Environmental Management Plan

Project Number: 51036-002
November 2021

Pakistan: Khyber Pakhtunkhwa Cities Improvement Project

Construction of Green Sports Complex, Kohat

Prepared by Project Management Unit, Local Government, Elections and Rural Development Department, Government of Khyber Pakhtunkhwa for the Asian Development Bank.

CURRENCY EQUIVALENTS

As of 18th November, 2021	Currency Unit – Pak Rupees (Pak Rs.)
Pak Rs 1.00 = $ 0.0057	US$1.00 = Pak Rs. 175

CONVERSIONS

1 meter = 3.28 feet

1 hectare = 2.47 acre

1 kanal = 0.125 acre

Acronyms

ADB	Asian Development Bank
CC	Construction Contractor
COVID-19	Corona Virus Infectious Disease-2019
CIU	City Implementation Unit
DC	Design Consultant
EE	Environmental Engineer
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
IA	Implementing Agency
KP	Khyber Pakhtunkhwa
KPCIP	Khyber Pakhtunkhwa Cities Improvement Project
KP-EPA	Khyber Pakhtunkhwa Environmental Protection Agency
LGE&RDD	Local Government Election and Rural Development Department
NEQS	National Environmental Quality Standards
PMU	Project Management Unit
PPE	Personal Protective Equipment
PRF	Project Readiness Facility
RE	Resident Engineer
REA	Rapid Environmental Assessment
SC	Supervision Consultant
SPS	Safeguard Policy Statement
STD	sexually-transmitted disease
TMA	Tehsil Municipal Administration
UCCRTF	Urban Climate Change Resilience Trust Fund
WHO	World Health Organization

NOTE

In this report, “$” refers to US dollars

Content Details

S/No.	Version	Date	Summary of Revisions made
1	1	20-7-2021	Draft Environmental Management Plan
2	2	3-8-21	Revised Draft Environmental Management Plan
3	3	18-11-21	Updated Draft Environmental Management Plan

Table of Contents

1 Introduction 1
1.1 Project Overview 1
1.2 Project Need 2
1.3 Project Categorization 2
1.4 Scope and Objective of the Project 2
1.5 Components of the Project 3
1.6 Objective of EMP 3
2 Project Description 2
2.1 Project Location 2
2.2 Scope of Construction Works 2
2.3 Condition Assessment of Existing Sports Complex 2
2.4 Stakeholder Consultations 3
2.5 Climate Change Risks 4
2.6 Detailed Architectural and Engineering Design 4
3 Institutional Arrangements and Capacity Building 7
3.1 General 7
3.2 Organizational Set-up for Implementation of EMP 7
3.3 Role and Responsibilities of PMU 8
3.3.1 Project Management Unit (PMU) 8
3.3.2 Project Director (PD) 8
3.3.3 Responsibilities of Environmental Engineer of Supervision Consultant 9
3.4 Responsibilities of Site Environmental Engineer of Construction Contractor 9
3.5 Non-Compliance of the EMP 9
3.6 Environmental Technical Assistance and Training Plan 10
4 Environmental Management Plan 11
4.1 General 11
5 Environmental Monitoring 31
5.1 General 31
5.2 Environmental Monitoring during Pre-Construction, Construction and Operation Phases 31
5.3 Responsibilities for Monitoring and Reporting 31
5.4 Cost of Environmental Monitoring 31
6 Environmental Mitigation and Monitoring Cost 37
6.1 General 37

Annexures

Annexure A REA Checklist

Annexure B WHO/GOP Guidance Related to COVID-19

Annexure C Traffic Management Plan

List of Figures

Figure 1.1 Project area map of Kohat Sports Complex 0
Figure 1.2 Master Plan of Kohat Sports Complex 1
Figure 2.1 Existing conditions of Kohat Sports Complex 2
Figure 2.2 Architectural and Engineering Design Features 5
Figure 3.1 Organizational Setup for Implementation of EMP 8

List of Tables

Table 1.1 Scope and Objective of Project 3
Table 2.1 Scope and Objective of Project 5
Table 3.1 Personnel Training Program 10
Table 4.1 Environmental Management Plan 12
Table 5.1 'Pre-Construction' Monitoring Plan for Baseline Development 32
Table 5.2 Construction Phase Monitoring Requirements 33
Table 5.3 'Operation Phase' Environmental Monitoring Plan 35
Table 5.4 Annual Cost Estimates for 'Pre-Construction Phase' Environmental Monitoring .. 35
Table 5.5 Annual Cost Estimates for 'Construction Phase' Environmental Monitoring 36
Table 5.6 Annual Cost Estimates for 'Operation Phase' Environmental Monitoring 36
Table 6.1 Environmental Mitigation Cost 37
Table 6.2 Break-up for PPEs Cost 37

1 Introduction

1.1 Project Overview

1. The Khyber Pakhtunkhwa Cities Improvement Projects (KPCIP) will improve the quality of life of the residents of five KP cities, including Abbottabad, Kohat, Mardan, Mingora, and Peshawar, directly benefitting about 6 million of urban population. KPCIP will help selected cities improve their access to quality urban services through three interlinked outputs: (i) Climate resilient and gender friendly urban infrastructure improve, (ii) Institutional capacities of urban service providers and governments strengthened, and (iii) Increased women's participation in urban governance and access to economic opportunities.

2. KPCIP will support the Government of Pakistan's development priorities, established in (i) the National Water Policy (2018), (ii) the Local Government Act (2019), and (iii) Pakistan Vision 2025[1]. The project is also aligned with ADB's operational priorities of (i) addressing remaining poverty and reducing inequalities; (ii) accelerating progress in gender equality; (iii) tracking climate change, building climate and disaster readiness; (iv) making cities more livable; and (v) strengthening governance and institutional capacity, outlined in ADB's Strategy 2030, and is included in ADB's country operations business plan for Pakistan, 2021–2023.

3. The project readiness financing (approved in March 2019) has financed the preparation and engineering design of the KPCIP. The Department of Local Government, Elections and Rural Development Department (LGE&RDD), the Government of Khyber Pakhtunkhwa, will be the executing agency for the project and the city governments of the five target cities, including the respective Water and Sanitation Services Companies, will be the implementing agencies.

4. This report has been prepared based on detailed engineering designs, due diligence assessments, and studies conducted by the government and project readiness financing consultants. The Government of Pakistan, Asian Development Bank (ADB), and Asia Infrastructure Investment Bank (AIIB) are expected to approve KPCIP in Q3 2021.

5. The Khyber Pakhtunkhwa Cities Improvement Project (KPCIP) is being processed through the Project Readiness Finance (PRF) modality by Asian Development Bank (ADB) under Loan 6016-PAK, being executed by KP Local Government Election and Rural Development Department (LGE&RDD). The Project is focused on investments of subprojects related to water supply, sanitation and drainage, solid waste management, and urban/green spaces. The Project has the following four major components:

   - Improvement of water supply systems in five (5) cities.
   - Improvement of sewerage and drainage systems in five (5) cities, including provision of sewage treatment plants (STPs)
   - Provision of Integrated Solid Waste management (ISWM) system in five (5) cities

[1] Government of Pakistan. 2018. *The National Water Policy.* Islamabad; Government of Khyber Pakhtunkhwa. 2019. *The Khyber Pakhtunkhwa Local Government Act.* Peshawar; and Government of Pakistan. 2016. *Planning Commission, Ministry of Planning, Development & Reform: Pakistan Vision 2025.* Islamabad.

- Development of Urban/Green Spaces in five cities.

6. Kohat sports complex is situated in the rather new developed area of KOHAT city adjacent to KDA and Kohat Cantonment connected through Hangu bypass road and Kohat city road. The project is currently owned by KPK sports department. Project area map is shown as **Figure 1.1.**

7. The existing under construction sports complex facilities usage is limited to the various sports related event based activities for sportsmen and the general audience of Kohat and its surrounding areas. Project under KPCIP will construct the basic missing facilities (Tuck shops, general public toilet facilities, prayer area) and utilized the existing negative open spaces into positive facilities for general public to enhance the utility of the complex.

8. The proposed interventions based on a keen focus to increase the green leaf index and address climate change mitigation by using renewable energy and increasing oxygen index with help of additional plantation in available open spaces of the sports complex.

1.2 Project Need

9. Kohat is a fast-growing city and is the fourth-largest city in Khyber Pakhtunkhwa. According to the Pakistan Bureau of Statistics, KOHAT District had an urban population of 270,146 (142,060 men, 128,052 women and 34 transgender) in 2017 (Pakistan Bureau of Statistics, 2017). With fast growing population government has given a special focus on recreational spaces for public and started the commencing of KOHAT sports complex in 2017. Rapid population increase has led to massive growth in the built-up environment but negligible development of green urban spaces in the city. Under construction Kohat sports complex is being used for limited sports activity and there are existing negative open spaces than can be utilized as green space for KPCIP.

1.3 Project Categorization

10. The sub-project screening and categorization exercise has been conducted and the endorsement of the sub-project category by ADB has been obtained. Since the overall project activities will result in impacts that will mostly be localized, short term and easily manageable through implementation of best management practices, thus this sub-project has been classified as Category 'C' as per ADB SPS, 2009. The REA Checklist is provided as **Annexure A** of this document.

11. Thus, this Environmental Management Plan (EMP) document has been prepared for implementation by the Contractor to ensure compliance with all required measures as per ADB SPS, 2009.

1.4 Scope and Objective of the Project

12. The proposed interventions based on a keen focus to increase the green leaf index and address climate change mitigation by using renewable energy and increasing oxygen index with help of additional plantation in available open spaces of the sports complex.

13. The overall scope and objectives of the project are summarized in **Table 1.1.**

Table 1.1 Scope and Objective of Project

Sr. No	Scope	Objective
1.	Up gradation and beatification of sports complex	• Providing resident of KOHAT a proper designed well-equipped sports complex. • Appealing resents of KOHAT district and neighboring area toward sports activities. • District level sports competitions can be organized in this sports complex.
2.	Providing sports recreational park	• Sports complex will give the younger generation a positive recreation activity and act as medium for building strong mental and physical health.
3.	Recreational space for women and their accompanying children.	• A small family park with swings for children will be provided for the families and women
4.	Dense plantation in the sports complex	• Reduction in urban heat island effect. • O2 production and air purification. • Absorption of Greenhouse Gases (CO2, CH4 etc.).

1.5 Components of the Project

15. The following components are planned under the sub-project:

- Tuck shops and payer area
- Spectators sitting areas with roof (trellis covered with ficus pumila creeper) and
- utilizing the available open spaces for general public facilities like sitting areas, permeable walking tracks, and children play area

16. Master plan of the project is provided as **Figure 1.2.** No land acquisition involved under sub-project.

1.6 Objective of EMP

17. The EMP provides an overall approach for managing and monitoring the potential impacts and describes the institutional framework and resource allocations to implement these measures.

18. The main objectives of EMP are to:

- Provide details of the project impacts along with the proposed mitigation measures and the corresponding implementation activities;
- Define the role and responsibilities of the Project Proponent, Contractor, Supervisory Consultants and other role players and effectively communicate environmental issues among them;
- Define a monitoring mechanism, reporting frequency and identify monitoring parameters to ensure that all the mitigation measures are completely and effectively implemented;

- Identify the resources required to implement the EMP and outline the corresponding financing arrangements;
- Keeping in view the recent COVID-19 pandemic, specific health and safety measures and work practices issued by WHO and GoP have been provided to ensure occupational and community health and safety as far as possible and minimize the potential risk of infection and/or its transmission.

