking Area (Tuff Pavers Min. 7000 PSI)	m^2	312500
1.9	Retaining Wall for Road (1.5mx3m)	m	230
1.10	Boundary Wall (0.9mx3m)	m	4600
1.11	Toll Booth (Pre Fab in uPVC)	each	12
1.12	Toll Canopy	m^2	1464
1.13	Secondary Inspection Canopy	m^2	1130
1.14	Cargo Immigration Canopy	m^2	944
1.15	Quarantine Shed	m^2	820
1.16	Surface Drainage Works	m^2	412500
1.17	Solar Power System Incl. Panels, Inverters & deep Cycle Batteries (De-centralised System for each block/ area)	Watt	80000
1.18	Power Supply Network	m^2	412500
2	BUILDINGS		
2.1	Central Administration Building	m^2	2055
2.2	Seized Goods Warehouse	m^2	5250
2.3	Commercial Warehouse	m^2	16700
2.4	Small Offices	m^2	200
2.5	Customs Lab	m^2	400
2.6	Passenger Terminal Building Renovation	m^2	1210
2.7	Services Area (Pray Area,Café,Maint Shop)	m^2	1800
2.8	Services	m^2	1200
2.9	Watch Tower	m^2	400
2.10	Security Gates	m^2	10
2.11	Business Center	m^2	2300
3	COLONY/ ACCOMODATION		
3.1	Accommodation	m^2	1200
3.2	Pavement	m^2	1250
3.3	Approach Road (2 Lane)	km	0.25
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 141.5 acres of lot as depicted in **Figure 3.2.1**.

Figure 3.2.1: Wagah 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	59
b) Export terminal	37
c) Transit inbound	16
d) Transit outbound	16
e) Accommodation	2.5
f) Business center	11
Total Area	**141.5**

74. As of July 2014, project cost for Wagah Border Improvement Project is estimated at US $ 93.65 M. This cost includes funds for the integration and implementation of environmental management plan (EMP) in the overall project design to ensure compliance with safeguard requirements of ADB and the Government of Pakistan. EMP costs, especially those EMPs to be undertaken during construction phase, will be incorporated into the Contractors' cost while some will be built to specifically manage solid and wastewater wastes during operation phase where funds shall be likewise allocated by the EA.

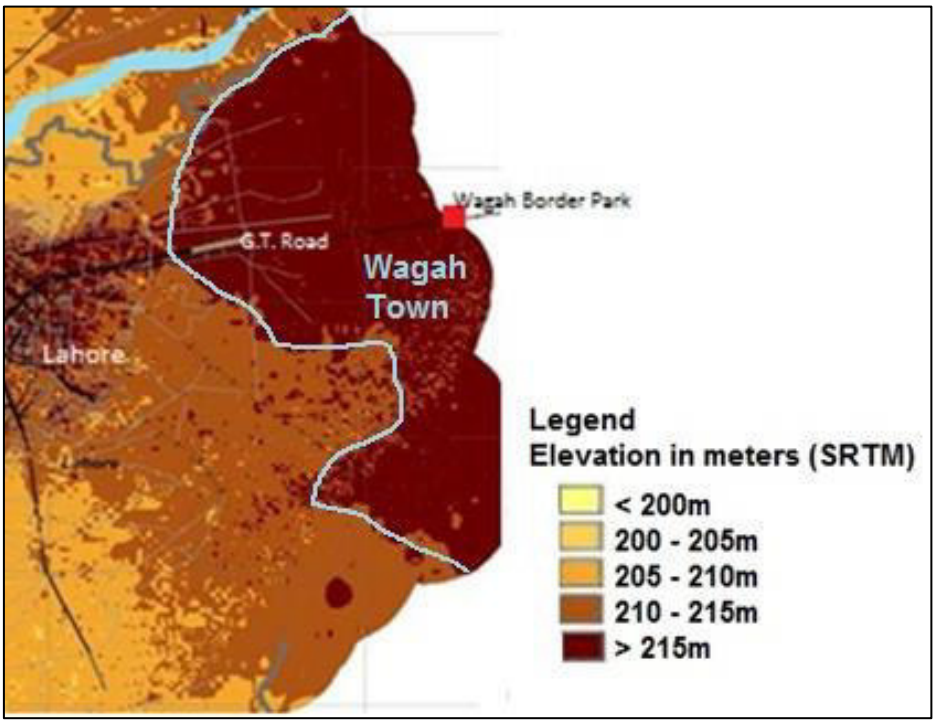
Chapter 4
DESCRIPTION OF THE EXISTING ENVIRONMENT

4.1 Physiography

4.1.1 Topography

75. Lahore *has* a general altitude of 208 m to 215 m above sea level. The terrain conditions are generally flat and gently sloping towards south and southwest at an average gradient of 1:3000.

76. Wagah is an upland town at the eastern part of Lahore with elevation of 215 m or more. Wagah elevation map is shown in **Figure 4.1.1.**



Source: LUTMP GIS Database

Figure 4.1.1: Land Elevation Map of Wagah

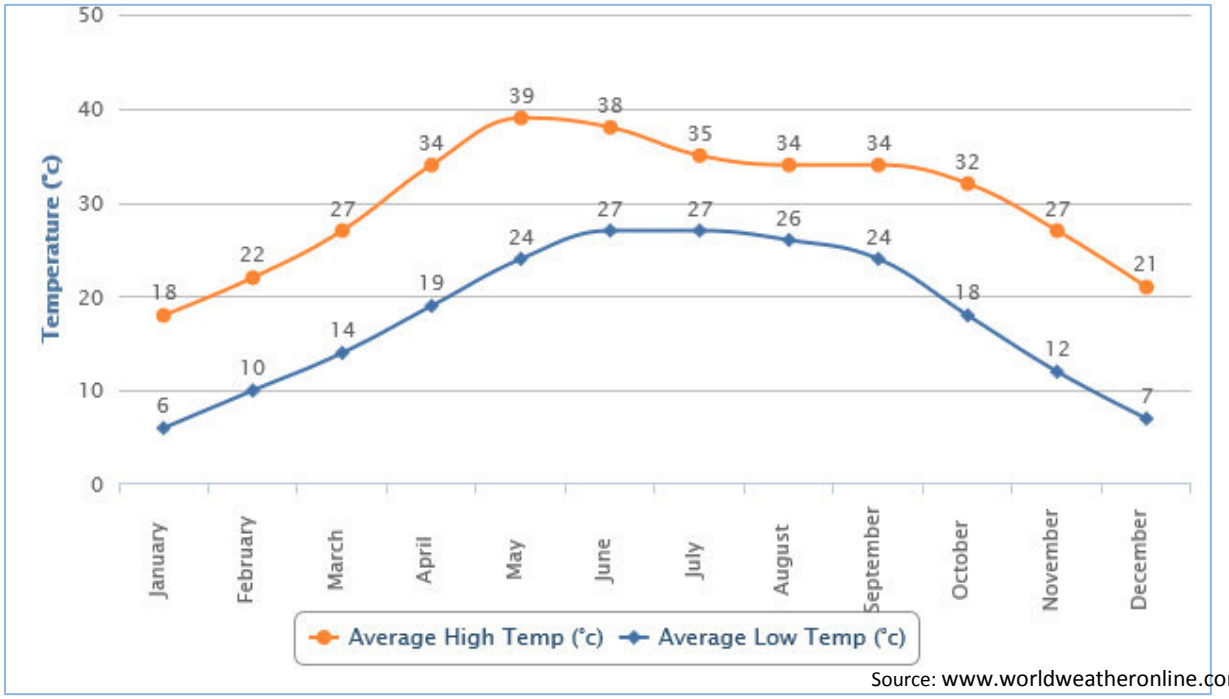
4.1.2 Geology

77. Wagah's geological location lies on the Grand Trunk Road between the cities of Amritsar in Punjab, India and Lahore in, Pakistan. It is the only road border which crosses between India and Pakistan. The project's location is at a distance of 20 kms from Amritsar and 22 kms from Lahore with GPS coordinates latitude 31° 31' 17.0004'' N, and longitude 74° 24' 15.984'' E.

4.2 Climate

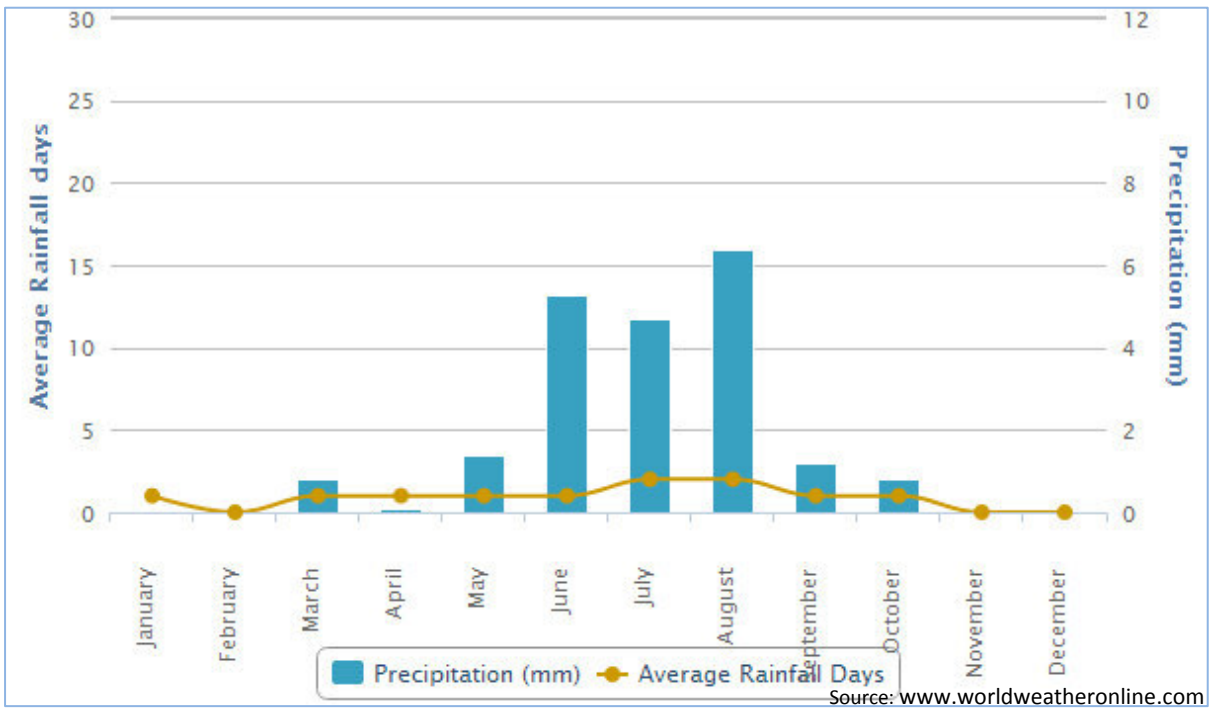
78. Wagah has a hot semi-arid climate with extremely hot, rainy, and long summers, cold and dry winters, monsoon rainfall during both summer and winter seasons and dust storms during summers.