Figure 1.1 Project area map of Kohat Sports Complex

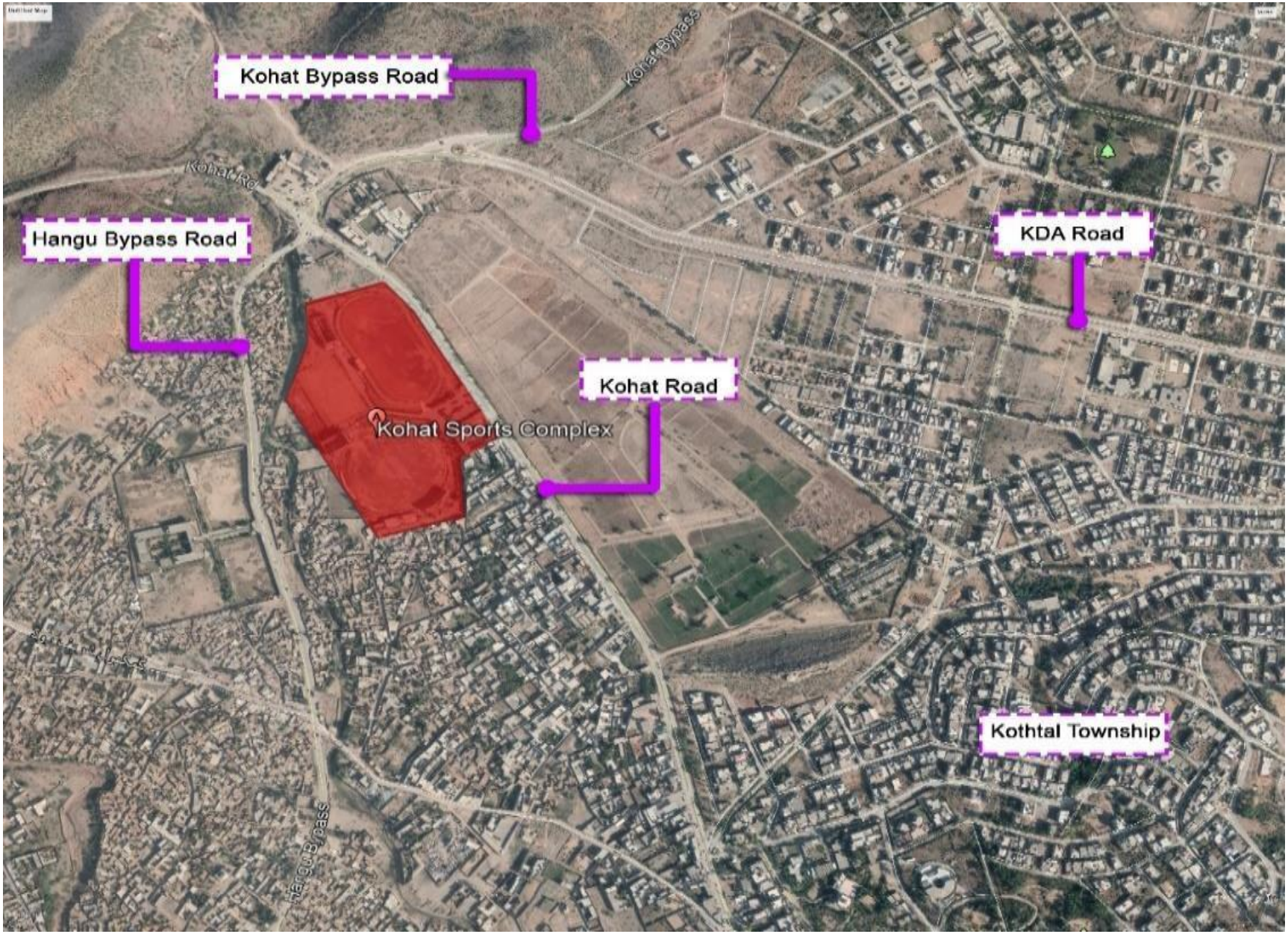


Figure 1.2 Master Plan of Kohat Sports Complex

2 Project Description

2.1 Project Location

19. Kohat sports complex is situated in the rather new developed area of Kohat city adjacent to KDA and Kohat Cantonment connected through Hangu bypass road and Kohat city road. Location of proposed project is provided in Figure 1.1.

2.2 Scope of Construction Works

20. Scope of major construction works is listed below.

- Construction of parking space,
- Construction of trellis on football and hockey ground,
- Construction of Family Park, sports courts, walkways, toilet blocks, tuck shop, prayer area and service room
- Demolition and renovation of built abandoned structure
- The project construction will incorporate the conservation of existing trees. Most of proposed infrastructure facilities are planned on those spots on site that contain no existing trees.
- Tree plantation

2.3 Condition Assessment of Existing Sports Complex

21. Condition assessment of the site was carried out by project design consultant. Below are the site observations and findings. Salient features of site are presented as Figure **2.1.**

- The site of sports complex is spared over land of approx. 19.5 Acers.
- Current sports activities on site were cricket ground, football ground hockey ground gymnasium and swimming pool. All of the above activities and infrastructure work and under construction at some levels
- Other than sports fields there is a cricket and football pavilion and player's hostels with two tube wells and electric transformer to cater electric and irrigation requirements.

Figure 2.1 Existing conditions of Kohat Sports Complex

Existing gate of sports complex	Existing Parking Area
	
Football Stadium Pavilion	Existing sitting area in Cricket Stadium
	
Toilet Block	Sitting area cricket ground

2.4 Stakeholder Consultations

22. Several consultative sessions were held between the sports officer KOHAT sports complex, and the KPCIP Team including the Project Director (PMU-KPCIP), Project Officer (PMU-KPCIP), Architects and Planners from EDCM-KPCIP to define the scope of work for the project.

23. Focus Group Discussions (FGD) with residents of Kohat were carried out. Keeping in view the cultural dynamics of the area, separate consultations were conducted with male and female groups within community. The views, concerns and suggestions of participants have been summarized below:

- There shall be colorful flowers for beautification. Plant a variety of beautiful and colorful flowers to enhance the beauty of the complex.
- Walking and running tracks are already being made. Tartan track is already under construction, therefore the same shall not be considered under KPCIP.
- Sitting steps in cricket ground shall be increased, and shade shall be provided.
- Most of the local school children come to play in this ground, the seating capacity shall be increased, and shade shall be provided, so that the children can sit comfortably in the shade and enjoy watching the game

- Sprinkle water system is required for the grounds, so that the ground can be easily irrigated with water and the lawn will remain green and lush.
- Tuck shop is required.
- Public washroom shall be provided.

2.5 Climate Change Risks

24. The different features of Kohat Sports Complex are designed in line with the natural contour without disturbing the topography of the site. In the design, no storm water pumping system has been proposed. For rain water drainage, the drainage system is based on the "nature based solution", concreted lined drains are provided to carry away the excess water. Also, spaces in depression areas are planned to be kept as they are to act as spaces for the ponding of rainwater to stay for a day or more and enable groundwater recharge. There is no rainwater flooding expected in the sports complex.

25. There are no cyclones observed and projected in the project area, however infrastructure will be constructed to withstand high speed winds (if any).

2.6 Detailed Architectural and Engineering Design

26. This section outlines architectural features of Kohat Sports Complex details of which are provided below. Proposed A&E features of green sport complex are shown as **Figure 2.2 and Figure 2.3.**

- Separate parking space for public and players
- Entrance gate
- Trellis on football and cricket ground sitting area
- Family Park with swings
- Sports Courts (basketball & volleyball)
- Walkways, Plantation
- Toilet block, Prayer area, Tuck shop and Services room

27. Keeping in view the size of Kohat Sports complex, the carrying capacity is not expected to pose an issue. The KDA had a good management system put in place for the existing sports complex in Kohat and keeping in view their track record, no management issues are expected.

Figure 2.2 Architectural and Engineering Design Features

	
Trellis on step sitting area shed	Trellis on slope sitting area shed
	
Entrance area with step flower bed	Green sports complex

28. Names, appearance, characteristics and quantities of plants proposed for the Kohat Sports complex are provided in **Table 2-1.**

Table 2.1 Scope and Objective of Project

Plant Name	Appearance	Character	Number (with 30% addition)
Sukh Chain		Shady	150
Amaltas		ORNAMENTAL	50

Citrus Tree		Fruit, Ornamental	50
Arjun		Shady	90
Black ficus		Ornamental	400

3 Institutional Arrangements and Capacity Building

3.1 General

29. The main purpose of the EMP is to provide a strategy for environmental protection. According to EMP, all the activities associated with the project will be controlled and monitored during the design, construction and operation phase. EMP will propose a plan of actions that will indicate responsibilities and required measures to prevent or minimize the potential environmental impacts.

3.2 Organizational Set-up for Implementation of EMP

30. The following functionaries will be involved in the implementation of EMP;

- Program Management Unit (PMU) KPCIP;
- City Implementation Unit (CIU), KPCIP
- Supervision Consultant's Environmental Engineer;
- Contractor's Site Environmental Engineer; and
- KPK EPA (Regulatory Authority)

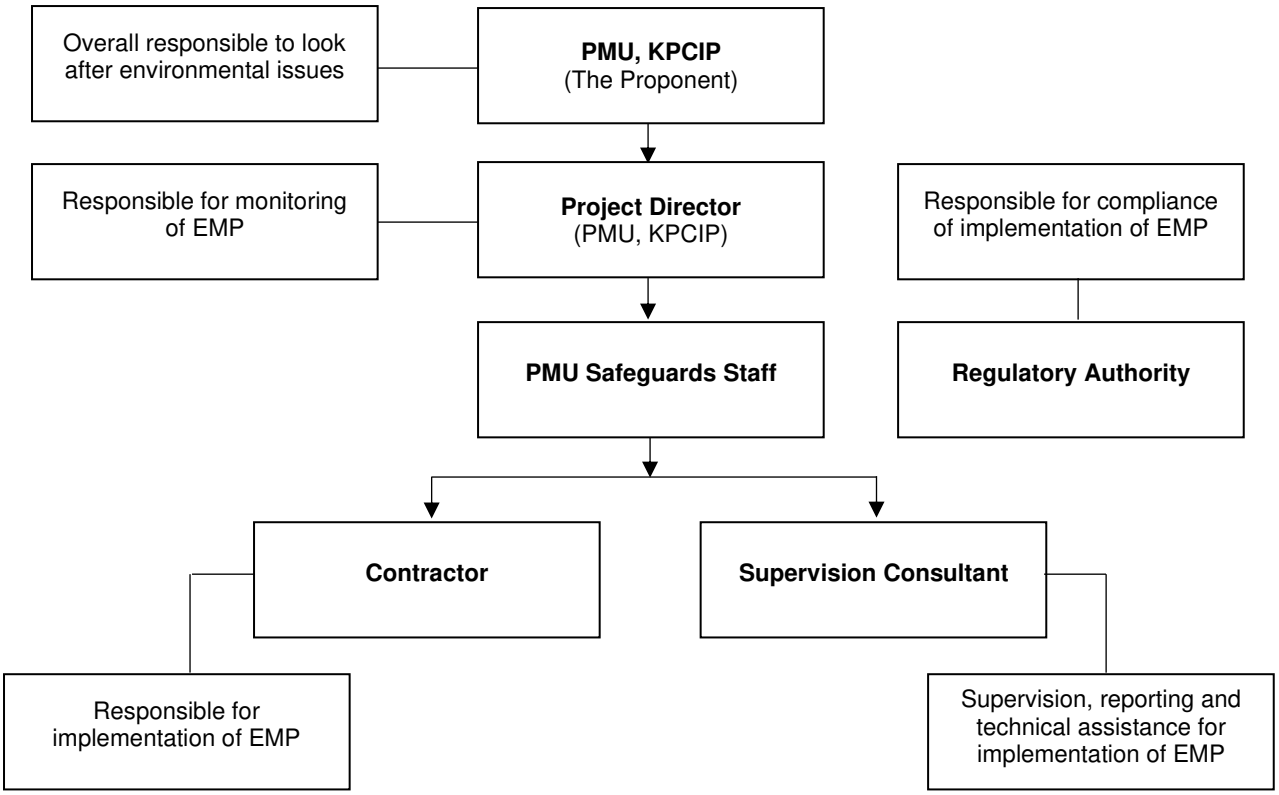
31. Organizational set-up for implementation of EMP is shown in **Figure 3.1** below**.**

32. The PMU KPCIP will be overall responsible for implementation of this EMP and for the environmental management and supervisory affairs during the construction phase of the proposed project. For effective environmental management, the PMU will assign the necessary responsibilities through Project Director, to an Environmental Expert and a Social Expert in implementing the mitigation measures proposed in EMP.