79. Climate data averages of temperature and rainfall in Wagah for years 2000 to 2012 is shown in **Figures 4.2.1** and **4.2.2**.



Source: www.worldweatheronline.com

Figure 4.2.1: Average High/Low Temperature Graph for Wagah



Source: www.worldweatheronline.com

Figure 4.2.2: Average Rainfall (mm) Graph for Wagah

80. The summer season starts from April and lasts till September. Hottest months of the year are May, June and July with minimum and maximum temperatures of 24℃ to 39℃. The winter season on the other hand starts from November to March. December, January and February are the coldest months with minimum and maximum temperatures of 6℃ to 22℃ respectively.

81. Rainfall varies year to year and also month to month. The Study Area receives rains in all seasons. However, monsoon rain is pronounced and constitutes a definite rainy season between the months of May and September.

82. Relative humidity throughout the day is higher in winter months than in summer months as compared in May and June are very hot and dry months during which dust storms occur occasionally.

83. According to wind data for the year 2008, calm winds were observed 56 percent of the time with wind speed of 3 m/sec recorded 15 % of the time. The predominant wind directions are South-east and North-west with speed ranges of three (3) to six (6) m/sec. In winter (November to February) the predominant directions are West and North-west, and in summer months (March to June) the predominant direction is South-east, while in Monsoon season (July to October) the predominant direction is South West.

Flooding and Climate Change

84. The average annual precipitation is 629 mm for the 30 years and 588 mm for the recent 5 years, respectively indicating a definite reduction in rainfall due to climatic changes, may be attributed to increased carbon emissions and global warming.

85. Flooding is not a problem in the project site due to its high elevation and absence of nearby water bodies.

4.3 Air quality

86. Visually, the ambient air quality of average adequate standards, as the project site is away from the industrial zones and traffic congestions of Lahore city. Due to movement of heavy trucks, some temporary air congestion noted due to dust and vehicular emissions (**Figure 4.3.1**). Noise pollution is also observed due to vehicular activities. Such negative factors may affect workers health, which needs to be probed further.

Figure 4.3.1: Photograph of Dust Generated by Vehicular Activities in Wagah Border

87. No ambient air quality survey has been conducted during the EIA study, but it is recommended that during project implementation, that is two weeks before start of construction and during the whole period of construction stage, monthly monitoring on ambient air quality shall be performed at selected locations to check against the national 24-hour PM_{10} value. Pakistan's National Environmental Quality Standard (NEQS) for ambient air (2013) for maximum allowable 24 hours average concentration for respirable particulate matter as PM_{10} is 150 µg/m^3.[1] While the annual average concentration consisting of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval is 150 µg/m^3 for respirable particulate matter as PM_{10}.

4.4 Soil

88. The soil of Wagah is cohesion-less and distributed non-calcareous and calcareous loamy soil. Various soil layers below the ground level includes primarily silt, silt-clay, silt-sand, poorly graded sand with silt, and lean clay.

4.5 Water resources

4.5.1 Surface Water

89. There is no surface water near the project area. However, the nearest surface water in the town of Wagah is the Bambawala Ravie Badian (BRB) Canal and its small branch irrigation canals.

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

Municipal and industrial wastes sometimes pollute these canals which convey irrigation water to nearby agricultural lands.

90. In order to control and prevent contamination of these irrigation waters and all surface and groundwater in Pakistan, the Ministry of Environment has come up with a revised National effluent standards that must be adhered to by all Municipal and industrial establishments. All municipal and industrial wastewaters should be properly treated first through a wastewater treatment facility prior to discharge to the receiving environment. Effluent quality should fall within the water quality standards set by the Ministry of Environment in Pakistan. **Table 4.5.1** shows the Pakistan's National Environmental Quality Standard (NEQS) for municipal and liquid industrial effluents.

Table 4.5.1: Pakistan National Environmental Quality Standard for Municipal and Liquid Industrial Effluents[2]

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

[2] 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
19	Copper [4], mg/L	1	1	1	1
20	Lead [4], mg/L	0.5	0.5	0.5	0.5
21	Mercury [4], mg/L	0.01	0.01	0.01	0.01
22	Selenium [4], mg/L	0.5	0.5	0.5	0.5
23	Nickel [4], mg/L	1	1	1	1
24	Silver [4], mg/L	1	1	1	1
25	Total toxic metals, mg/L	2	2	2	2
26	Zinc, mg/L	5	5	5	5
27	Arsenic [4], mg/L	1	1	1	1
28	Barium [4], mg/L	1.5	1.5	1.5	1.5
29	Iron, mg/L	2	8	8	8
30	Manganese, mg/L	1.5	1.5	1.5	1.5
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.

4.5.2 Groundwater

91. Project area is blessed with rather good groundwater resource in quality and quantity. Chemical quality of groundwater in the area varies with depth. However, the sweet potable water in a belt five to twenty miles wide paralleling the Ravi River. Groundwater is abstracted form aquifer by means of tube wells located throughout the area and served for drinking water for citizens.

4.6 Protected areas

92. In Pakistan National Parks, Wildlife Sanctuaries and Game Reserves are listed as notified protected ecosystems in order to preserve, conserve and manage fauna and vegetation. Visual inspection of the site revealed that forest and vegetation does not entail any environmental sensitive. The site is located on flat lands with vast cultivation under an extensive irrigation system. There are no forests and woodlots, including peripheral areas. However some isolated trees in the surrounding areas may be cut during infrastructural extension and development of the current facilities.

4.7 Forest Vegetation and Terrestrial Ecology

4.7.1 Forest Vegetation

93. There is great biological diversity available in Pakistan. However, approximately half of the wild species available previously have become extinct because of unscientific agriculture expansion, unscientific monoculture afforestation and deforestation, drainage of wetlands, hunting and poaching exploitation of rangelands, urban development, environmental pollution, and population expansion.

94. The project area is void of environmentally sensitive areas, vegetation and other form of ecologically sensitive land and ecosystems. Wagah town is mostly agricultural fields of wheat, rice and other crops.

95. The vegetation of the project area falls under scrub, dry, tropical forest type as per phyto-geographical classification of the area. Inventory data of trees in town of Wagah and Lahore district in general are shown in **Table 4.7.1**.

Table 4.7.1: Inventory of Trees in Lahore District

No.	Common Name	Botanical Name
1	Arjun	*Terminaliaarjuna*
2	Dhak	*Buteafondosa*
3	Mahwa	*Bassialatifola*
4	Bahara	*Terminaliabellerica*
5	Amaltas	*Cassia fistula*
6	Gul-e-nishter	*Erytrinasubrosa*
7	Barringtonia	*Barringtoniaacutengula*
8	Nim	*Meltaindica*
9	Gab	*Diospyoresembryopteris*
10	Berna	*Cratevareligiosa*
11	Khark	*Celtusaustralis*

No.	Common Name	Botanical Name
12	Putajan	*Putranjivaroxburgi*
13	Fiddle wood/KashimirLagotis	*Eithrxyllumrubberratum*
14	Gul-e-mast	*Daliniaindica*
15	Gul-e-mohr	*Poinciana regia*
16	Alstonia	*Alstoniascholaris*
17	Ashoke	*Saracaindica*
18	Sheesham	*Dalbergiasisso*
19	Alata	*Stercoliacolorata*
20	Kenair	*Neriumgrandiflora*
21	Weeping Willow	*Salix babylonica*
22	Keekar	*Parkinsoniaaculeata*
23	Nilem	*Jacaranda mimosfolia*
24	Kechnar	*Bauhinia purpurea*
25	Molsary	*Mimosopelengi*
26	Bel	*Aeglemarmelos*
27	Siris	*Albizialebbek*
28	Tun	*Cedrellatoona*
29	Jamin	*Eugenia jambolana*
30	Moor pankh	*Thujaorientalis*
31	Silkoak	*Grevillearobusta*
32	Sufeda	*Eucalyptus citriodora*
33	Peepal	*Ficusreligiosa*
34	Simbal	*Hiacinthusorientalis*
35	Berri	*Diospyrosmelanoxylon*
36	Sukh chain	*Pongamiagalabra*
37	Poplar	*Populus alba*
38	Alam	*Mangiferaindica*
39	Shehtoot	*Morus alba*

Source: Parks and Horticulture Authority (PHA), Lahore

4.7.2 Terrestrial Fauna

96. Common mammals found are dogs, cats, house rats and bats. Small indian mongoose, indian palm squirrel, cobra and kraits have also been reported.

97. Ornithologists of preceding times documented the number of bird species in Lahore. A study conducted in 1965 there were 240 bird species. However, with the unplanned growth of urbanization, number of species as well as population has reduced to 85 including the resident and migratory species. Major species are listed in **Table 4.7.2**.

Table 4.7.2: List of Bird Species in Lahore District

No.	Common Name	Botanical Name
1	Bank Myna	*Acridotheresginginianus*
2	Blackbird	*Turdusmerula*

No.	Common Name	Botanical Name
3	Black Drongo	*Dicrurusmacrocerus*
4	Rock Pigeon	*Columbia livia*
5	Common Babbler	*Turdoides caudate*
6	Common Myna	*Acridotherestristis*
7	Garden Earbler	*Sylvia borin*
8	Indian Robin	*Saxicoloides*
9	White-Rowed wagtail	*Motacillamadraspatensis*
10	Little Green Bee-Eater	*Meropsorientalis*
11	Asian Pied Starling	*Sturunus contra*
12	Red-Vented Bulbul	*Pycnonotuscafer*
13	Ring-Necked Dove	*Streptopeliacapicola*
14	Long-Tailed Strike	*Laniusschach*
15	Great Spotted Woodpecker	*Dendrocopos major*
16	White/Browed Wagtail	*Motacillamaderaspatensis*
17	Asian Koel	*Eudynamysscolopacea*
18	Common Hawk-Cuckoo	*Cuculusvarius*
19	Common Koel	*Eudynamysscolopacea*
20	Pied Cuckoo	*Clamatorjacobinus*
21	Red Turtle Dove	*Streptopeliatranquebarica*
22	Barbarg Dove	*Streptopeliarisoria*
23	Rose-Ring Parakeet	*Psittaculakrameri*
24	White-Backed Vulture	*Gypusafricanus*
25	White-Breasted Kingfisher	*Halcyon smynensis*

Source: Parks and Horticulture Authority (PHA), Lahore

4.8 Human and Socio-Economic Conditions

4.8.1 Population

98. Estimated population of Lahore district in 2008 was about 8.65 million with total number of housing units about 1.5 million. The population of Wagah town is estimated 656,000.

4.8.2 Ethnic Minorities

99. The main castes and groups of the Lahore District are Arain, Jut, Rajput, Mughal, Sheikh, Komboh, Gujjar, and Pathan. Besides, there are also village artisans, which include Lohars (blacksmith), Tarkhan (carpenter), Kumahrs (potters), Mochis (cobblers), Machhis (water-carries), barbers and weavers etc.

100. As per percentage of population by religion Muslims account for 97.22 percent, Christians about 2.31 percent, and Ahmadis 0.2 percent. While other minorities Sikhs, Hindus and other are very small in numbers.

101. As for languages used for communication between parents and their children in any household, Punjabi is predominant (86.2%), followed by Urdu (10.2%), Pashto (1.9%) and Siraiki (0.4%), and others (0.13%).

4.8.3 Poverty and Disabled People By District

102. The poverty incidence is calculated by estimating the percentage of people who live below the poverty line within the district. Among the five major cities of the Punjab, Lahore shows a middle level development but rural population is much poorer than urban population. Lahore as whole is at 33rd rank among the districts of the Punjab indicating that the poverty is lowest in Lahore than other districts of Punjab.

4.8.4 Economic Structure

103. According to Integrated Master Plan for Lahore-2001, household size of Lahore has been progressively growing over past 40 years. In Lahore District, it increased from 5.8 (persons per HH) in 1961 to 7.2 (persons per HH) in 1998. According to LUTMP household survey average household size in the Study Area is 5.6. This shows a considerable decline since 1998 census. These changes in household size can be attributed to the following reasons:

- In the process of urbanization, male member of the family first moves to an urban area and other members join him in due course;
- The house ownership in low income group is very restrictive, joint family system prevails, consequently the household size increases over a period of time;
- For economic reasons and rising cost of living, the people whether having blood relation or not, prefer to live and expend together.

104. According to Population Census 1998, about 68 percent of total population of Lahore owned a house, 22 percent rented a house and the rest stayed free. Lahore city is facing severe shortage of housing. Although data are limited and not recent, two milestone statistics of 1980 and 1998 showed the situation. Majority of these housing units comprised two to three rooms, with 3 inhabitants per room on average. During this period, the number of inhabitants per unit increased from 6.7 to 7.1. It is an adverse phenomenon not experienced in other countries where household size becomes small as a city grows with economic development. Such household congestion is attributed to high density in urban areas of Lahore. In addition, the most severely affected segment of the population is the low income group. In urban areas over 70 percent of the annual incremental

demand for housing is of low income group who find it extremely difficult to secure developed land plots and construct houses in the schemes by the public sector and cooperative societies.

105. Majority of the households (20%) earn about PKR 200,000 to PKR 300,000, about 19 percent earn PKR 100,000 to PKR 150,000 and only less than two (2) percent earn less than PKR 50,000 per annum. These figures show that most of the people living in Lahore earn reasonable amount of money to support themselves as compared to other cities and rural areas of the Punjab.

4.8.5 Employment

106. Land use the Study Area is mostly either vacant or agricultural field. However, as for industrial activities as well as living conditions Lahore District has a different feature as the second largest financial hub of Pakistan. There has been a steady expansion of industries in and around Lahore since independence. Many large industrial units and modern industrial areas are located. These industrial units consist of textile, leather and rubber footwear, pharmaceutical and other industries.

107. About 9,000 cottage and small to large scale manufacturing industries were operating in Lahore. The spectrum of industries extends from organized, large and medium sized industries, and unorganized traditional cottage industries. The latter is known as the micro/cottage and small scale industries constitute an important segment of the economy. These provide maximum employment and ensure maximum utilization of local resources, both manpower and materials. Large scale manufacturing industries are registered under 77 categories. In 1999, out of 8,468 industrial establishments only 1,239 (about 15%) are registered by which 18.2 percent of the total factories belong to metal products, followed by machinery other than electrical (13.8%), textile products (12.6%), food manufacturing group (7.2%).

108. In Punjab, labor force ('working' plus 'looking for work') accounted for 32 percent of the provincial population during the period 2006-07. In the urban areas, an unemployment rate of 7.5 percent is rather high than that of 4.7 percent in the rural areas. Recent provincial statistics do not show district-level labor force. When working population had a share of 29.4 percent in the provincial population during the period 2003-04, its share was 22 percent in Lahore District due to the mass of students and other reasons. According to the labor survey done by the Urban Unit during 2007-08, Lahore labor force is characterized as mostly service workers by occupation type, social services, trades and commercial activities by industry type.

4.8.6 Public Health

109. According to Punjab Development Statistics 2008, 42 hospitals, 114 dispensaries, 38 BHUs, 12 SHUs and only two (2) TB Clinics are operating in Lahore. Problems being faced by the health sector include:

- inadequate primary health care
- high rate of population growth
- prevalence of communicable diseases
- managerial deficiencies
- inadequate funding
- manpower imbalances

110. Due to the above mentioned problems, the following critical issues arise:

- The public sector hospitals, which serve the majority of low and middle income segments of society, are not able to cope with the continuously increasing healthcare needs of the fast growing population.
- There is an acute shortage of hospital beds, nurses and para-medical staff in the hospitals.

111. Primary health care facilities (dispensaries, NCH etc.) are quite inadequate.

4.8.7 Land Uses and Facilities

112. Land use data of Lahore Area, which was surveyed in 2001 shows that land is mostly covered by vacant or under agricultural use (76.2%), followed by residential use (9.8%), cantonment (4.0%), and transportation use including network and terminals (1.9%). Wagah town alone comprise only with a very large portion of agricultural area and a few spots of residential areas. **Figure 4.8.1** illustrates the land use map of Lahore.

4.8.8 Road Network in the Project Area

113. The only road network to the project site is the Grand Trunk Road. About 85% of roads in Lahore are paved by asphalt or concrete pavement roads and in rural areas road is either gravel or earth. The right of way in Lahore city is wide and surface condition of most roads is good in general. Going to and from the project site through the G.T. Road is wide and fast but road network within the city of Lahore is narrowed by improper parking of vehicles within the city.

4.8.9 Educational Facilities

114. Lahore city is the nearest area to the project site with educational facility. It is also known as an educational hub in the country. High schools and higher educational facilities are concentrated in the city. The number of all types of students is estimated at approximately 883,000. Six hundred

fifty-one thousand (651,000) of which go to high schools or higher education facilities and they mostly need longer trips to the education places than primary and middle school students. In Lahore, there are 24 universities. 11 universities are relatively new, mostly established after 1990. The largest university is University of the Punjab (30,000 students), followed by the University of Lahore (11,500 students), and University of Engineering and Technology (UET), Lahore (8,865 students).

4.8.10 Public Services and Utilities

115. The project site itself, Wagah Integrated Checkpost, is the public service in the area with limited and out dated facilities. The project will enhance the facility and capability of the current checkpost.

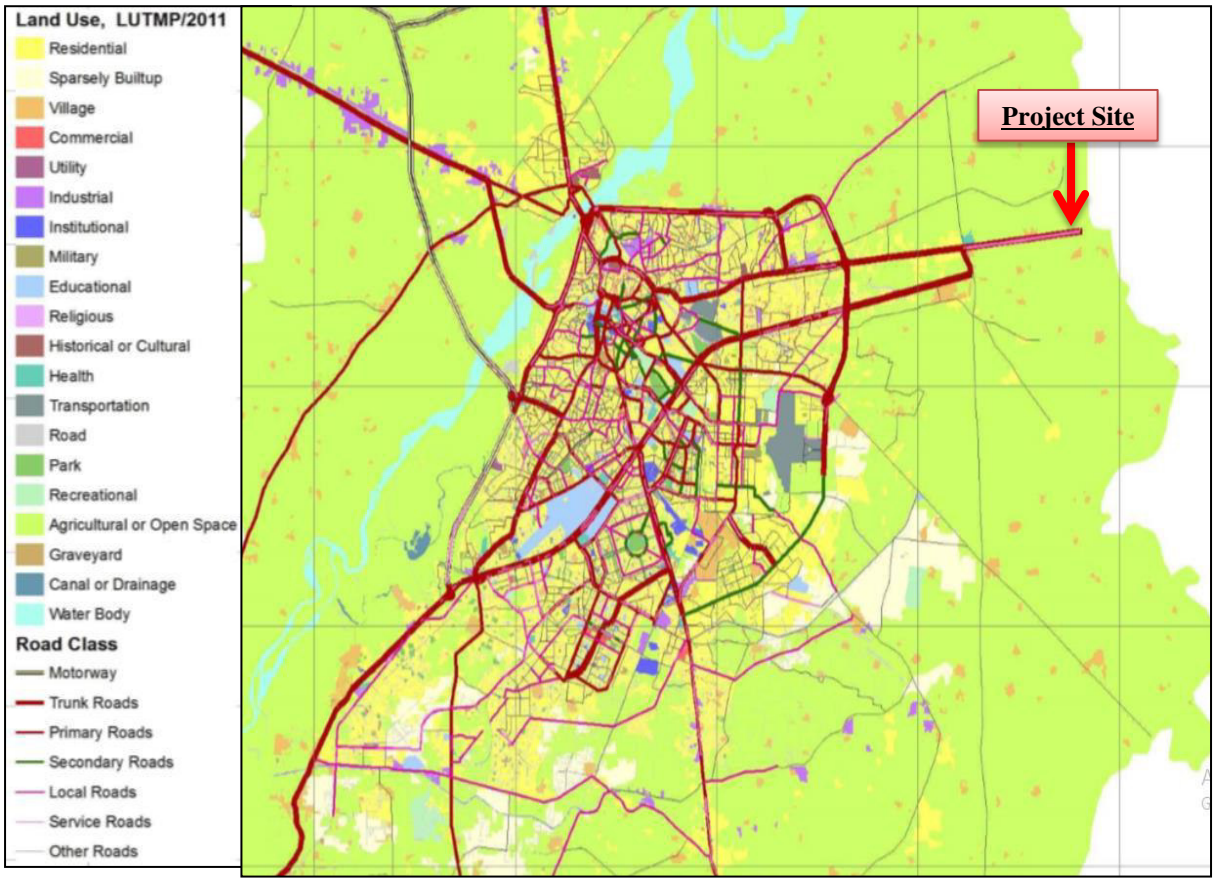


Figure 4.8.1: Land Use Map of Lahore

4.8.11 Communities / Project Stakeholders

116. Three major categories of project stakeholders were identified for the Wagah BCP: (i) government institutions who are involved in the management of border activities at Wagah (ii)

border communities that reside or have commercial interests in the border environs (iii) frequent users of the border facilities.

117. The following are the identified key stakeholders:

- Border Managers (FBR, FIA and NLC)
- Border Communities (displaced persons, village elders and women)
- Border user groups (truck drivers and pedestrians)

118. 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

119. 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.

120. 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.

121. 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

122. The area required to implement the proposed development project is 141.5 acres. The existing area being occupied by Wagah BCP is less than the required 141.5 acres. In this case, land acquisition is required.

123. ***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

124. The project area is located within area with moderate 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 seismic events in the project site.

125. ***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

126. 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.

127. ***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. Moreover, planting vegetation within the project location will also minimize impact of dusts.

5.3.2 Noise and vibration

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

129. ***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)

130. 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. Storm run-off which may be contaminated by pollutants released by vehicles in the border crossing area may also affect nearby canal.

131. ***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.)

- Where earthworks take place adjacent to watercourses, silt traps shall be instead prior to the commitment of earthwork activity.