33. The Contractor will be responsible for the implementation of EMP under the Supervision Consultant. The Contractor shall be bound to follow the provisions of the Contract documents, especially about environmental protection and apply good construction techniques and methodology without damaging the environment. Obligation of the Contractor is to safeguard, mitigate adverse impacts and rehabilitate the environment and it shall be addressed through environmental provisions in the Contract document and through adequate implementation at site. Regulatory Authority will be responsible for compliance of implementation of EMP.

34. During operation phase, EMP implementation would be the responsibility of KP Sports department.

Figure 3.1 Organizational Setup for Implementation of EMP



3.3 Role and Responsibilities of PMU

3.3.1 Project Management Unit (PMU)

35. Design and Construction of the project is the core responsibility of PMU, KPCIP LGERDD. The major role and responsibilities related to environment and social management during design, and construction phase are:

- To ensure that the Project design and specifications adequately reflected in the EMP.
- To ensure the Project compliance with the environmental regulations and donor requirements;
- To ensure that the TOR for the Supervisory Consultants adequately cover the environmental and social issues; and

3.3.2 Project Director (PD)

36. The specific responsibilities of Project Director are as follows:

- Setting up systems for EMP compliance monitoring and reporting through Environment and Social safeguard staff at PMU
- Ensuring that the Contractor(s) develop and carry out environmental implementation plans that are consistent with the EMP;

3.3.3 Responsibilities of Environmental Engineer of Supervision Consultant

37. The Environmental Engineer (EE) of the Supervision Consultant (SC) will oversee the performance of Contractor through periodic monitoring to make sure that the Contractor is carrying out the work in accordance with EMP.

38. The EE of SC will provide guidance to the Contractor's Environmental Engineer for implementing each of the activities as given in the EMP. The EE of SC will be responsible for record keeping providing instruction through the Resident Engineer (RE) for corrective actions and will ensure the compliance of various statutory and legislative requirements. The EE will maintain close coordination with the Contractor and PMU for successful implementation with environmental safeguard measures. However, overall responsibilities of EE of SC are as follows:

- Directly reporting to the RE;
- Discussing various environmental issues and environmental mitigation, enhancement and monitoring actions with all concerned directly or indirectly;
- Inspect, supervise and monitor all the construction and allied activities related to the EMP for the project;
- Assist the RE to ensure the environmental sound engineering practices;
- Assisting contractor and PMU in all matters related to public contacts including public consultation pertaining to environmental and community health & safety issues;
- Assisting PMU Safeguards staff to carry out environmental monitoring;
- Organizing training to the EE of Contractor and field staff; and
- Preparing and submitting monthly and quarterly environmental progress/ compliance reports to the PMU.

3.4 Responsibilities of Site Environmental Engineer of Construction Contractor

39. The Site Environmental Engineer of Construction Contractor will carry out the implementation of mitigation measures at construction site. Construction Contractor will be bound through Contract documents to appoint the Site Environmental Engineer with relevant educational background and experience. Responsibilities of EE of Contractor are as follows:

- Preparing sub plans including monitoring plan, traffic control/diversion plan, site rehabilitation plans etc. and will submit all the plans to the EE of SC.
- Implementation of EMP and to take effective measures against corrective actions plan;
- Preparing the compliance reports as per schedule and will submit it to the SC;
- Providing proper Personal Protective Equipment (PPEs) to the workers and train them for their proper use; and
- Providing environmental and health & safety trainings to the workers /labor.

3.5 Non-Compliance of the EMP

40. The implementation of the proposed EMP involves inputs from various functionaries as discussed earlier. The Contractor will be primarily responsible for ensuring implementation of the mitigation measures proposed in the EMP, which will be part

of the Contract documents. The provision of the environmental mitigation cost will be made in the total cost of project, for which Contractor will be paid on the basis of monthly compliance reports. The Contractor will not be allowed to proceed further until the mitigation measures as proposed in the EMP are taken and approved by Supervision Consultant.

3.6 Environmental Technical Assistance and Training Plan

41. In order to raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. The SC will play a key role in this respect and supervise the arrangements of trainings.

42. Contractor's environmental awareness and appropriate knowledge of environmental protection is critical to the successful implementation of the EMP as without appropriate environmental awareness, knowledge and skills required for the implementation of the mitigation measures, it would be difficult for the Contractor(s) workforce to implement effective environmental protection measures. A suitable training program is proposed to train the Contractor(s) staff who will be involved in the Construction Phase and the professional staff from the client involved at the operational stage of the project.

43. The PMU, KPCIP will engage consultants or through its safeguard team will manage the environmental training program. The objective of such trainings will be to help in establishment of appropriate systems, and to train senior project staff and Environmental Expert responsible for managing environment, operations, and planning. The details of this training program are presented in **Table-3.1.**

Table 3.1 Personnel Training Program

Provided by	Contents	Trainees/Events	Duration
Consultants/ organizations specializing in environmental management and monitoring	Short seminar and a course on: EMP Awareness Public Sensitization EMP Monitoring EMP Reporting	One seminar for PMU/CSC and contractor Site management	1 day
Consultants/ organizations specializing in social management and monitoring	Short seminar and course on: Social awareness Public Grievances	One seminar for project staff dealing in Social/land matters	1 day
Consultants/ organizations specializing in Occupational, health and safety issues	Short lecture relating to Occupational Safety and Health and Environmental Issues	One seminar for contractor's staff	2 days

4 Environmental Management Plan

4.1 General

44. The Environmental Management Plan (EMP) provides the framework for the implementation of the mitigation measures and environmental management and monitoring during the construction and operation phases of the proposed project. The proper implementation of the EMP will ensure that any adverse environmental impacts are adequately mitigated, either totally prevented or minimized to an acceptable level and required actions to achieve those objectives are successfully taken by the concerned institutions or regulatory agencies. The implementation of EMP will be carefully coordinated with the design, construction and operation programs of the project to ensure that relevant mitigation measures are implemented at the appropriate stage and adequate resources are properly allocated to achieve the desired results.

45. The **Table 4.1** depicts impacts, targets, mitigations and the responsible authorities for the implementation of the mitigation measures during design, construction and operational phases.

Table 4.1 Environmental Management Plan

Sr. No.	Parameters	Target	Mitigation	Responsibility
Design/pre-construction Phase				
1	Design & Layout Planning	To utilize negative open spaces for green plantation	• All structural, layout and engineering designing of project shall be strict in accordance with the applicable by laws and engineering parameters. • Project facilities shall fulfill present and future need of sports complex visitors	PMU, KPCIP
2	Drainage	To prevent flooding and pooling	• Provision of appropriate drainage structures within and along the green sport complex • Proper slopes shall be incorporated in design feature to avoid the formation of the water layer on grass and other surfaces in rainy seasons.	PMU, KPCIP
3	Public Utilities	To avoid disturbance to the public.	• The design engineer shall consider the adjustments of the proposed plans, where feasible and within acceptable design standards, to avoid relocation or adjustment of major or costly utilities without changing the scope of the project. • The design engineer shall consider the feasibility and possible choices of electrical works and installation of lights keeping in view health and safety of workers and general public.	PMU, KPCIP
4	Seismic Hazard	To minimize the structural damage	• The proposed building and structures will be designed and constructed to withstand moderate earthquakes. For seismic hazard analysis, updated structural and seismic evaluations will be consulted. • Project structures shall be designed to cater for the requirements of Zone 2 B of Building Code of Pakistan (2007).	PMU, KPCIP
5	Traffic Management	To minimize traffic problems in the project area	• Proper traffic management plan shall be formulated and announced before construction to avoid traffic jams/public inconvenience;	PMU, KPCIP

Sr. No.	Parameters	Target	Mitigation	Responsibility
			• In case of closure of roads alternative routes shall be defined and communicated. • Plan the timing for movement of construction materials carrying vehicles to reduce traffic load and avoid inconvenience to the local residents. • Means of communication of recommended alternative routes shall be planned to avoid inconvenience and traffic blockades during construction • Close coordination with district administration shall be maintained.	
6	Health and Safety	To minimize health risks	• Preparation of health and safety plan to minimize health risks; and • An emergency response plan shall be formulated which emphasizes line of action for rescue, medical emergencies, natural disasters and firefighting operations.	PMU, KPCIP
7	Solid Waste Management	To manage (i.e. collect and dispose) the solid waste safely at appropriate sites.	• Incorporate technical design features for refuse collection at sports complex; and • Devise plan(s) for safe handling, storage and disposal of harmful materials • PMU KPCIP will bound construction contractor to remove all sort of demolitions from sports complex and it will be disposed at designated site	PMU, KPCIP
8	Public Nuisance	To avoid public nuisance during project execution	• PMU KPCIP will ensure close coordination with district administration. • PMU KPICP will ensure close liaison with local community in order to receive and resolve any grievances • PMU KPCIP will ensure that any received grievance has been addressed to the satisfaction of affected person • PMU KPCIP will make arrangements for community feedback surveys about the project	PMU, KPCIP

Sr. No.	Parameters	Target	Mitigation	Responsibility
			• PMU KPCIP will take appropriate actions in light of feedback received from nearby community • PMU KPCIP will take care that contractors are aware about the local norms of the area	
Construction Phase				
1	Topography	To make ensure minimum changes in topography of the project area.	• Excavations shall be kept confined to the specified location as per the approved engineering drawings and unnecessary excavations shall be avoided.	CC, SC, CIU
2	Soil	To minimize soil erosion and contamination.	• All spoils shall be disposed of as desired and the site will be restored back to its original conditions; • Unnecessary excavations shall be avoided; • Washout from washing of equipment and gadgets will be drained into either a septic tank or a sand-gravel bed for removal of the grit and contaminants. • Machinery washing will not be allowed at site • Machinery maintenance will not be allowed at site • Chemicals/paints etc. shall be stored at Tarpaulin sheets and secured to avoid spills	CC, SC, CIU
3	Material Storage Sites	To minimize loss of assets and vegetation due to labor movement and to prevent degradation of environment due to construction material storage sites.	• Contractors will identify material storage sites keeping in view the minimum disruption to motorized and pedestrian traffic • Material storage shall be kept minimum as per requirements • Housekeeping around material storage sites shall be carried out. • Preparation of waste Management Plan addressing the classification, storage and disposal of all solid wastes and the training of employees for handling the hazardous materials. • Training will be provided to all staff members on camp management rules and overall discipline and cultural awareness.	CC, SC, CIU

Sr. No.	Parameters	Target	Mitigation	Responsibility
4	Health and safety of workers and associated communities	To minimize health risks	• Obligatory insurance against accidents for labourers/workers shall be ensured; • Basic medical training shall be imparted to specified work staff and basic medical service and supplies to workers; • Layout plan for camp site, indicating safety measures taken by the contractor, e.g. fire-fighting equipment, safe storage of hazardous material, first aid, security, fencing, and contingency measures in case of accidents; • Work safety measures and good workmanship practices are to be followed by the contractor to ensure no health risks for laborers; • Protection devices (ear plugs) shall be provided to the workers doing job in the vicinity of high noise generating machines; • Provision of protective clothing for laborers handling hazardous materials, e.g. helmet, adequate footwear for bituminous pavement works, protective goggles and gloves etc; • Ensure strict use of wearing these protective clothing during work activities; • Emergency number shall be placed at worksites; • Elaboration of contingency planning in case of major accidents; • Instruct construction supervisor to strictly enforce the keeping out of non-working persons, visitors, particularly children, off work sites; and • Adequate signage, lightning devices, barriers, yellow tape and persons with flags during construction to manage traffic at construction sites, haulage and access roads.	CC, SC ,CIU