5.3.4 Waste handling and spill response

132. 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.

133. 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.

134. ***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).

135. 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.

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

137. 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

138. 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. Based on site observation, there is no important cultural property within and the immediate vicinity of the project site. As part of its religious cultural heritage, Wagah is regularly celebrating annual fair or fiesta at Wagah Plaza located just within the vicinity of the border crossing. This annual event or celebration will not be affected by the construction of the project.

139. Likewise, there is no protected area found within or around the project site.

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

5.3.6 Occupational health hazards for construction workers

141. 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.

142. ***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.

143. 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

144. 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.

145. 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.

146. 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.

147. ***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

148. 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.

149. 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.

150. ***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.

151. 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[3]

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

152. 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.

[3] 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.

153. ***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.

154. 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[4]

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

155. 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.

156. ***Mitigation Measure:*** Multi-chambered septic tanks could easily treat generated domestic wastewater of employees. **Table 4.5.1** listed down the national effluent quality standards set for municipal and industrial wastewater that must be complied with by the project prior to discharge of its generated wastewater to the receiving environment. Regular monitoring of effluent water quality shall be conducted by the project to ensure compliance of the Project Proponent into its local environmental laws.

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

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. Water Contamination							
Run-off Waters	Hazardous materials required for construction shall be stored at least 20m away from the water sources Construction vehicles must be maintained regularly to avoid leakage of oil or fuel Sanitation at worksites will be		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
	implemented ensuring no raw sewerage is released in drains and water sources						
5. 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
6. Safety & Accident Risks							
Construction Activities & Accident Risks	Safety signals and signage will be installed on all critical locations during construction Workers will be provided helmets, masks, safety goggles etc. Appropriate training programs for workers A readily available first aid unit, dressing materials, ambulance & nursing staff will be ensured at critical locations.		At various locations within project site.	During construction (monthly)	To be included in bid cost by the contractor.	Contractor	PIU/ Construction Supervision Consultant

Environmental Issues & Components	Remedial Measure	Reference to Contract Document	Approximate Location	Timeframe and Frequency	Mitigation Cost	Institutional Responsibility	
						Implementation	Supervision
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 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.		At various locations within project site.	During construction (monthly)	To be included in bid cost by the contractor.	Contractor	PIU/ Construction Supervision Consultant
Operation Phase							
Dust Generation	Unnecessary vehicular activities will be reduced to		At various locations within project site.	During project operation	To be included in	Contractor	PIU/ Construction

Environmental Issues & Components	Remedial Measure	Reference to Contract Document	Approximate Location	Timeframe and Frequency	Mitigation Cost	Institutional Responsibility	
						Implementation	Supervision
	minimize dust generation Development and regular cleaning of road and parking pavement Dust suppression to be done on regular basis.			(twice a year for three years)	bid cost by the contractor.		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
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

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

158. The DN scenario includes no infrastructure improvements to the existing border crossing point will be implemented. Wagah BCP appraisal under the Feasibility Study[5] cited the following challenges that need to be addressed:

- Absence of a good CCTV system and inter agency monitoring control room.
- Absence of emergency alarms.
- Absence of a Public Announcement (PA) System.
- No good standard telecom system is in place.
- Poor pedestrian screening system.
- Absence of good perimeter fencing system.
- There is no intrusion detection system installed.
- Access control is manual.
- Absence of armory for safe keeping of arms and ammo.
- Absence of fire fighting equipment and other fire fighting mechanisms.
- Lack or absence of good standard operating procedures (SOPs) and preventative measures and emergency drills.
- Absence of Hydraulic barriers in exit and entry vehicle lanes for stopping vehicles.
- Untrained staff on security related issues.
- Inadequate area and task lightning.
- Absence of blast protection such as Hesco Bags and concrete blocks for all exit and entry areas, facility walls or Hesco bags.
- Inadequate staff radio equipment and common communication systems linking each agency team.
- Absence of Chemical, Biological, Radioactive and Nuclear scanning equipment.
- Absence of Narcotics Particulate Trace Detection Equipment.
- Absence of Vehicle Number Plate Scanning Equipment.

[5] TA – 8405 PAK: Improving Border Services Project Final Report, Asian Development Bank, July 2014, p.61

- Absence of explosive, narcotic, biological, cigarette and currency sniffer dogs, kennels and veterinary support facilities;
- Absence of hand held explosive and narcotics Vapor Tracing Equipment.
- Absence of Bio-data reading and collection equipment.
- Absence of RFID tags/scanners and allied equipment.
- Absence of Quarantine areas.
- Absence of Luggage Inspection scanning equipment.
- Absence of Hand-held Metal detectors.
- Absence of Walk-through gates.
- Document and Currency Examination Instruments.
- Absence of Walk-through Explosive and narcotic Trace detectors.
- Absence of Explosive Detection Equipment.
- Absence of vehicle and cargo X-Ray Inspection Equipment.
- Lack iris recognition equipment (long term transition).

159. 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.

160. 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

161. 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.

162. 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.

163. 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

164. Stakeholders identified for this project who were engaged in various consultation and participatory processes are as follows:

(i) government institutions who are involved in the management of border activities at Wagah;
(ii) border communities that reside or have commercial interests in the border environs; and,
(iii) frequent users of the border facilities.

165. These stakeholders are identified in Table 7.2.1.

Table 7.2.1: Stakeholders and Consultation Tools for Wagah BCP

Stakeholder No.	Stakeholder Type	Stakeholders
1	Border Managers	• FBR • FIA • NLC
2	Border Communities	• Displaced Persons • Village Elders • Women
3	Border User Groups	• Truck Drivers • Pedestrians

Consultations with these stakeholders were undertaken using various schemes of consultation tools as follows:

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

7.3 Approach for Public Consultation and Objectives

166. 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

167. 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;

168. 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 Wagah 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

169. 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.

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

Date	Venue	Purpose	Attendees	Concerns	Record of Meeting
13 November 2014 5 December 2014	Custom Office, Wagah 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.	Deputy Collector customs, Mr. Tauqeer Ahmad Dar Members of the Study Team	Environmental concern such as lack of modern equipment for the quarantine cell and dusty environment were observed during field visit at Wagah border crossing point; see Annex 3-1 for the rapid environmental appraisal. Custom officials are very much receptive in complying environment requirements of EPA but no designated environmental officer yet.	See **Annex 3-1**
November 14, 2014	Wagah, Border Crossing Point	To get a first-hand appreciation of the project site's physical location; and ii) to gather primary data related to the a) magnitude of project affected people	Social Development Team (Mr. Syed Nadeem Arif and Jerry Leones. Mr. Saquib Ejaz Hussain)	In terms of projected project-affected people, no impact is expected since no households are living within the border and	See **Annex 3-2**

		and/or communities; and b) a situationer of the planned relocation site such as its location, size in terms of hectares, topography, the types of landowners, the contact numbers and/or e-mails of the landowners, and amenities available		in the adjacent expansion area of Wagah border. See Annex 3-2 for field observations and data gathering.	

171. The stakeholder consultations for Wagah BCP were held in various occasions as illustrated in **Table 7.2.2**.

Table 7.2.2: Stakeholder Consultations Conducted for Wagah BCP

S.No.	Stakeholder	Tools	Date	Venue
1	Senior Manager NLC, Wagah	Consultative Meeting	28-02-15	Office of NLC Manager, Wagah
2	Assistant Director FIA (Immigration), Wagah	Consultative Meeting	28-02-15	Office of AD FIA (Immigration), Wagah
3	Deputy Collector Customs, FBR, Wagah	Consultative Meeting	28-02-15	Office of DC, Customs, Wagah
4	Village Elders	Focus Group Discussion	04-02-15	Dera of Haji Ashraf, Mouza Bhano Chack
5	Displaced Persons	Focus Group Discussion	07-02-15	Dera of M. Riaz, Mouza Wagah
6	Women	Focus Group Discussion, Semi-structured interviews	05-02-15	Selected households in community
7	Truck Drivers	Semi-structured-interviews	06-02-15 to 08-02-15	Trade Terminal, Wagah
8	Pedestrians	Semi-structured interviews	05-02-15 to 06-02-15	Passenger Terminal, Wagah

172. 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	Hurmat Khan	Local Revenue Official
2	Haji Sajjad	Landlord; property dealer
3	Haji Ashraf	Labor Contractor
4	Imran Majeed	Clearing Agent
5	Dr. Sajjad	Doctor
6	Abdul Hameed	Landlord
7	Mohammad Ismail	Landlord
8	Mohammad Shakeel	Treasurer

S. No.	Names	Occupation
9	Naeem Ashraf	Labor Contractor
1	Muhammad Umer	Landlord
2	Mohammad Hanif	Landlord
3	Mohammad Riaz	Advocate
4	Mohammad Aslam	Landlord
5	Mohammad Arif	Landlord
6	Master Jawed	Teacher
7	Master Sharif	Teacher

173. **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
Village Elders and Displaced Persons	1) The village elders were pleased to hear about the modernization of Wagah BCP and welcomed the survey team's efforts to consult villagers regarding the same. The village elders see the proposed upgradation of the new terminal as an avenue for increased economic activity in the area. 2) Nearly 70% of the villagers' livelihood is associated with activities at Wagah BCP. The village elders demanded that the project executants should give preference to village residents for employment opportunities during the construction and post-construction phase. 3) Based on previous experience of little or no compensation during land acquisition in 2000 and 2005, the villagers are concerned about receiving proper compensation. They are willing to sell their lands in the national interest, but are concerned about fair and timely compensation. In 2010/11, land was being sold for Rs. 17,000-20,000/marla, but rates have increased significantly since then. 4) The community representatives were concerned that as per the proposed project plans, many of their land owners will lose parcels of their land. The remaining part of the land that will not be acquired will be useless; they cannot use it to meet their livelihoods nor will it have any significant market value. Therefore, they demand that those land owners who will have very small parcels of land remaining in their ownership after acquisition, should be compensated for their entire land. 5) A uniform compensation rate should not be applied; the location of the land to the road and other market factors should be analyzed in determination of a final rate. 6) With regards to receiving compensation, a draft rate should be shared first with the village elders and representatives of DPs families before finalization. A third-party should be involved in all aspects of the compensation process to ensure a fair and transparent compensation process. 7) The communities enjoy a pleasant natural environment free from the noise and pollution of city life. They are concerned that their existing pleasant natural environment will be disturbed by the influx of workers and construction vehicles. 8) Existing dusty roads are already not meeting the capacity of villagers, with this new project, the villagers foresee that village roads will get over-burdened and villagers' mobility will be affected. 9) The villagers complained that there are no proper designated places

	for waste disposal; they often dispose their waste near their homes, which is an environmental and health hazard for the community. The construction phase of the project should ensure that it does not add to the waste problems of our area and, if possible, develop a waste management system that also helps the villagers.
Women's Group	1) Loss of residence - Approximately, a third of the women respondents (31 %) were concerned that their houses may be demolished 2) Lack of compensation - Women were concerned about receiving proper compensation 3) Security of women - Women were concerned with respect to the security of their girls who go out for studying and women who work in the fields 4) Mobility of women - Approximately 18 % of the women were concerned that mobility of female villagers may be effected due to influx of outsiders 5) Loss of agricultural output- Loss of agricultural output and fodder for animals

174. Summary of community concerns and suggestions identified during consultation meetings with the village elders and displaced persons are provided in **Table 7.2.5**.

Table 7.2.5: Summary of Community Concerns and Remedial Measures

S.No.	Community Concerns	Suggested Remedial Measures
1.	Proper compensation for villagers' lands	Compensation should reflect existing market rates
2.	Those landowners who will have very little parcels of land left (residual land) after land acquisition, will not be able to use their lands for any productive purpose	Compensation rates should incorporate the issue of residual land, where applicable
3.	Application of a uniform rate for all lands, without consideration to location of land and type of land use (residential, commercial, agricultural)	Final rates should factor in the location of the land and land use
4	Due to their past experience of land acquisition, the villagers have a mistrust for government authorities	A third-party should be engaged to carry out the entire process of consultation, compensation, disclosure. Land owners will share their suggestions and grievance with the third-party
5	Employment for community members	The community members should be preferred to outsiders for employment during construction and post-construction phase.
6.	Traffic jam and noise pollution during the construction phase	Incorporate in the Environmental Management Plan
7.	Environmental and health hazards due to waste from construction	Incorporate in the Environmental Management Plan

175. In summary, major environment related issues and concerns tackled during these consultation meetings were focused on traffic, noise and waste generation of the project. For these specific issues and concerns, it was mentioned during the consultation meetings that appropriate environmental management plans such as traffic management, noise management and waste management plans shall be implemented at various stages of the project. On top of these, it was also mentioned that all identified environmental impacts shall be addressed by implementing all the EMPs that are proposed and recommended for implementation in this IEE document.

Chapter 8
GRIEVANCE REDRESS MECHANISM

8.0 GRIEVANCE REDRESS MECHANISM (GRM)

1. A grievance redress mechanism (GRM)[6] for the Project shall be established by the Federal Board of Revenue as part of the overall project management system.

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

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

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

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

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

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

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

Step 1: Individuals will lodge their environmental complaint/grievance with their respective community's nominated GFP;

Step 2: The GFP will bring the individual's complaint to the attention of the Contractor.

Step 3: The Contractor will record the complaint in the onsite Environmental Complaints Register or log book in the presence of the GFP;

Step 4: The GFP will discuss the complaint with the Contractor and have it resolved;

Step 5: If the Contractor does not resolve the complaint within one week, then the GFP will bring the complaint to the attention of the Project's Environmental Specialist. The Environment Specialist will then be responsible for coordinating with the Contractor in solving the issue.

Step 6: If the Complaint is not resolved within 2 weeks the GFP will present the complaint to the Grievance Redress Committee (GRC);

Step 7: The GRC will have to resolve the complaint within a period of 2 weeks and the resolved complaint will have to be communicated back to the community. The Contractor will then record the complaint as resolved and closed in the Environmental Complaints Register or log book.

Step 8: In parallel to the Contractor's ECR recording of the complaint, each GFP will maintain a record of the complaints received and will follow up on their rapid resolution.

Step 9: If the grievance is not resolved through this process, the issue will be taken to the local legal structures.

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

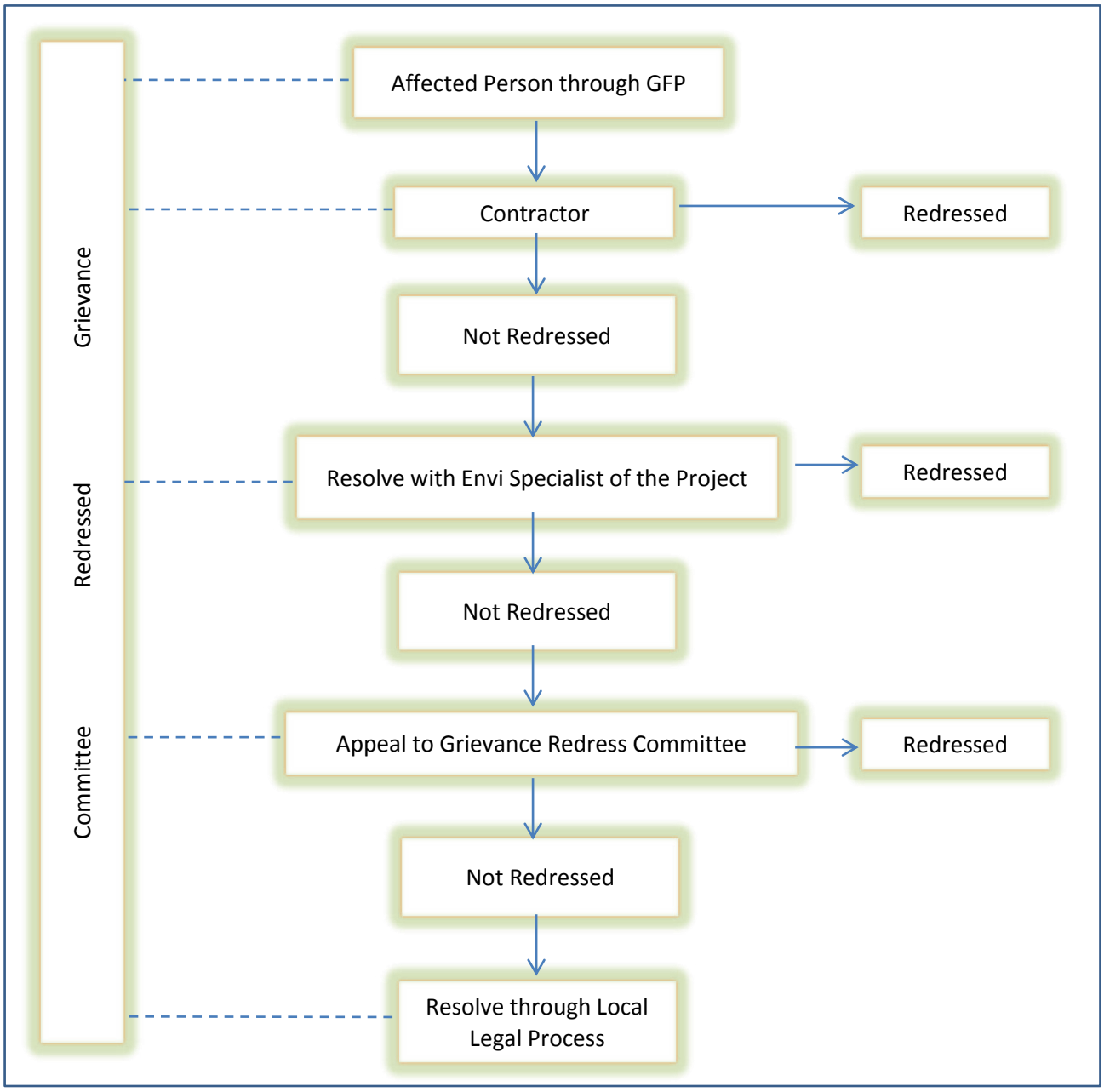


Figure 8.1.1: Proposed grievance redress mechanisms

Chapter 9
ENVIRONMENTAL MANAGEMENT PLAN

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

9.1 Responsibilities for EMP Implementation

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

Table 9.1.1: Environmental Management Plan

Entry/Organization	EMP Responsibility
BFR	• Executing agency with overall responsibility for the Project • Ensure that sufficient funds are available to properly implement the EMP • Ensure that EMP provisions are implemented for the entire Project regardless of financing source. • Ensure that Project implementation complies with the GoP and ADB's environmental policy principles and requirements
PIU	• Project implementing agency with overall responsibility for project construction and operation including environmental performance • Allocation of adequate financial and human resources to fulfill environmental commitments during project construction and operation • Establish a grievance redress mechanism as described in the IEE • Designate an environmental and safeguard officer to oversee implementation of the EMP • Ensure that tender and contract documents include the EMP • Undertake monitoring of the implementation of the EMP (mitigation and monitoring measures) • Submit bi-annual 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 • Implement all mitigation and monitoring measures for various project phases

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

9.2 Environmental Monitoring

9.2.1 Objective and Rationale

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

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

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

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

9.2.2 Monitoring of Construction Impacts

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

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

9.2.3 Monitoring of Impacts of Operation Phase

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

9.2.4 Monitoring Parameters

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

Monitoring Parameters	Pakistan National Environment Quality Standards (NEQS)	
• **Ambient Air Quality mainly PM10**	Annual average	24 hours
	120 µg/m^3	150 µg/m^3

• **Ambient noise levels:**					
Area/Zone		Day Time (Limit in dB(A))		Night Time	
1	Residential area (A)	55		45	
2	Commercial area (B)	65		55	
3	Industrial area (C)	75		65	
4	Silence zone (D)	50		45	
• **Water quality:**					
		Revised Standards			
1	Temperature (ºC)*	Existing Standards	Into Inland Waters	Into Sewage Treatment	Into Sea
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***

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

Table 9.2.1: Cost of Environmental Monitoring Works

Project Stage	Parameters	Quantity per monitoring occasion	Details per monitoring occasion	Amount per monitoring occasion (PKR)
Air Quality				
Pre-Construction	PM_{10}, NOx, SOx, CO	4	4 samples x 40,000 PKR/sample	160,000.00
Construction	PM_{10}, NOx, SOx, CO	4	4 samples x 40,000 PKR/sample	160,000.00
Operation	PM_{10}, NOx, SOx, CO	4	4 samples x 40,000 PKR/sample	160,000.00
Water Quality (Wagah)				
Construction	pH, BOD, COD, TDS, Dissolved oxygen, and Coliforms	5	5 samples x PKR 35,000/sample	175,000.00

Project Stage	Parameters	Quantity per monitoring occasion	Details per monitoring occasion	Amount per monitoring occasion (PKR)
Operation	pH, BOD, COD, TDS, Dissolved oxygen, and Coliforms	5	5 samples x PKR 35,000/sample	175,000.00
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				926,000.00

9.3 Environmental Capacity Building and Training

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

21. During the capability building activities, the PIU with technical assistance from the Construction Supervision Consultant (CSC) should be able to prepare and submit the Monthly Environmental Reports or the Quarterly Environmental Reports to the Federal Board of Revenue for further verification and submission to ADB.