Sr. No.	Parameters	Target	Mitigation	Responsibility
			• There shall be proper control on construction activities and oil spillage leakage of vehicles; • The labour staff with any transmittable diseases shall be restricted within the construction site; • Efforts will be made to create awareness about road safety among the drivers operating construction vehicles; • Timely public notification on planned construction works; • Provision of proper safety and diversion signage, particularly at sensitive/accident-prone spots; • Setting up speed limits in close consultation with the local stakeholders; • The communicable disease of most concern during construction phase, like sexually-transmitted disease (STDs) such as HIV/AIDS, shall be prevented by successful initiative typically involving health awareness; education initiatives; training of workers in disease treatment; immunization program and providing health service; and • Reducing the impacts of vector borne diseases on long-term health effect of workers shall be accomplished through implementation of diverse interventions aimed at eliminating the factors that lead to disease, which includes Prevention of larval and adult propagation of vectors through sanitary improvements and elimination of breeding habitat close to human settlements and by eliminating any unusable impounding of water.	
6	Air Pollution	To minimize air pollution	• All excavation work will be sprinkled with water to control dust; • The excavated material shall be covered and shall not be stored for long intervals;	CC, SC ,CIU

Sr. No.	Parameters	Target	Mitigation	Responsibility
			• All vehicles, machinery, equipment and generators used during construction activities shall be kept in good working condition and be properly tuned and maintained in order to minimize the exhaust emissions; • All vehicles, machinery and equipment used for the construction shall be plugged off or switched off immediately after completion of their work to avoid idling condition; • Filter shall be installed at the point sources (machinery or equipment) of air emissions and shall be replaced regularly; • Emissions from power generators and construction machinery are important point sources at the construction sites. Proper maintenance and repair is needed to minimize the hazardous emissions; • Open burning of solid waste from the Contractor's camps shall be strictly banned; • Preventive measures against dust shall be adopted for on-site mixing and unloading operations. Regular water sprinkling of the site shall be carried out to suppress excessive dust emission(s); • Construction workers shall be provided with masks for protection against the inhalation of dust; and • NEQS applicable to gaseous emissions generated by construction vehicles, equipment and machinery shall be enforced during construction works.	
7	Noise and Vibration	To minimize noise pollution	• Selection of up-to-date and well-maintained equipment with reduced noise levels ensured by suitable in-built damping techniques or appropriate muffling devices; • Confining excessively noisy work to normal working hours in the day, as far as possible;	CC, SC ,CIU

Sr. No.	Parameters	Target	Mitigation	Responsibility
			• Providing the construction workers with suitable hearing protection like ear cap, or ear plugs and training them in their use; • Preferably, restricting construction vehicles movement during night time; • Avoid use of heavy drill machines to avoid the vibration effect on the outlived buildings. • Vehicles and equipment used shall be fitted, as applicable, with silencers and properly maintained; • Use of low noise machinery, or machinery with noise shielding and absorption; • Contractors shall comply with submitted work schedule, keeping noisy operations away from sensitive points; implement regular maintenance and repairs; and employ strict implementation of operation procedures	
8	Construction Waste and Hazardous Waste	To minimize the construction and hazardous waste	• Wastewater effluent from contractor's workshop and equipment washing yards would be passed through gravel/ sand beds to remove oil/ grease contaminants before discharging it into natural streams; • Training of working force in the storage and handling of materials and chemicals that can potentially cause soil contamination; • Solid waste generated during construction and camp sites will be safely disposed in demarcated waste disposal sites and the contractor will provide a proper waste management plan; • Burning of waste will be prohibited; • Proper labelling of containers, including the identification and quantity of the contents, hazard contact information etc.; • Training employees involved in the transportation of hazardous material regarding emergency procedures;	CC, SC ,CIU

Sr. No.	Parameters	Target	Mitigation	Responsibility
			• Providing the necessary means for emergency response on call 24 hours/day; • The sewage system for camps will be properly designed (pit latrines or, as required, septic tanks) to receive all sanitary wastewaters; and • Lined wash areas will be constructed at site, for the receipt of wash waters from construction machinery. • Covering material during heavy rainfall; • Locating stockpiles to minimize potential visual impact, and • Minimizing land intake of stockpiles areas as for as possible. • Recyclable and reusable waste shall be segregated and handed over to recycling contractor • Contractor environmental staff will pay visit to construction sites to ensure the waste is being managed and not left unattended • Record of waste generation at construction sites shall be maintained and reported	
9	Water Use	Sustainable use of water resources	• Wastage of water shall be controlled through providing proper valves and through controlling pressure of the water; • Water jets and sprays shall be used for watering surfaces rather than using overflow system; • Water use shall not disturb the existing community water supplies; • Reuse of construction waste materials; • Unnecessary equipment washings shall be avoided; • A good camp design and an efficient worksite management plan can help the contractor to reduce the water demand to the lowest levels • Inventory of water use/consumption shall be maintained.	CC, SC ,CIU

Sr. No.	Parameters	Target	Mitigation	Responsibility
			• Training shall be provided to workers with respect to water conservation • Record of such trainings shall be maintained • Water required for construction is obtained in such a way that the water availability and supply to nearby communities remain unaffected;	
10	Energy Efficiency	To minimize energy efficiency	• Ensure adequate insulation to reduce heat loss through batching plants; • Regularly monitor CO and CO_2 content of the flue gases to verify that combustion systems are using practical excess air volumes;	CC, SC ,CIU
11	Surface and Groundwater	To protect the ground and surface water resources from any kind of pollution due to project	• Protection of surface and groundwater reserves from any source of contamination such as the construction and oily waste that will degrade its potable quality; • Wastewater effluent from contractor's workshop and equipment washing yards shall be passed through gravel/ sand beds to remove oil/ grease contaminants before discharging it into existing drains • For construction purposes, water shall be drawn from existing tube-well; • Periodic water quality monitoring according to determined sampling schedule; • The contractor shall ensure that construction debris do not find their way into the existing drainage network which may get clogged; • To maintain the surface water flow/drainage, proper mitigation measures will be taken, like drainage structures • Prohibit washing of machinery and vehicles in any nearby surface waters, provide sealed washing basins	CC, SC ,CIU

Sr. No.	Parameters	Target	Mitigation	Responsibility
			and collect wastewater in sedimentation/retention pond; • Take precautions construct temporary or permanent devices to prevent water pollution due to increased siltation; and • Waste must not be disposed off into any surface water body.	
12	Flora and fauna	To minimize the impact on flora and fauna	• The Contractor's staff and labour will be strictly directed not to damage any vegetation such as trees or bushes; and • Contractor will provide gas cylinders at the camps for cooking purposes • Cutting of trees/bushes for fuel will not be allowed. • Hunting, poaching and harassing of animals will be strictly prohibited and Contractor will warn their labour accordingly; • The camps will be properly fenced and gated to check the entry of animals in search of eatable goods. Similarly, waste of the camps will be properly disposed off to prevent the chances of eating by animals, which may become hazardous to them; • Special measures will be adopted to minimize impacts on the birds, such as avoiding noise generating activities during critical periods of breeding; • Staff working on the project shall be given clear orders, not to shoot, snare or trap any bird.	CC, SC ,CIU
13	Public Utilities/ Infrastructure	To minimize the disturbance to public utilities and infrastructure	• All public utilities likely to be affected by the proposed project need to be relocated well ahead of the commencement of construction work; • Unnecessary excavation shall be avoided; and • Excavations shall be carried out carefully to avoid damaging infrastructure in the surroundings of the project area.	CC, SC ,CIU

Sr. No.	Parameters	Target	Mitigation	Responsibility
			• Contractors will engage utility owners while relocating utilities	
14	Traffic Management	To minimize traffic problems in the project area	• Proper traffic management plan will be needed to avoid traffic jams/public inconvenience; • Movement of vehicles carrying construction materials shall be restricted during the daytime to reduce traffic load and inconvenience to the local residents; • Availability of continuous services of the Traffic Wardens in the diversion and control of traffic; and; • The executing agency is required to maintain liaison between the Traffic Police, local residents/shop keepers/visitors/ travellers and the contractor to facilitate traffic movement during construction stage. Traffic management plan is provided as **Annexure C.**	CC, SC and Traffic Police
15	Communicable diseases including COVID-19	To minimize the spread of corona virus	**COVID-19 specific measures** ▪ All workers must perform complete sanitization at the site as per SOPs/guidelines issued by WHO. ▪ All workers must wear a mask as soon as they arrive at site and must keep wearing it at all times while present at the work site/hospital premises. ▪ As soon as workers arrive at work site, their body temperature must be checked and in case any worker is assessed to be running a fever or suffering from a flu or cough, he must be informed to leave immediately and self-isolate for a two-week period and not report for work until this two-week mandatory period has been completed. ▪ At the work site(s), social distancing measures must be strictly implemented and gathering of workers at any location at the work site(s) must be strictly forbidden. In case of workers not	CC, SC ,CIU

Sr. No.	Parameters	Target	Mitigation	Responsibility
			taking this measure seriously, strict penalties must be imposed to ensure implementation. ▪ The work tasks must be divided into shifts, as far as possible, to reduce the workforce present at the work site(s) at any one moment and improve the working speed/efficiency. ▪ All workers will be strictly advised to wash their hands as frequently as practicable and not to touch their face during work. ▪ A supply of safe drinking water will be made available and maintained at the project site(s). ▪ COVID awareness sign boards must be installed at the clinic premises and at the work site(s). ▪ Contact details of all workers will be kept in a register on site in order to efficiently trace and manage any possible workers that might experience symptoms of COVID-19. ▪ Prohibition of entry for local community/any unauthorized persons at work sites. ▪ Proper hygiene practices in the toilets and washrooms will be implemented with proper and adequate use of soaps and disinfectant spray. ▪ Social distancing must be maintained during the pick-up and dropping off of workers from their residences to and from the work site(s). **COVID-19 specific measures GOP** **Advice for Site Managers:** ▪ Every construction project shall make proper arrangements for uninterrupted building services including but not restricted to, electricity, fuel, water supply, water disposal and sanitation, communication links, washrooms with hand hygiene and shower facility and with	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			proper and adequate supply of soaps and disinfectants. ▪ Workers shall not use biometric attendance machines or crowd during attendance, entry or exit to the premises of the construction site. ▪ Ensure the availability of the thermal gun at the entry and exit of the construction site and no worker shall be allowed without getting his/her temperature checked. ▪ Site manager must maintain a register of all contact details with NID number and addresses of all present at the site in case a follow up or tracing and tracking of contacts is required at a later stage. ▪ Develop the employee roster to decrease the number of people on the site very day. Split the shifts of the workers in morning and evening with limit of each shift to 8 working hours. ▪ Every worker must change into standard working attire at the time of commencement of duty and change back to their regular dress after taking shower when their duty hours' end. ▪ In addition to all other internationally recognized safety precaution for construction workers and other staff, every individual must be provided with a face mask. It must be ensured that everyone during his or her presence at the site continues to wear the mask. Face mask shall be replaced as and when soiled or otherwise removed. Outer surface of face mask must not be touched with hands. ▪ Non-essential work trainings must be postponed avoiding gathering of people.	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			▪ Ensure the physical distance by creating more than one route of entry and exit to the site. ▪ Instruct the workers to inform the construction manager (or authorities) if ▪ They develop any symptoms of cough, flu or fever. ▪ They have been exposed to someone suspected or confirmed with COVID 19. ▪ They have met someone who has a travel history of COVID 19 endemic country. They have travelled in last couple of days or plan to travel soon. ▪ All incidences of appearance of the symptoms of COVID-19 shall be immediately documented and maintained at the site and information regarding which shall be immediately communicated through e-mail or else, to the designated health facility, and the sick worker shall be transported to the health facility for further advice and action. The site manager must establish a link with a nearby healthcare facility with arrangements for quick transportation of workers in case of an emergency. ▪ Persuade the workers to inform the authorities for their safety and of other if they observe any signs and symptoms in a colleague. ▪ Do not allow any worker at the construction site who has the symptoms ▪ Display the awareness banners about hand hygiene and physical distancing, where you can, around the work site. ▪ Everyone on the construction site must observe sneezing and coughing etiquettes. Workers	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			shall be requested and required to wash their hands as frequently as practicable and shall also be advised not to touch their face with their hands during work. ▪ Workers must maintain no less than two arm lengths between them before, during after work at all the times. They shall not make physical contact and shall be required to maintain separate personal gears and assets which must be clearly labelled and stored without intermixing. ▪ Only sanitizable dinning surfaces shall be used, which must be cleaned before each service. ▪ The lunch breaks and stretch breaks of the workers must be staggered to avoid the clustering of workers. Workers must not sit at less than 2 meters' distance while having meals and while any other activity requiring interpersonal communications. ▪ Adequate ventilation shall be provided in dining areas, resting places and sleeping areas. ▪ In the wake of current restrictions on transportations site mangers will ensure safe transport arrangements for worker which shall not be crowded and shall have social distancing in place during the entire process from pickups till drops at destination. ▪ In case of workers sleeping in at the site of construction, a safe distance of 2 meters must be ensured in the sleeping rooms in a well ventilated area. ▪ A supply of safe drinking water must be made available at the project site and maintained. **Advice for Construction Workers:**	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			▪ All possible and prescribed measures shall be taken to ensure your and others health. Enter your contact details in the register maintained at the site, in case a follow up or tracing and tracking of contacts is required at a later stage. ▪ Follow hygiene practices at washrooms and shower facility with proper and adequate use of soaps and disinfectants. ▪ Every worker must change into standard working attire at the time of commencement of duty and change back to their regular dress after taking shower when their duty hours' end. ▪ In addition to all other internationally recognized safety precaution for construction workers and other staff, every individual must use face mask. Face mask shall be replaced as and when soiled or otherwise removed. Outer surface of face mask must not be touched with hands. ▪ Workers shall wash their hands as frequently as practicable and shall not to touch their face with their hands during work. ▪ Everyone on the construction site must observe sneezing and coughing etiquettes. ▪ Workers must maintain no less than two arm lengths between them before, during after work at all the times. They shall not make physical contact and shall be required to maintain separate personal gears and assets which must be clearly labelled and stored without intermix. ▪ Sick worker shall immediately inform the site manager and must get medical advice from nearby health Centre. ▪ Only sanitizable dining surfaces shall be used.	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			▪ Do not sit at less than 2 meters' distance while having meals and while any other activity requiring interpersonal communications. ▪ Do not use biometric attendance machines or crowd during attendance, entry or exit to the premises of the construction site. ▪ Use safe transport arrangements which shall not be crowded and shall have social distancing in place during the entire process from pickups till drops at destination. ▪ In case sleeping in at the site of construction, a safe distance of 2 meters must be ensured in the sleeping rooms in a well ventilated area **Deliveries or Other Contractors Visiting the Site:** ▪ Non-essential visits to the construction sites shall be cancelled or postponed. ▪ Delivery workers or other contractors who need to visit the construction site must go through temperature check before entering and shall be given clear instructions for precautions to be taken while on site. ▪ Designate the workers, with protective gears or at least gloved and mask, to attend to the deliveries and contractors. ▪ Make alcohol-based hand sanitizer (at least 70%) available for the workers handling deliveries. ▪ Instruct the visiting truck drivers to remain in their vehicles and whenever possible make use of contactless methods, such as mobile phones, to communicate with your workers •	
Operational Phase				
1	Natural Hazard	To minimize the risk of structural collapse and	• Ensure the stability and integrity of flood protection	KP Sports Department

Sr. No.	Parameters	Target	Mitigation	Responsibility
		flooding in sports complex	• Ensure that the new structures can withstand earthquake impacts; • Inspections shall be conducted at appropriate intervals by qualified personnel to ensure integrity of structures; and • Develop an emergency response plan for the rainwater flooding in sports complex.	
2	Waste	To minimize and to store the solid waste	• Proper waste management system including provision of waste bins, regular sweeping and collection of waste will be adopted during operational phase.	KP Sports Department
3	Drainage	To prevent flooding and pooling	• Routine inspection and maintenance of the drainage system shall be scheduled and implemented.	KP Sports Department
4	Aesthetics improvements	To maintain good aesthetics in sports complex	• Routine inspection will be carried out to check the maintenance of sports complex; • Plantation will be monitored weekly • Any tree that poses a concern to public safety will be immediately barricaded and evaluated. Issues of immediate concern would be trees or branches that are leaning or broken that may fall onto an area of pedestrian or vehicular activity; • Landscaping carried out as part of project shall be maintained • CIU shall consider actions and review design to further improve the aesthetic appeal of the area	KP Sports Department
5	Health Hazard (Respiratory illness caused by COVID-19 Infection that may lead to fatality)	To avoid Spread of Corona Virus	• Reporting employees who are showing symptoms such as fever or high body temperature, coughing, difficulty of breathing or chest pain. Sending them to clinic or nearest hospital immediately. • Body temperature monitoring through Thermal Scanner or other devices to monitor the body temperature of each employee entering/leaving the site or at camp.	KP Sports Department

Sr. No.	Parameters	Target	Mitigation	Responsibility
			• Awareness and implementation of Quarantine Procedure for all employees who came back from vacation. • No Handshake Policy and ensure at least 1meter distance at workplace. • Conduct regular housekeeping and sanitation for all access/egress points as well as Log-in/Log-out devices. If possible, deactivate Log-in/Log-out devices such as biometrics. Conduct awareness on how to protect yourself against the infection of COVID-19 through campaign (posters, distribution of brochure). Communicating and implementing COVID-19 Guidelines • Ensure Disinfection of offices and machinery periodically, temperature screening at project entrances, provision of hand sanitizers to office and labor staff, provision of surgical face masks, instruction boards and signage at different locations for COVID-19 awareness • CIU WSSCK shall ensure that COVID-19 SOPs issued by GOP, WHO and GoKP are implemented.	

DC **Design Consultant**

CC **Construction Contractor**

SC **Supervision Consultant**

CIU **City Implementation Unit, KPCIP**

5 Environmental Monitoring

5.1 General

46. Environmental Monitoring is undertaken during both the construction and operational phases to ensure the effectiveness of the proposed mitigation measures. Certain environmental parameters are selected and quantitative & qualitative analyses are carried out. The results of analysis are compared with the guidelines; standards and pre-project condition to investigate whether the EMP and its implementation are effective for the mitigation of impacts or not.

47. Parameters to be analyzed during construction & operation of the project, responsibilities for monitoring & reporting and monitoring cost have been discussed in this section.

5.2 Environmental Monitoring during Pre-Construction, Construction and Operation Phases

48. The respective monitoring to be conducted during the three project development phases is provided in **Tables 5.1** to **5.3** below.

5.3 Responsibilities for Monitoring and Reporting

49. The PMU KPCIP will be responsible for environmental monitoring and reporting throughout the construction and operation phases. A monitoring report will be prepared on quarterly basis and one comprehensive report will be prepared on bi-annual basis for submission to ADB.

5.4 Cost of Environmental Monitoring

50. The **Table 5.4** below provides cost estimates for 'Pre-Construction phase' monitoring while **Tables 5.5** and **5.6** provides cost estimates for 'Construction phase' and 'Operation phase' monitoring of key environmental parameters.

Table 5.1 'Pre-Construction' Monitoring Plan for Baseline Development

Parameter to be measured	Objective of Monitoring	Parameters to be Monitored	Measurements	Location*	Frequency	Responsibility
Ambient Air Quality	To establish baseline air quality levels	CO,NO_2, SO_2, O_3 & PM_{10} (particulate matter smaller than 10 microns) concentration at receptor level	1-hr and 24-hr concentration levels	At three random receptor locations in the project area	Once	SC
Ambient Noise	To establish baseline noise levels	Ambient noise level near receptors in project area	A-weighted noise levels – 24 hours, readings taken at 15 s intervals over 15 min. every hour, and then averaged	At three random receptor locations in the project area	Once	SC
Groundwater Quality	To establish groundwater quality in project area	Groundwater quality in project area	Water samples for comparison against NEQS parameters	At two locations around the site in the project area	Once	SC
Surface Water Quality	To establish surface water quality baseline	Surface Water quality in project area	Water samples for comparison against NEQS parameters	At two locations around the site in the project area	Once	SC

* Monitoring Locations to be finalized jointly between PMU Safeguards staff and Supervision Consultant (SC).

Table 5.2 Construction Phase Monitoring Requirements

Project Activity and Potential Impact	Objective of Monitoring	Parameters to be Monitored	Measurements	Location	Frequency	Responsibility
Noise Disturbance due to noise from construction activity	To determine the effectiveness of noise abatement measures on sound pressure levels	Ambient noise level at different locations in project area	A-weighted noise levels – 24 hours, readings taken at 15 s intervals over 15 min. every hour at 15 m from receptors, and then averaged	At three random receptor locations in project area	Quarterly basis on a typical working day	Contractor's Environmental officer, SC
Air Quality Dust emissions from construction vehicles and equipment	To determine the effectiveness of dust control program on dust at receptor level	CO, NO_2, SO_2, O_3 & PM_{10} (particulate matter smaller than 10 microns) concentration at receptor level	1-hr and 24-hr concentration levels	At three random receptor locations in project area	Quarterly basis on a typical working day	Contractor's Environmental officer, SC
		Visible dust	Visual observation of size of dust clouds, their dispersion and the direction of dispersion	Construction site	Once daily during peak construction period	Contractor's Environmental officer, SC
Groundwater Quality	To establish groundwater quality in project area	Groundwater quality in project area	Water samples for comparison against NEQS parameters	At two locations around the site in the project area	Quarterly	Contractor's Environmental officer, SC
Surface water Quality	To establish surface quality in project area	Surface water quality in project area	Water samples for comparison against NEQS parameters	At two locations around the site in the project area	Quarterly	Contractor's Environmental officer, SC
Safety precautions by workers	To prevent accidents for workers and general public	Number of near miss events and accidents taking place	Visual inspections	Construction site	Once Daily	Contractor's Environmental officer, SC

Project Activity and Potential Impact	Objective of Monitoring	Parameters to be Monitored	Measurements	Location	Frequency	Responsibility
Soil Contamination	To prevent contamination of soil from oil and toxic chemical spills and leakages	Incidents of oil and toxic chemical spills	Visual inspections	At construction site and at vehicle and machinery refuelling & maintenance areas	Once a month	Contractor's Environmental officer, SC
Solid Waste & Effluent disposal Insufficient procedures for waste collection, storage, transportation and disposal	To check the availability of waste management system and implementation	Inspection of solid and liquid effluent generation, collection, segregation, storage, recycling and disposal will be undertaken at all work sites in project area	Visual inspections	At work sites in project area	Once daily.	Contractor's Environmental officer, SC

* Monitoring Locations to be finalized jointly between PMU Safeguards staff and Supervision Consultant (SC).