9.4 Summary Cost of EMP

22. **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	926,000.00 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
Water Quality (Wagah)						
Construction	pH, BOD, COD, TDS, Dissolved oxygen, and Coliforms	Community ground water sources near edge of the crossing point property	WHO and NEQS	Three sampling locations using 1 shallow well; 1 deepwell and 1 irrigation channel	Monthly	
Operation	pH, BOD, COD, TDS, Dissolved oxygen, and Coliforms	Community ground water sources near edge of the crossing point property	WHO and NEQS	Three sampling locations using 1 shallow well; 1 deepwell and 1 irrigation channel	Twice a year	
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

Project Stage	Parameters	Details	Standards to be applied	location	Frequency	Duration
Operation	Noise levels on dB(A) scale	Two to four locations: Background noise for noise sensitive receptor area (i.e., pedestrian lanes, commercial area, custom office area)	PEPA NEQS (noise) 1993	Four selected locations	Once a year	24 hr reading taken at 15sec intervals over 15min every hr. and then averaged
VEGETATION COVER						
Pre-Construction and construction	Number of trees felled	only marked trees to be felled	as per detailed design	All along Project Corridor	Monthly or when necessary	During marking and vegetation clearing
Operation	Survival rates of trees and re-vegetation	On each visit number of surviving trees to be compared to the number of saplings planted	Survival rate to be 75% or above, below which replantation will be done	plantation sites	every year for three years	

Table 9.3.1: Proposed Capacity Building and Training

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

Chapter 10
CONCLUSIONS AND RECOMMENDATIONS

23. The project shall be implemented within the premises and adjacent areas of the existing Wagah 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.

24. 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.

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

BIBLIOGRAPHY

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

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

Field Visit Report (Environment), Wagah Border Crossing Point. 13 November/5 December 2014

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

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

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

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

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

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

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

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

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

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

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

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

Webliography:

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

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

Annex 1

Rapid Environmental Assessment (REA)
TA845 -PAK: Border Services Improvement (Phase II) Project
Wagah 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. • Most of the surrounding areas are agricultural
• 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. • The ceremonial gate just in front of the border gate shall

Annex 1

Screening Questions	Yes	No	Remarks
			be enhanced and could become of the tourism attraction in the area
• encroachment on precious ecology (e.g. sensitive or protected areas)?		x	• no nearby sensitive or protected areas • no encroachment on precious ecology
• alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site?		x	• the area is surrounded with canals or manmade creek for irrigation purposes thus EMP must addressed possible siltation of these canals/creek
• deterioration of surface water quality due to silt runoff and sanitary wastes from worker- based camps and chemicals used in construction?		x	• deterioration of surface water quality due to silt runoff and sanitary wastes from worker- based camps and chemicals used in construction could be a problem; • appropriate EMP will be employed
• 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

Annex 1

Screening Questions	Yes	No	Remarks
			built up areas
• dislocation and compulsory resettlement of people living in right-of-way?		x	• there will be acquisition of land to be addressed under land and resettlement action plan; • just compensation and rightful entitlements shall be provided to PAPs
• disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		x	• the project will positively impact the poor and women as the project is a poverty alleviation project; • The project will be beneficial to people particularly those who will be involved in the project.
• other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress?		x	• Construction works have potential to increase noise level and dust concentration, but the impact will be short term. • Good construction practices to mitigate dust and other disturbances will be specified in EMP.
• hazardous driving conditions where construction interferes with pre-existing roads?		x	• the project construction can be planned to avoid this hazardous conditions • contractors will be required to prepare and implement BCP internal traffic /safety management plan.
• poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations?	x		• proper camping sites shall be provided for non-local workers, the number of them is expected to be small; • priority in labor employment will be given to local residents; • awareness on occupational health shall be provided to camp workers
• 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	x		• Traffic in the area can be

Screening Questions	Yes	No	Remarks
accidental spills of toxic materials?			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 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 irrigation canals, 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

Screening Questions	Yes	No	Remarks
			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		• Wagah 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 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