Table 5.3 'Operation Phase' Environmental Monitoring Plan

Parameter to be measured	Objective of Monitoring	Parameters to be Monitored	Measurements	Location	Frequency	Responsibility
Solid Waste Management	To assess that solid waste generated from sports complex operation is managed as per EMP requirements	All waste being generated is being managed and disposed off as per international good practices	Solid waste inventory audit	Kohat Sports Complex	Bi-Annual	KP Sports Department

Table 5.4 Annual Cost Estimates for 'Pre-Construction Phase' Environmental Monitoring[2]

Monitoring Component	Parameters	Quantity	Amount PKR	Details
Air Quality	CO, NO_2, SO_2, O_3 PM_{10}	3 (Once only at 3 locations)	90,000	3 readings @ PKR 30,000 per sample
Noise Levels	dB(A)	3 (Once only at 3 locations)	90,000	3 readings @ PKR 30,000 per reading
Ground Water Quality	NEQS	2 (Once only at 2 locations)	60,000	2 readings @ PKR 30,000 per sample
Surface Water Quality	NEQS	2 (Once only at 2 locations)	60,000	2 readings @ PKR 30,000 per sample
Contingencies			15,000	5% of monitoring cost
Total (PKR)			**315,000**	

[2] For air quality monitoring: 'Passive samplers' such as test tubes can be used or 'Active samplers' with sorbent tubes can also be used.

Table 5.5 Annual Cost Estimates for 'Construction Phase' Environmental Monitoring[3]

Monitoring Component	Parameters	Quantity	Amount PKR	Details
Air Quality	CO, NO_2, SO_2, O_3 PM_{10}	12 (Quarterly basis at 3 locations)	360,000	12 readings @ PKR 30,000 per sample
Noise Levels	dB(A)	12 (Quarterly basis at 3 locations)	360,000	12 readings @ PKR 30,000 per reading
Ground Water Quality	NEQS	8 (Quarterly basis at 2 locations)	240,000	8 readings @ PKR 30,000 per sample
Surface Water Quality	NEQS	8 (Quarterly basis at 2 locations)	240,000	8 readings @ PKR 30,000 per sample
Contingencies			60,000	5% of monitoring cost
Total (PKR)			**1,260,000**	

Table 5.6 Annual Cost Estimates for 'Operation Phase' Environmental Monitoring

Monitoring Component	Parameters	Quantity	Amount PKR	Details
Waste Management	Solid Waste	Bi-Annual	100,000	Twice @ PKR 50,000
Total (PKR)			**100,000**	

[3] For noise monitoring: sampling equipment with duration greater than 1 hour can be used.

6 Environmental Mitigation and Monitoring Cost

6.1 General

51. The cost required to effectively implement the mitigation measures is important for the sustainability of the Project, both in the construction and operational phases.

52. Cost for Environmental Monitoring of air, noise, drinking & ground and surface water is already given in the previous section. Other relevant cost for mitigation of adverse environmental impacts of the proposed project are summarized in **Table 6.1** below.

Table 6.1 Environmental Mitigation Cost

Sr. No.	Activity	Basis	Cost (Rs.)
1	Medical screening for workers	Rs. 1200 per employee and for 100 employees	120,000
2	Material Storage, handling and use	Three (03) No. of tarpaulins of Rs. 20,000 each	60,000
3	Handling/ transportation of hazardous material	Rs. 12,000/month for a period of 12 months will be required for transportation of material	144,000
4	Handling of solid waste	Rs.10,000 per month (two trips per month) for a period of 12 months, which includes the cost of collection, transportation and disposal to the designated site	120,000
5	Cost of Personal Protective Equipment (PPE)*	For 100 employees for the provision of dust masks, safety shoes, gloves, first aid box, ear plugs	402,000
6	Cost of environmental training	Lump sum	200,000
7	Covid Management Cost	Lump sum	300,000
Grand Total			**1,346,000**

53. Detail of PPE cost is given in **Table 6.2** below.

Table 6.2 Break-up for PPEs Cost

Items	Quantity	Cost / Item (Rs.)	Total Cost (Rs.)
Personal Protective Equipment PPE			
Dust masks	4800	20	96,000
Safety Shoes	200	1200	24,000
Gloves	1200	200	240,000
First Aid Box	3	2000	6,000
Ear Plugs	1200	30	36,000
Total			402,000
Time required for Construction = 12 months			
No. of labour required during construction = 100			
Detail of Personal Protective Equipment PPE			
Dust mask	1 dust mask to be used in a week by each laborer		
Safety Shoes	1 safety shoe for six months for each laborer		
Gloves	2 pair of gloves for each laborer for a month		
First Aid Box	1 first aid box in each park		
Ear Plug	1 set of ear plug to be used for 1 month for each laborer		

ANNEXURE: A

REA Checklist

Rapid Environmental Assessment (REA) Checklist

Instructions:

6.1.1 (i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (RSES) for endorsement by the Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: Pakistan/Khyber Pakhtunkhwa Cities Improvement Project (KPCIP)

Sector Division: Up graduation of Sports Complex (Kohat)

Screening Questions	Yes	No	Remarks
A. Project Siting Is the project area.			
• Densely populated?		✓	The Site is located near to KDA and residential area but surroundings don't have much adjacent buildings.
• Heavy with development activities?		✓	There is some construction going on in the site vicinity which is sparse and close to completion.
• Adjacent to or within any environmentally sensitive areas?			
• Cultural heritage site		✓	The sports complex is comparatively new construction with no cultural heritage site in the site periphery.
• Protected Area		✓	No protected areas in the vicinity.
• Wetland		✓	No protected areas in the vicinity.
• Mangrove		✓	The area is not a coastal area so mangroves are not a concern.
• Estuarine		✓	The area is not a coastal area so estuaries are not a concern.

Screening Questions	Yes	No	Remarks
• Buffer zone of protected area		√	No buffer zone of a protected area located in or near the project area.
• Special area for protecting biodiversity		√	No special area for biodiversity in the vicinity of the project area. Although the dense plantation of the project will hence the ecosystem.
• Bay		√	The area is not a coastal area so bays are not a concern.
B. Potential Environmental Impacts Will the Project cause…			
• Impacts on the sustainability of urban green spaces and their interactions with other urban services.		√	It will improve the collection of solid waste from the site and then pass it on to relevant authorities for proper dispose off.
• 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?		√	There will be no deterioration or increase the waste, on the contrary it will improve the activities in site also a proper management plan will be develop by the authorities for the project.
• degradation of land and ecosystems (e.g. loss of wetlands and wild lands, coastal zones, watersheds and forests)?		√	No degradation of land and ecosystems is expected. Moreover, the dense plantation will improve natural ecological system of the area.
• dislocation or involuntary resettlement of people?		√	No dislocation or resettlement of people is expected from this project as the area already serves the purpose of a sports complex facility and no other additional area, including residential areas, will be acquired for the project.
• disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable group?		√	No adverse impacts are anticipated on vulnerable groups. The project will provide economic opportunity for locals and create jobs opportunities for indigenous people.
• degradation of cultural property, and loss of cultural heritage and tourism revenues?		√	No cultural property or heritage site is located in the vicinity of site. During operation the project is likely to enhance local tourism through sporting activities.
• occupation of low-lying lands, floodplains and steep hillsides by squatters and low-income groups, and their exposure to increased health hazards and risks due to pollutive industries?		√	No such risk as project is not going to affect any low-income, squatter groups and poses no overall pollution hazards and risks to the nearby population.
• water resource problems (e.g. depletion/degradation of available water supply, deterioration for surface and ground water quality , and pollution of receiving waters?		√	Existing water supply infrastructure should be sufficient and no additional water sources will be required.

Screening Questions	Yes	No	Remarks
• air pollution due to urban emissions?		√	No emissions or air pollution will be generated as most of the material used will be prefabricated and not much construction machinery will be required on site.
▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical and biological hazards during project construction and operation?	√		There may be some minimal occupational health and safety risk during construction activities. This will be appropriately mitigated in the work plans and environmental management plan through proper training of workers.
• road blocking and temporary flooding due to land excavation during rainy season?		√	No excavation will be required so temporary flooding will not be a problem.
• noise and dust from construction activities?	√		Some amount of noise and dust may arise during construction, which will be adequately catered for in the work plan and environmental management plan, using best practices such as sprinkling of water and noise barriers.
• traffic disturbances due to construction material transport and wastes?		√	Construction activities and developmental work will be kept limited and within project area and not on to adjacent roads or paths.
• temporary silt runoff due to construction?		√	No siltation to arise from construction activities.
• hazards to public health due to ambient, household and occupational pollution, thermal inversion, and smog formation?		√	Proper safety measures will be adopted during construction work.
• water depletion and/or degradation?		√	Existing water supply within the project site will be sufficient therefore no issue of water depletion or degradation will occur.
• overpaying of ground water, leading to land subsidence, lowered ground water table, and salinization?		√	While groundwater may be an alternate source in complex maintenance, it is not expected to be overpaid.
• contamination of surface and ground waters due to improper waste disposal?		√	Waste generation is not expected from the construction and development process.
• pollution of receiving waters resulting in amenity losses, fisheries and marine resource depletion, and health problems?		√	Pollution of water bodies will not happen during this project.
• large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		√	The project is not likely to result in a population influx.
• social conflicts if workers from other regions or countries are hired?		√	Local labor will be hired preferably.
• 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 operation and construction?		√	No explosives, fuel or chemicals will be involved during construction or operation.

Screening Questions	Yes	No	Remarks
• community safety risks due to both accidental and natural hazards, 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?		✓	There are no significant natural or accidental hazards associated with the project. Sound project design will ensure that the community remains safe from hazards during operation.

Climate Change and Disaster Risk Questions The following questions are not for environmental categorization. They are included in this checklist to help identify potential climate and disaster risks.	**Yes**	**No**	**Remarks**
• Is the Project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and climate changes (see Appendix I)?	✓		Kohat is in zone 2B in seismic map of Pakistan but no such construction is needed which required seismic expertise.
▪ Could changes in temperature, precipitation, or extreme events patterns over the Project lifespan affect technical or financial sustainability (e.g., increased extreme rainfall increases flooding, damaging proposed infrastructure)?		✓	The project is not expected to face problems caused due to extreme weather events.
▪ 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)?		✓	The neighborhood population lies in relatively similar socioeconomic strata and marginalization of any particular group is not likely.
▪ Could the Project potentially increase the climate or disaster vulnerability of the surrounding area (e.g., by paving vulnerable groundwater recharge areas, or using water from a vulnerable source that is relied upon by many user groups, or encouraging settlement in earthquake zones)?		✓	Most of the area will maintain its natural green cover and will not be a hindrance to GW recharge.

* Hazards are potentially damaging physical events.

PMU KPCIP Response:

Project fall in category: (A)_____(B)_____(C)___✓_____(F)_____

ANNEXURE: B

WHO/GOP Guidance Related to COVID-19

Advice on the use of masks in the context of COVID-19

Interim guidance
6 April 2020

World Health Organization

Background

This document provides advice on the use of masks in communities, during home care, and in health care settings in areas that have reported cases of COVID-19. It is intended for individuals in the community, public health and infection prevention and control (IPC) professionals, health care managers, health care workers (HCWs), and community health workers. It will be revised as more data become available.

Current information suggests that the two main routes of transmission of the COVID-19 virus are respiratory droplets and contact. Respiratory droplets are generated when an infected person coughs or sneezes. Any person who is in close contact (within 1 m) with someone who has respiratory symptoms (coughing, sneezing) is at risk of being exposed to potentially infective respiratory droplets. Droplets may also land on surfaces where the virus could remain viable; thus, the immediate environment of an infected individual can serve as a source of transmission (contact transmission).[1]

WHO has recently summarized reports of transmission of the COVID-19 virus and provided a brief overview of current evidence on transmission from symptomatic, pre-symptomatic, and asymptomatic [a] people infected with COVID-19 (full details are provided in WHO COVID-19 Sitrep79).[2]

Current evidence suggests that most disease is transmitted by symptomatic laboratory confirmed cases. The incubation period for COVID-19, which is the time between exposure to the virus and symptom onset, is on average 5-6 days, but can be as long as 14 days. During this period, also known as the "pre-symptomatic" period, some infected persons can be contagious and therefore transmit the virus to others.[3-8] In a small number of reports, pre-symptomatic transmission has been documented through contact tracing efforts and enhanced investigation of clusters of confirmed cases.[3-8] This is supported by data suggesting that some people can test positive for COVID-19 from 1-3 days before they develop symptoms.[9,10]

Thus, it is possible that people infected with COVID-19 could transmit the virus before symptoms develop. It is important to recognize that pre-symptomatic transmission still requires the virus to be spread via infectious droplets or through touching contaminated surfaces. WHO regularly monitors all emerging evidence about this critical topic and will provide updates as more information becomes available.

In this document medical masks are defined as surgical or procedure masks that are flat or pleated (some are shaped like cups); they are affixed to the head with straps. They are tested according to a set of standardized test methods (ASTM F2100, EN 14683, or equivalent) that aim to balance high filtration, adequate breathability and optionally, fluid penetration resistance. This document does not focus on respirators; for guidance on use of respirators see IPC guidance during health care when COVID-19 infection is suspected.[11]

Wearing a medical mask is one of the prevention measures that can limit the spread of certain respiratory viral diseases, including COVID-19. **However, the use of a mask alone is insufficient to provide an adequate level of protection, and other measures should also be adopted.** Whether or not masks are used, maximum compliance with hand hygiene and other IPC measures is critical to prevent human-to-human transmission of COVID-19. WHO has developed guidance on IPC strategies for home care[12] and health care settings[11] for use when COVID-19 is suspected.

Community settings

Studies of influenza, influenza-like illness, and human coronaviruses provide evidence that the use of a medical mask can prevent the spread of infectious droplets from an infected person to someone else and potential contamination of the environment by these droplets.[13] There is limited evidence that wearing a medical mask by healthy individuals in the households or among contacts of a sick patient, or among attendees of mass gatherings may be beneficial as a preventive measure.[14-23] However, there is currently no evidence that wearing a mask (whether medical or other types) by healthy persons in the wider community setting, including universal community masking, can prevent them from infection with respiratory viruses, including COVID-19.

Medical masks should be reserved for health care workers. The use of medical masks in the community may create a false sense of security, with neglect of other essential measures, such as hand hygiene practices and physical distancing, and may lead to touching the face under the masks and under the eyes, result in unnecessary costs, and take

[a] An asymptomatic laboratory-confirmed case is a person infected with COVID-19 who does not develop symptoms. Asymptomatic transmission refers to transmission of the virus from a person, who does not develop symptoms. The true extent of asymptomatic infections will be determined from serologic studies.

masks away from those in health care who need them most, especially when masks are in short supply.

Persons with symptoms should:

- wear a medical mask, self-isolate, and seek medical advice as soon as they start to feel unwell. Symptoms can include fever, fatigue, cough, sore throat, and difficulty breathing. It is important to note that early symptoms for some people infected with COVID-19 may be very mild;
- follow instructions on how to put on, take off, and dispose of medical masks;
- follow all additional preventive measures, in particular, hand hygiene and maintaining physical distance from other persons.

All persons should:

- avoid groups of people and enclosed, crowded spaces;
- maintain physical distance of at least 1 m from other persons, in particular from those with respiratory symptoms (e.g., coughing, sneezing);
- perform hand hygiene frequently, using an alcohol-based hand rub if hands are not visibly dirty or soap and water when hands are visibly dirty;
- cover their nose and mouth with a bent elbow or paper tissue when coughing or sneezing, dispose of the tissue immediately after use, and perform hand hygiene;
- refrain from touching their mouth, nose, and eyes.

In some countries masks are worn in accordance with local customs or in accordance with advice by national authorities in the context of COVID-19. In these situations, best practices should be followed about how to wear, remove, and dispose of them, and for hand hygiene after removal.

Advice to decision makers on the use of masks for healthy people in community settings

As described above, the wide use of masks by healthy people in the community setting is not supported by current evidence and carries uncertainties and critical risks. WHO offers the following advice to decision makers so they apply a risk-based approach.

Decisions makers should consider the following:

1. **Purpose** of mask use: the rationale and reason for mask use should be clear– whether it is to be used for source control (used by infected persons) or prevention of COVID-19 (used by healthy persons)
2. Risk of **exposure** to the COVID-19 virus in the local context:
   - The population: current epidemiology about how widely the virus is circulating (e.g., clusters of cases versus community transmission), as well as local surveillance and testing capacity (e.g., contact tracing and follow up, ability to carry out testing).
   - The individual: working in close contact with public (e.g., community health worker, cashier)
3. **Vulnerability** of the person/population to develop severe disease or be at higher risk of death, e.g. people with comorbidities, such as cardiovascular disease or diabetes mellitus, and older people
4. **Setting** in which the population lives in terms of population density, the ability to carry out physical distancing (e.g. on a crowded bus), and risk of rapid spread (e.g. closed settings, slums, camps/camp-like settings).
5. **Feasibility**: availability and costs of the mask, and tolerability by individuals
6. **Type** of mask: medical mask versus nonmedical mask (see below)

In addition to these factors, potential advantages of the use of mask by healthy people in the community setting include reducing potential exposure risk from infected person during the "pre-symptomatic" period and stigmatization of individuals wearing mask for source control.

However, the following potential risks should be carefully taken into account in any decision-making process:

- self-contamination that can occur by touching and reusing contaminated mask
- depending on type of mask used, potential breathing difficulties
- false sense of security, leading to potentially less adherence to other preventive measures such as physical distancing and hand hygiene
- diversion of mask supplies and consequent shortage of mask for health care workers
- diversion of resources from effective public health measures, such as hand hygiene

Whatever approach is taken, it is important to develop a strong communication strategy to explain to the population the circumstances, criteria, and reasons for decisions. The population should receive clear instructions on what masks to wear, when and how (see mask management section), and on the importance of continuing to strictly follow all other IPC measures (e.g., hand hygiene, physical distancing, and others).

Type of Mask

WHO stresses that it is critical that medical masks and respirators be prioritized for health care workers.

The use of masks made of other materials (e.g., cotton fabric), also known as nonmedical masks, in the community setting has not been well evaluated. There is no current evidence to make a recommendation for or against their use in this setting.

WHO is collaborating with research and development partners to better understand the effectiveness and efficiency of nonmedical masks. WHO is also strongly encouraging countries that issue recommendations for the use of masks in healthy people in the community to conduct research on this critical topic. WHO will update its guidance when new evidence becomes available.

In the interim, decision makers may be moving ahead with advising the use of nonmedical masks. Where this is the case, the following features related to nonmedical masks should be taken into consideration:

- Numbers of layers of fabric/tissue
- Breathability of material used
- Water repellence/hydrophobic qualities
- Shape of mask
- Fit of mask

Home care

For COVID-19 patients with mild illness, hospitalization may not be required. All patients cared for outside hospital (i.e. at home or non-traditional settings) should be instructed to follow local/regional public health protocols for home isolation and return to designated COVID-19 hospital if they develop any worsening of illness.[7]

Home care may also be considered when inpatient care is unavailable or unsafe (e.g. capacity is limited, and resources are unable to meet the demand for health care services). Specific IPC guidance for home care should be followed.[3]

Persons with suspected COVID-19 or mild symptoms should:

- Self-isolate if isolation in a medical facility is not indicated or not possible
- Perform hand hygiene frequently, using an alcohol-based hand rub if hands are not visibly dirty or soap and water when hands are visibly dirty;
- Keep a distance of at least 1 m from other people;
- Wear a medical mask as much as possible; the mask should be changed at least once daily. Persons who cannot tolerate a medical mask should rigorously apply respiratory hygiene (i.e. cover mouth and nose with a disposable paper tissue when coughing or sneezing and dispose of it immediately after use or use a bent elbow procedure and then perform hand hygiene.)
- Avoid contaminating surfaces with saliva, phlegm, or respiratory secretions.
- Improve airflow and ventilation in their living space by opening windows and doors as much as possible.

Caregivers or those sharing living space with persons suspected of COVID-19 or with mild symptoms should:

- Perform hand hygiene frequently, using an alcohol-based hand rub if hands are not visibly dirty or soap and water when hands are visibly dirty;
- Keep a distance of at least 1 meter from the affected person when possible;
- Wear a medical mask when in the same room as the affected person;
- Dispose of any material contaminated with respiratory secretions (disposable tissues) immediately after use and then perform hand hygiene.
- Improve airflow and ventilation in the living space by opening windows as much as possible.

Health care settings

WHO provides guidance for the use of PPE, including masks, by health care workers in the guidance document: Rational use of PPE in the context of COVID-19.[24] Here we provide advice for people visiting a health care setting:

Symptomatic people visiting a health care setting should:

- Wear a medical mask while waiting in triage or other areas and during transportation within the facility;
- Not wear a medical mask when isolated in a single room, but cover their mouth and nose when coughing or sneezing with disposable paper tissues. Tissues must be disposed of appropriately, and hand hygiene should be performed immediately afterwards.

Health care workers should:

- Wear a medical mask when entering a room where patients with suspected or confirmed COVID-19 are admitted.
- Use a particulate respirator at least as protective as a US National Institute for Occupational Safety and Health-certified N95, European Union standard FFP2, or equivalent, when performing or working in settings where aerosol-generating procedures, such as tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy are performed.
- Full infection prevention and control guidance for health care workers is provided here.

One study that evaluated the use of cloth masks in a health care facility found that health care workers using cotton cloth masks were at increased risk of infection compared with those who wore medical masks.[25] Therefore, cotton cloth masks are not considered appropriate for health care workers. As for other PPE items, if production of cloth masks for use in health care settings is proposed locally in situations of shortage or stock out, a local authority should assess the proposed PPE according to specific minimum standards and technical specifications.

Mask management

For any type of mask, appropriate use and disposal are essential to ensure that they are effective and to avoid any increase in transmission.

The following information on the correct use of masks is derived from practices in health care settings:

- Place the mask carefully, ensuring it covers the mouth and nose, and tie it securely to minimize any gaps between the face and the mask.
- Avoid touching the mask while wearing it.
- Remove the mask using the appropriate technique: do not touch the front of the mask but untie it from behind.
- After removal or whenever a used mask is inadvertently touched, clean hands using an alcohol-based hand rub or soap and water if hands are visibly dirty.
- Replace masks as soon as they become damp with a new clean, dry mask.
- Do not re-use single-use masks.
- Discard single-use masks after each use and dispose of them immediately upon removal.

WHO continues to monitor the situation closely for any changes that may affect this interim guidance. Should any factors change, WHO will issue a further update. Otherwise, this interim guidance document will expire 2 years after the date of publication.