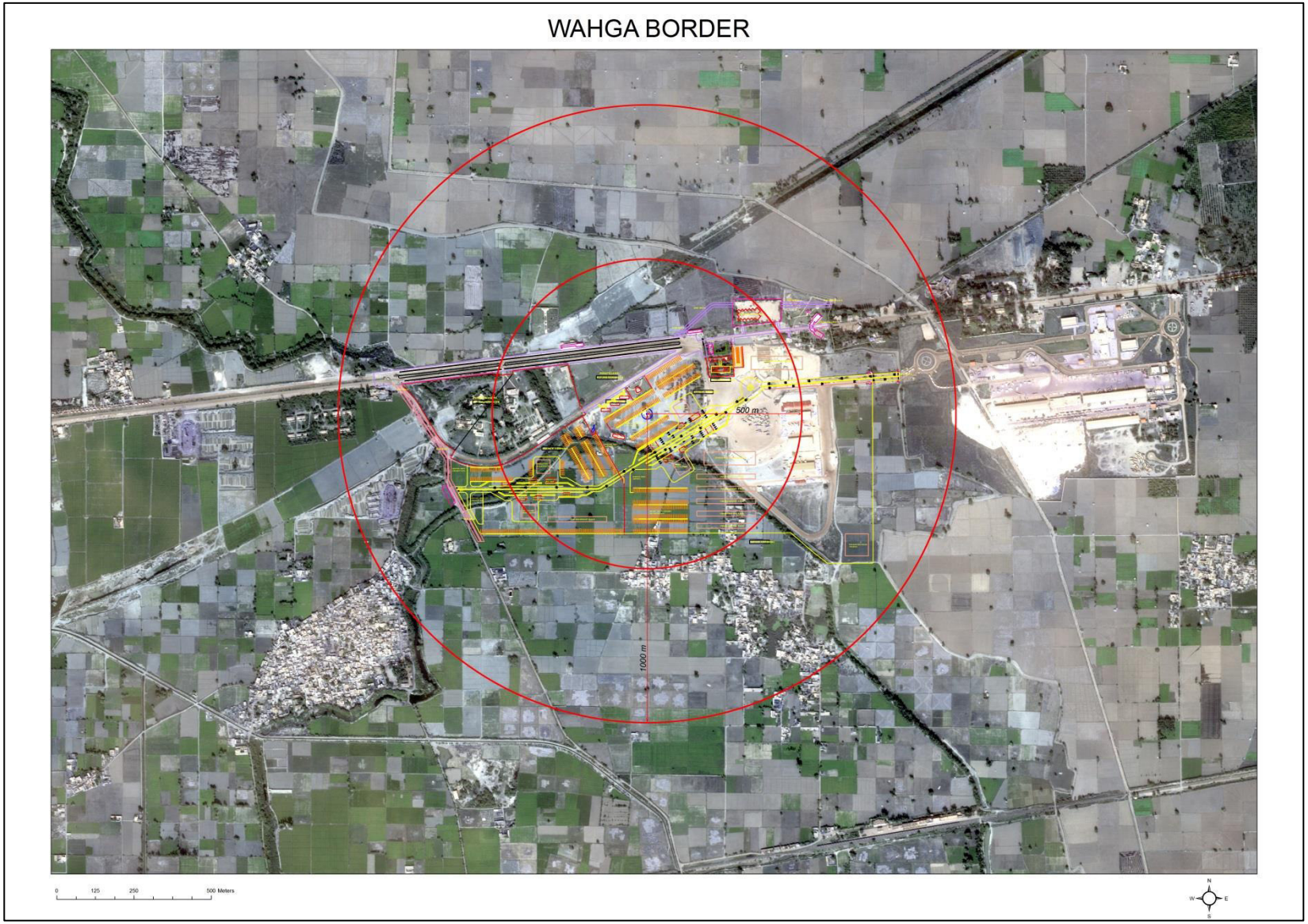
D. Environment Categorization

Annex 1

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

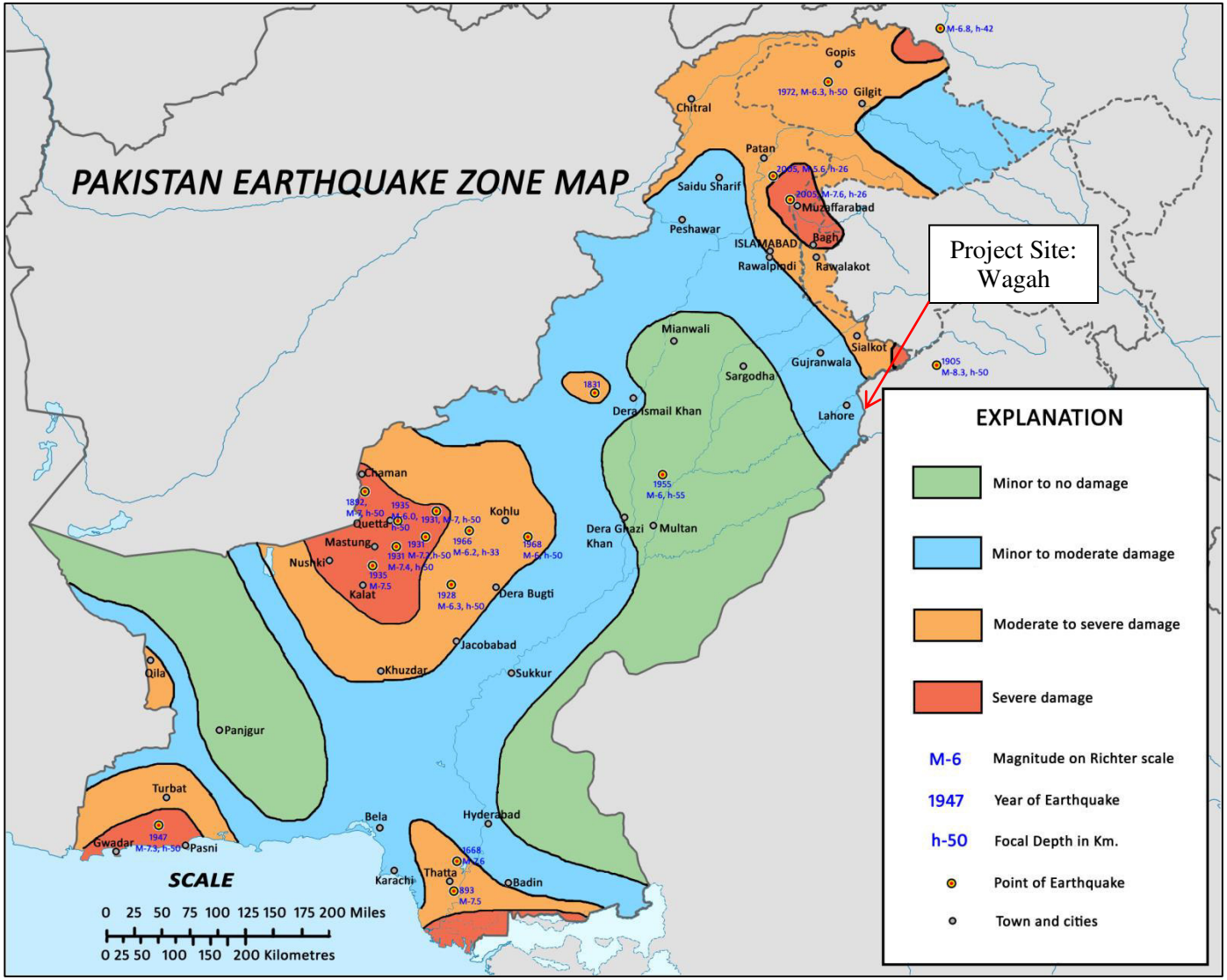
Annex 1

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



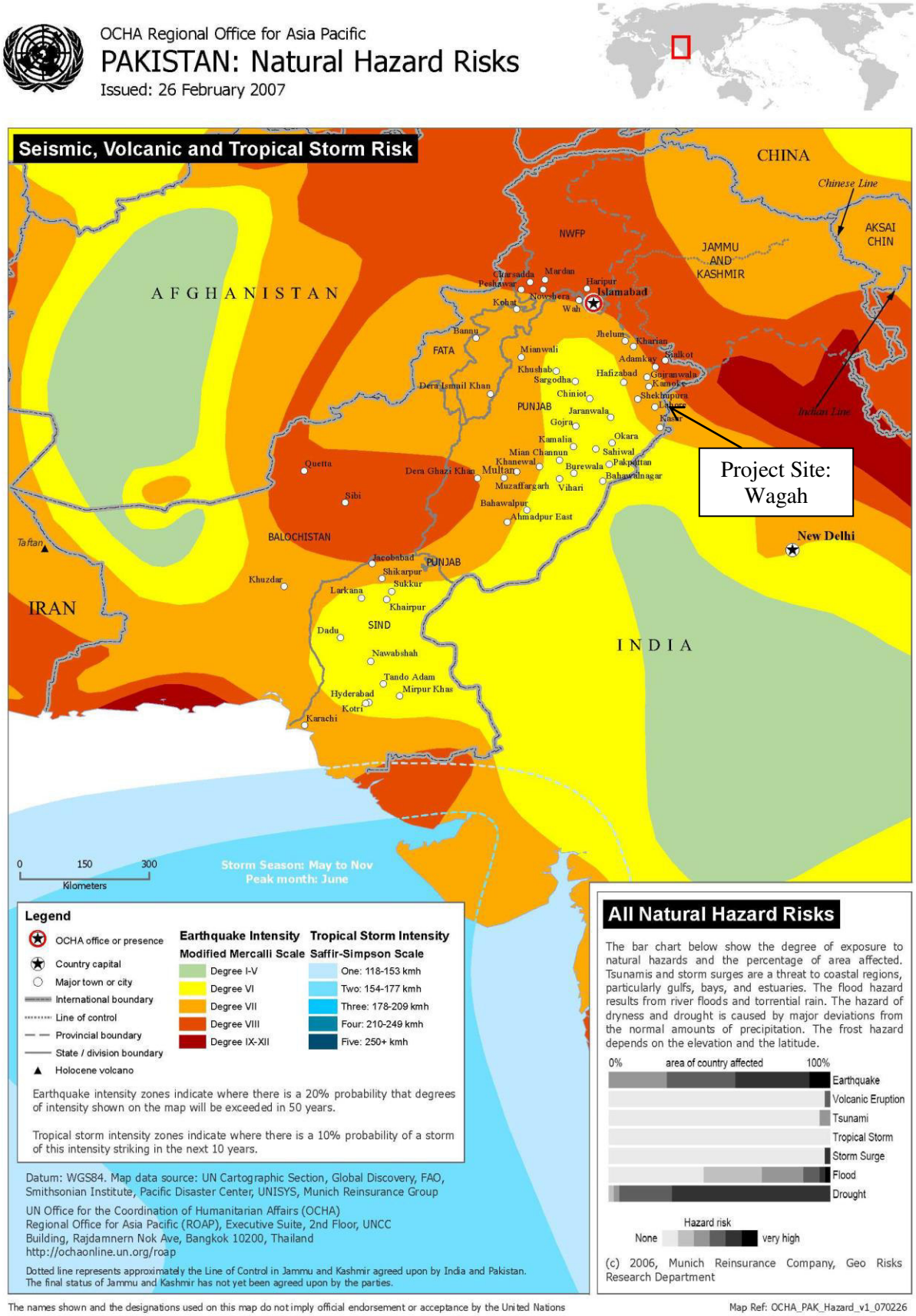
Annex 1

Map 2: Seismic Hazard Zone of Pakistan



Annex 1

Map 3: Composite Hazard Map of Pakistan



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

Annex 2

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

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

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

Dear Sir/Madam,

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

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

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

(Dr. Mohammad Khurshid)
Director General

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

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

Annex 3:

1. **FIELD VISIT REPORT (ENVIRONMENT)**
   WAGAH BORDER CROSSING POINT
   13 November/December 5, 2014
2. **Result of the November 13, 2014**
   Wagah Project Site Visit
   TA-8405 PAK: Improving Border
   Services Project, November 14, 2014
   Social Development Team

FIELD VISIT REPORT (ENVIRONMENT)
WAGAH BORDER CROSSING POINT
13 November/December 5, 2014

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.

On 13 Nov 2014 and 5 Dec. 2014, an appraisal visit was made to Wagah border by a composite team of ECIL, including the environmentalist. The team also held a meeting with Deputy Collector customs, Mr. Tauqeer Ahmad Dar. The main objective of the meeting was to collect information regarding the current facilities present on storage yard, and the procedures adopted by customs and National Logistic Cell (NLC) for export, import and transit trade with India. During meeting both sides adopted a positive posture, followed by a field visit of overall trade facilitation system on boarder, including storage yard for different commodities, scanning system, routes of movement, checking, loading and unloading areas inside the storage yard. In this way baseline information was obtained by all team members for their relevant disciplines.

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
<u>On project site</u>:			
1) Densely populated		X	The project is near Lahore City. However the surrounding vicinity is void of built up areas. People are of transient in nature from both Pakistan and India sides; Quite a big number of trucks with drivers and truck crews are queuing

			outside and said to be staying for around 2 to 3 days before their commodities could be processed at the border crossing. The need for temporary accommodations is evident for these truck drivers and crews.
2) Heavy with development activities		X	The area has sporadic structures and subdivided by permanent to temporary fences; Some building are said to be old (around 50 years or more) and may need full refurbishment or replacement. 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. All surrounding vicinities are either vacant lots or agricultural areas.
On the proposed project's potential environmental impacts			
4) Impacts on the sustainability of associated sanitation and solid waste disposal systems	Yes		At present, the Custom Office is relying on the services of Lahore local government for their solid waste collection and disposal; However, the institutionalization of more systematize sanitation and solid waste disposal systems are warranted and will be part of the EMP.
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		No	The project area is void of environmentally sensitive areas, vegetation and other form of ecologically sensitive land and ecosystems.

forests)			
7) Degradation of cultural property, and loss of cultural heritage and tourism revenues?		No	There is no important cultural property within the immediate vicinity of the project site. With the project implemented, 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 and fugitive dust 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 resource in the area; There is no nearby surface water. Groundwater source is about 140 ft (as estimated by the custom officer).
10) Air pollution due from trucks and other vehicular activities	Yes		Generation of fugitive dust from active vehicular activities is a present problem and is an imminent problem (that may be exacerbated) once the 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 groundwater is abundantly available in the area; In the long term, the use of septic tanks at present may be a treat to groundwater pollution since it was said that groundwater is only about 140 ft (43 meters).
16) Overpaying of ground water, leading to land subsidence, lowered ground water table, and salinization?		X	The surrounding area is all agricultural area. Threat of pollution from agrochemicals may be a problem but definitely will not cause by the proposed project. The area is far from sea or ocean thus 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.
17) Contamination of surface and ground waters due to improper waste disposal?		X	No surface water is present near the area.
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. General Findings

In the light of meeting with Deputy Collector Customs, appraisal visit to the site and visual observations of flora and fauna, and the general eco-system of the project corridor, some salient findings have been noted. The same are summarized as under:

a. During briefing, discussion and videos presentation by the Deputy Collector Custom, it was learnt that NLC has a quarantine cell at storage yard, which confirms proper inspection and testing of the imported edible items, especially vegetables including tomatoes and chilies etc. The authorized quarantine officer examines the vegetables for insects/ pests, infection/diseases and fungal infections etc. and issues a clearance certificate. However, instead of using modern laboratory or instrumental testing facilities, they rely on visual inspection which may falter as it cannot compete with the scientific methods. From these discussions and site visit, the environmental team has to probe further for following:

   - Quantum of vegetables organic solid wastes, including infected, diseased and rotten on site.
   - Methodological arrangement for handling / collection of solid wastes.
   - Type of protective measures for labors employed on loading and.
   - Disposal arrangement of discarded and spoiled vegetables. Because any kind of mishandling or improper disposal of these wastes may affect the surrounding agricultural lands, water bodies and wildlife especially birds which are attracted and feed on these vegetables inside the storage yard.

b. Visual inspection of the site revealed that forest and vegetation does not entail any environmental sensitive. The site is located on flat lands with vast cultivation under an extensive irrigation system. There are no forests and woodlots, including peripheral areas. However some isolated trees in the surrounding areas may be cut during infrastructural extension and development of the current facilities.

c. The issue of land acquisition was also discussed with custom officials. According to their statements, NLC has sufficient land adjacent to the existing dry port/ storage yard.

d. During meeting a list of medicinal plants, exporting by Pakistan, are acquired from the custom office. Further data regarding these plants will be collected during the detailed environmental survey.

e. Visually, the ambient air quality of average adequate standards, as the project site is well away from the industrial zones and traffic congestions of Lahore city. Due to movement of heavy trucks, some temporary air congestion noted due to dust and vehicular emissions. Same holds true for noise pollutants. Such negative factors may affect workers health, which needs to be probed further.

4. Specific Findings

a. In view of Pakistan Environmental Protection Act 1997, Wagah 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. Since the project is an ADB funded project, 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.

b. The Custom Officials when asked if there are the plans for meeting the EPA requirements for environmental compliance, the officials were receptive of the idea. Although at present, there is no EPA compliance being undertaken. The Deputy Director said that any proposal to improve the environmental performance of the Wagah 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 only two chemicals are being processed at Wagah. There are CO_2 (as import commodity) and hydrogen peroxide and caustic soda (as export commodity). Dwell time is not more than 24 hours. The need for special storage is not anymore warranted.

d. Solid waste collection at the border crossing area is being taken care of Lahore local government.

e. Water supply from deep wells is not perceived as scarce resources by the Custom officials.

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 Wagah 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

Trucks containing vegetables from India.

Piles of soya beans inside Wagah's yard.

Piles of gypsum inside Wagah's yard.

The trade border gate at Wagah (going to India side).

The building where trucks are undergoing scanning at Wagah.

The surrounding area is dusty because of unpaved roads and grounds with lots of vehicular movements.

Pallets of tomatoes and gingers from India at Wagah stockyard.

Wagah border's passenger gate.

Result of the November 13, 2014 Wagah Project Site Visit
TA-8405 PAK: Improving Border Services Project
November 14, 2014
Social Development Team[1]

1. Introduction

Wagah is one of the three project sites of the Border Crossing Point project under TA-8405 PAK: Improving Border Services Project. The other two project sites are Torkham and Chaman. Last November 12, we went to Wagah traversing the good roads of Islamabad through Lahore City. We left Islamabad City at 2:30 pm and arrived at Lahore City at around 8:00 pm. We checked in Avari Lahore Hotel for the night, a cozy, and a tourist-favored, seemingly 5-star hotel in the city. In the following morning, at 12:00 pm noon, we proceeded to Wagah Border of Pakistan.

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

The team that went to Wagah was composed of the a) local and international social development specialist; b) local and international financial analyst; and c) a senior ECIL officer who graciously prepared the project visit and coordinated with the target informants of Wagah Customs Office, the office that takes charges of the existing operations management of the border's import and export transactions.

The local and international social development specialist's team collectively prepare this post-project site visit report.

11. Methodology

The team adopted two major data gathering techniques. The first one was the Key Informant Interview (KII); and the second one was the Reconnaissance Survey (RS) of the Wagah Border Vicinity.

Along with these two techniques was the taking of relevant photographs of site. The team was also able to witness the "Lowering of the Flag" of the Border's military people of Pakistan and India that transpired between 4:30 pm to 5:00 people.

Hundreds of people witnessed the ceremony. A border gate serves as a demarcation line of the two countries. Each side has its own facilities for

Figure 1. Mr. Tauqueer Ahmad Dar, Deputy Director/Federal Bureau of

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

the spectators to comfortably sit and observe solemnly the ceremony.

Revenue, Wagah, Lahore City, Pakistan

The team was able to interview Mr. Tauqueer Ahmad Dar, the senior officer of the Customs Office of Wagah.

The officer was very hospitable, provided us a project briefing about Wagah's operations, challenges, and plans and entertained inquiries from the team.

He also prepared a lunch for the activity. After lunch, he showed the team around the border.

Figure 2. Mr. Taqueer showed the team around the Wagah Border

111. Findings

A. Geographic Location

Wagah Border is located about 460 kilometers from Islamabad passing the six-lane cemented road and traversing the lime-filled hills of Pakistan. About 600 meters from the location of the Customs Office of Pakistan is the border. The Pakistanis and Indian rangers are just a friendly handshake away from each other.

The border is found in a 65-has. wide plain composed of various facilities such as security entrance managed by military people, a scanner for cargo trucks, and a wide-ranging parking spaces for vehicles loaded with various products, among others.

The land is owned by the National Logistics Cell of Pakistan's military organ. The border was set up in 2007 after the booming trade with India bourgeoned in 1976 and trade through strategic land route via Wagah started.

Figure 4. A military man guarding the border with one of the team members doing a reconnaissance visit of Wagah.

Figure 5. The venue of the daily, spectacular flag raising and lowering ceremony of both Pakistan and India.

Its tranquil-looking environment belies its vulnerability to security concerns. A case in point is what happened in October 31, 2014. A suicide bomber killed 60 people including innocent children and injured 110 people while attending the border's daily "flag raising" ceremony together with some 8,000 other spectators.

Figure 5 shows the proud flags of Pakistan and India flying. These flags are raised every morning at about 6:30 am and lowered every 4:30 pm.

Figure 6. Wagah Border Crossing Point of Pakistan-India

The Custom's Office of Pakistan is recognized as the lead government agency with regards to the Wagah import and export trade. Under it is the Land Freight Unit (LFU) that manages the land freights. They have two scanners to look into the contents of the cargo trucks.

Most of the laborers that do the loading and unloading of cargo trucks are living in the area adjacent to the border. In effect, the operations of the border also generate local employment.

Every two months, the Customs Office reports to a Customs Liaison Border Committee which as established by government of Pakistan and India in furtherance of the agreements entered by and between the two countries. These meetings are done in Lahore City, Pakistan and another one meeting is held in Amristar, India.

Due to the lack of facilities and equipments to facilitate the border crossing's export and import operations, the need expansions for the i) container yard, ii) storage facilities, iii) modern laboratory, cranes and lifters, and residential accommodation for the officers of the office.

B. Project Affected People and Target Relocation Site

According to Mr. Taqueer and key personnel of Pakistan's Custom's Office, there are no projected affected people in case of facility expansion of the Border Crossing Point in Wagah.

This is because there are no households living within the fenced area of the border and the planned expansion area adjacent

Figure 7. The steel fence of Wagah Border Crosssing which shows that there are no inhabitants outside of the border.	to the existing area which is also bought by the NLC already are uninhabited by any household.

IV. Team's Next Steps

The social development team plans to interview the National Logistics Cell and the FBR to get more insights about the purchased expansion land areas and validate the absence of project-affected people in Wagah. If there is a need to go back to the site, the team will do it.

The same process will be done for the Torkham and Chaman. On the other hand, the interviews with other relevant government and non-government organizations will also be done starting next week. This is with the assumption that land acquisition and relocation of project-affected people is a crucial concern and NGOs have experiences in designing related poverty alleviation and social safeguards to mitigate adverse effects that the team can benchmark with.

End

Annexes: Related Photo Documentations of the Project Site Visit in Wagah, Lahore, Pakistan in November 13, 2014.

Meeting with Mr. Tauqeer Ahmed Dar, Deputy Collector Customs
Wagah Customs Office, Pakistan

Site visit by ADB Experts under supervision of Deputy Collector Customs

The Trade Gate (Left) and Wagah Border Terminal (Right)

Empty Indian Trucks (Left) and Loaded Pakistani Goods Trucks (Right)

View of existing yard operated by National Logistic Cell, Wagah, Pakistan

View of existing the barren land around owned by NLC for future expansion

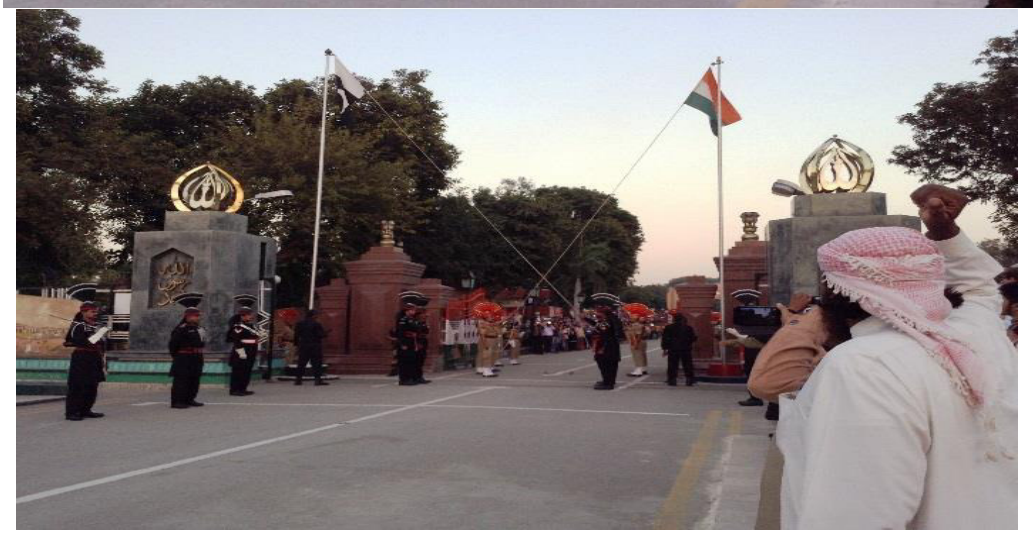
Pakistan border with India (Left) and Pakistanis observing the flag ceremony (right)

Annex 3-2
Wagah BCP

The ceremonial moments

The ceremonial moments

The ceremonial moments



The ceremonial moments

Annex 3-2
Wagah BCP

End

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

REGISTERED No. M - 302
L.-7646

The Gazette of Pakistan

EXTRAORDINARY
PUBLISHED BY AUTHORITY

ISLAMABAD, FRIDAY, NOVEMBER 26, 2010

PART II

Statutory Notifications (S. R. O.)

GOVERNMENT OF PAKISTAN

MINISTRY OF ENVIRONMENT

NOTIFICATIONS

Islamabad, the 18th October, 2010

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

National Environmental Quality Standards for Ambient Air

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

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

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

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

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

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

National Standards for Drinking Water Quality

Properties/Parameters	Standard Values for Pakistan	Who Standards	Remarks
Bacterial			
All water intended for drinking (e.Coli or Thermotolerant Coliform bacteria)	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample	Most Asian countries also follow WHO standards
Treated water entering the distribution system (E.Coli or thermo tolerant coliform and total coliform bacteria)	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample	Most Asian countries also follow WHO standards
Treated water in the distribution system (E. coli or thermo tolerant coliform and total coliform bacteria)	Must not be detectable in any 100 ml sample In case of large supplies, where sufficient samples are examined, must not be present in 95% of the samples taken throughout any 12-month period.	Must not be detectable in any 100 ml sample In case of large supplies, where sufficient samples are examined, must not be present in 95% of the samples taken throughout any 12 month period.	Most Asian countries also follow WHO standards
Physical			
Colour	≤ 15 TCU	≤ 15 TCU	
Taste	Non objectionable/Acceptable	Non objectionable/Acceptable	
Odour	Non objectionable/Acceptable	Non objectionable/Acceptable	
Turbidity	〈 5 NTU	〈 5 NTU	
Total hardness as $CaCO_3$	< 500 mg/l	----	
TDS	〈 1000	〈 1000	
pH	6.5 – 8.5	6.5 – 8.5	
Chemical			
Essential Inorganic	***mg/Litre***	***mg/Litre***	
Aluminium (Al) mg/l	≤ 0.2	0.2	

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

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

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

*** PSQCA: Pakistan Standards Quality Control Authority.

Proviso:

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

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

National Environmental Quality Standards for Noise

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

Note: 1. Day time hours: 6.00 a. m to 10.00 p. m.

2. Night time hours: 10.00 p. m. to 6.00 a.m.

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

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

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

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

MUHAMMAD KHALIL AWAN,
Section Officer (PEPC).

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ISLAMABD, THURSDAY, AUGUST 10, 2000

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PART-II

Statutory Notification (S.R.O)

GOVERNMENT OF PAKISTAN

MINISTRY OF ENVIRONMENT, LOCAL GOVERNMENT AND RURAL DEVELOPMENT

NOTIFICATION

Islamabad, the 8th August 2000

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

In the aforesaid Notification, in paragraph 2._____

[4138(2000)/Ex.GAZ]

Price : Rs. 5.00

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

Annex-I

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

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

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

Explanations:

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

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

3. Pesticides include herbicides, fungicides, and insecticides.

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

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

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

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

** The value for industry is 200 mg/I

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

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

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

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

Annex-II

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

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

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

Explanations:-

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

2. Based on 1 percent Sulphur content in fuel oil. Higher content of Sulphur will case standards to be pro-rated.

3. In respect of emissions of Sulphur dioxide and Nitrogen oxides, the power plants operating on oil and coal as fuel shall in addition to National Environmental Quality Standards (NEQS) specified above, comply with the following standards:-

A. **Sulphur Dioxide**

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

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

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

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

B. Nitrogen Oxide

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

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

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

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

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

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

[File No. 14(3)/98-TO-PEPC.]

HAFIZ ABDULAH AWAN
DEPUTY SECRETARY (ADMN)

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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