References

1. Water, sanitation, hygiene and waste management for COVID-19 https://www.who.int/publications-detail/water-sanitation-hygiene-and-waste-management-for-covid-19
2. Coronavirus disease 2019 (COVID-19) Situation Report – 73. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200402-sitrep-73-covid-19.pdf?sfvrsn=5ae25bc7_6
3. Yu P, Zhu J, Zhang Z, Han Y. A familial cluster of infection associated with the 2019 novel coronavirus indicating possible person-to-person transmission during the incubation period. J Infect 2020 doi:10.1093/jiaa077
4. Huang R, Xia J, Chen Y, Shan C, Wu C. A family cluster of SARS-CoV-2 infection involving 11 patients in Nanjing, China Lancet Infect Dis 2020 doi: 10.1016/ S1473-3099(20)30147-X
5. Pan X, Chen D, Xia Y et al. Asymptomatic cases in a family cluster with SARS-CoV-2 infection. Lancet Infect Dis 2020 doi: 10.1016/ S1473-3099(20)30114-6.
6. Tong Z-D, Tang A, Li K-F, Li P, Wang H-L, Yi J-P, et al. Potential presymptomatic transmission of SARS-CoV-2, Zhejiang Province, China, 2020. Emerg Infect Dis. 2020 doi: 10.3201/eid2605.200198
7. Wei WE, Li Z, Chiew CJ, Yong SE, et al. Presymptomatic Transmission of SARS-CoV-2 — Singapore, January 23–March 16, 2020. MMWR, 1 April 2020/69.
8. Kimball A, Hatfield KM, Arons M, James A, et al. Asymptomatic and Presymptomatic SARS-CoV-2 Infections in Residents of a Long-Term Care Skilled Nursing Facility — King County, Washington, March 2020. MMWR, 3 April 2020, 69(13);377–381.
9. WorldHealthOrganization.ReportoftheWHO-ChinaJointMissiononCoronavirusDisease2019(COVID-19) 16-24 February 2020 [Internet]. Geneva: World Health Organization; 2020 Available from: https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final- report.pdf
10. Wei WE, Li Z, Chiew CJ, Yong SE, et al. Presymptomatic Transmission of SARS-CoV-2 — Singapore, January 23–March 16, 2020. MMWR, 1 April 2020/69.
11. World Health Organization. Infection prevention and control during health care when COVID-19 is suspected: interim guidance, (accessed 29 January 2020).
12. World Health Organization. Home care for patients with COVID-19 presenting with mild symptoms and management of contacts: interim guidance (accessed 29 January 2020)
13. Infection prevention and control of epidemic- and pandemic-prone acute respiratory diseases in health care. Geneva: World Health Organization; 2014 (https://apps.who.int/iris/bitstream/handle/10665/112656/9789241507134_eng.pdf, accessed 17 January 2020).
14. Aiello AE, Coulborn RM, Perez V, et al. A randomized intervention trial of mask use and hand hygiene to reduce seasonal influenza-like illness and influenza infections among young adults in a university setting. International Journal of Infectious Diseases 2010;14:E320-E20. doi: 10.1016/j.ijid.2010.02.2201
15. Cowling BJ, Fung ROP, Cheng CKY, et al. Preliminary Findings of a Randomized Trial of Non-Pharmaceutical Interventions to Prevent Influenza Transmission in Households. Plos One 2008;3(5) doi: 10.1371/journal.pone.0002101
16. Suess T, Remschmidt C, Schink SB, et al. The role of facemasks and hand hygiene in the prevention of influenza transmission in households: results from a cluster randomised trial; Berlin, Germany, 2009-2011. BMC Infect Dis 2012;12:26. doi: 10.1186/1471-2334-12-26.[published Online First: 2012/01/28]
17. Aiello AE, Perez V, Coulborn RM, et al. Facemasks, hand hygiene, and influenza among young adults: a randomized intervention trial. PLoS One 2012;7(1):e29744. doi:10.1371/journal.pone.0029744. Epub 2012 Jan 25. [published Online First: 2012/02/02]
18. Barasheed O, Almasri N, Badahdah AM, et al. Pilot Randomised Controlled Trial to Test Effectiveness of Facemasks in Preventing Influenza-like Illness Transmission among Australian Hajj Pilgrims in 2011. Infect Disord Drug Targets 2014;14(2):110-6. doi: 10.2174/1871526514666141021112855 [published Online First: 2014/10/23]
19. Canini L, Andreoletti L, Ferrari P, et al. Surgical mask to prevent influenza transmission in households: a cluster randomized trial. PLoS One 2010;5(11):e13998. doi:10.1371/journal.pone.0013998. [published Online First: 2010/11/26]
20. MacIntyre CR, Zhang Y, Chughtai AA, et al. Cluster randomised controlled trial to examine medical mask use as source control for people with respiratory illness. BMJ Open 2016;6(12):e012330. doi: 10.1136/bmjopen-2016-012330. [published Online First: 2017/01/01]
21. Lau JT, Tsui H, Lau M, Yang X. SARS transmission, risk factors, and prevention in Hong Kong. Emerg Infect Dis. 2004 Apr;10(4):587-92.
22. Wu J, Xu F, Zhou W et al. Risk factors for SARS among persons without known contact with SARS patients, Beijing, China. Emerg Infect Dis. 2004 Feb;10(2):210-6.

Date: 11 April 2020
Document Code:11-01
Version: 01

Guidelines
Health & Safety of Building & Construction Workers during COVID-19 Outbreak

Objective
To provide guidelines for the workers involved in building and construction work during the current epidemic of COVID-19.

Rationale

Construction processes are dynamic with significantly varying number of workers on a construction project site from day to day. The workers coming from diverse environments and working closely together increases the risk of exposure to COVID 19.

Building construction involves earth work, procurement of materials and supplies and their storage, construction work done by masons, blacksmiths, electricians, carpenters, plumbers, painters, supervisors, managers and security personnel. These guidelines provide the safety measure to be implemented at the construction site having a dusty environment, continuous flow of different materials and make-shift type of arrangements for storage, food and sanitation calls for implementation of safety precautions at the very basic level of personal hygiene only.

Advice for Site Managers:
Without prejudice to the following, all possible and prescribed actions shall be taken at the project site, as should facilitate the health of all life present at the site.

- Every construction project shall make proper arrangements for uninterrupted building services including but not restricted to, electricity, fuel, water supply, water disposal and sanitation, communication links, washrooms with hand hygiene and shower facility and with proper and adequate supply of soaps and disinfectants.
- Workers should not use biometric attendance machines or crowd during attendance, entry or exit to the premises of the construction site
- Ensure the availability of the thermal gun at the entry and exit of the construction site and no worker should be allowed without getting his/her temperature checked.
- Site manager must maintain a register of all contact details with NID number and addresses of all present at the site in case a follow up or tracing and tracking of contacts is required at a later stage.
- Develop the employee roaster to decrease the number of people on the site very day. Split the shifts of the workers in morning and evening with limit of each shift to 8 working hours.

1

- Every worker must change into standard working attire at the time of commencement of duty and change back to their regular dress after taking shower when their duty hours end.
- In addition to all other internationally recognized safety precaution for construction workers and other staff, every individual must be provided with a face mask. It must be ensured that everyone during his or her presence at the site continues to wear the mask. Face mask shall be replaced as and when soiled or otherwise removed. Outer surface of face mask must not be touched with hands.
- Non-essential work trainings must be postponed avoiding gathering of people.
- Ensure the physical distance by creating more than one route of entry and exit to the site.
- Instruct the workers to inform the construction manager (or authorities) if
    - They develop any symptoms of cough, flu or fever.
    - They have been exposed to someone suspected or confirmed with COVID 19.
    - They have met someone who has a travel history of COVID 19 endemic country
    - They have travelled in last couple of days or plan to travel soon
- All incidences of appearance of the symptoms of COVID-19 shall be immediately documented and maintained at the site and information regarding which shall be immediately communicated through e-mail or else, to the designated health facility, and the sick worker shall be transported to the health facility for further advice and action. The site manager must establish a link with a nearby healthcare facility with arrangements for quick transportation of workers in case of an emergency.
- Persuade the workers to inform the authorities for their safety and of other if they observe any signs and symptoms in a colleague
- Do not allow any worker at the construction site who has the symptoms
- Display the awareness banners about hand hygiene and physical distancing, where you can, around the work site.
- Everyone on the construction site must observe sneezing and coughing etiquettes.
- Workers shall be requested and required to wash their hands as frequently as practicable and shall also be advised not to touch their face with their hands during work.
- Workers must maintain no less than two arm lengths between them before, during after work at all the times. They shall not make physical contact and shall be required to maintain separate personal gears and assets which must be clearly labelled and stored without intermix.
- Only sanitize-able dinning surfaces shall be used, which must be cleaned before each service. Food must be heated to a temperature to no less than 70° C before consumption and shall preferably be served in disposable utensils. If reusable utensils are used, these must be washed with soap and water immediately after use and stored at a safe place.
- The lunch breaks and stretch breaks of the workers must be staggered to avoid the clustering of workers. Workers must not sit at less than 2 meters distance while having meals and while any other activity requiring interpersonal communications.
- In the wake of current restrictions on transportations site mangers will ensure safe transport arrangements for worker which should not be crowded and should have social distancing in place during the entire process from pickups till drops at destination

- In case of workers sleeping in at the site of construction, a safe distance of 2 meters must be ensured in the sleeping rooms
- A supply of safe drinking water must be made available at the project site and maintained.

Advice for Construction Workers:

- All possible and prescribed measures shall be taken to ensure your and others health
- Enter your contact details in the register maintained at the site, in case a follow up or tracing and tracking of contacts is required at a later stage.
- Follow hygiene practices at washrooms and shower facility with proper and adequate use of soaps and disinfectants.
- Every worker must change into standard working attire at the time of commencement of duty and change back to their regular dress after taking shower when their duty hours end.
- In addition to all other internationally recognized safety precaution for construction workers and other staff, every individual must use face mask. Face mask shall be replaced as and when soiled or otherwise removed. Outer surface of face mask must not be touched with hands.
- Workers should wash their hands as frequently as practicable and shall not to touch their face with their hands during work.
- Everyone on the construction site must observe sneezing and coughing etiquettes.
- Workers must maintain no less than two arm lengths between them before, during after work at all the times. They shall not make physical contact and shall be required to maintain separate personal gears and assets which must be clearly labelled and stored without intermix.
- Sick worker should immediately inform the site manager and must get medical advice from nearby health centre.
- Only sanitize able dinning surfaces shall be used. Food must be heated to a temperature to no less than 70° C before consumption and shall preferably be in disposable utensils. If reusable utensils are used, these must be washed with soap and water immediately after use and stored at a safe place.
- Do not sit at less than 2 meters distance while having meals and while any other activity requiring interpersonal communications.
- Do not use biometric attendance machines or crowd during attendance, entry or exit to the premises of the construction site.
- Use safe transport arrangements which should not be crowded and should have social distancing in place during the entire process from pickups till drops at destination.
- In case sleeping in at the site of construction, a safe distance of 2 meters must be ensured in the sleeping rooms.

Deliveries or Other Contractors Visiting the Site

- Non-essential visits to the construction sites should be cancelled or postponed.

3

- Delivery workers or other contractors who need to visit the construction site must go through temperature check before entering and should be given clear instructions for precautions to be taken while on site.
- Designate the workers, with protective gears or at least gloved and mask, to attend to the deliveries and contractors.
- Make alcohol-based hand sanitizer (at least 70%) available for the workers handling deliveries.
- Instruct the visiting truck drivers to remain in their vehicles and whenever possible make use of contactless methods, such as mobile phones, to communicate with your workers.

Note: The above recommendations are being regularly reviewed by the Ministry of National Health Services, Regulations & Coordination and will be updated based on the international & national recommendations and best practices.

The Ministry acknowledges the contribution of Irfan Mirza, Syeda Shehirbano Akhtar and HSA/ HPSIU/ NIH team to compile these guidelines.

For more information, please contact:

HSA/ HPSIU/ NIH, PM National Health Complex, Islamabad
http://covid.gov.pk/
http://nhsrc.gov.pk/ https://www.facebook.com/NHSRCOfficial
http://www.hsa.edu.pk/ https://twitter.com/nhsrcofficial
https://www.nih.org.pk/ https://www.youtube.com/channel/UCdYuzeSP4Ug1f__ZZKJ

4

ANNEXURE C
Traffic Management Plan

C.1 Need for Plan

The project works will take over 24 months and in this period, huge vehicular movement carrying large amount of material and machinery is expected. This will definitely interrupt the local traffic and is therefore important to manage the traffic to avoid the nuisance to local residents in terms of noise, dust, congestion and inconvenience.

C.2 The plan

The Objective of Traffic Management Plan (TMP) is to define the requirements that should be implemented to mitigate any potential negative risks to the environment, workers or the community resulting from construction traffic.

The TMP will advise and inform site Contractors and external suppliers of equipment and materials of access and entry points along with other key information such tipping areas and wash-out areas. It is intended to compliment and work alongside relevant ESMMP. The TMP will be classed as “live” and therefore be subjected to updates as required.

Contractor, at the time of the execution of the project will prepare a comprehensive TMP in coordination with local traffic police department, PMU, emergency services and local administrative department. The PMU and SC will review and approve contractors TMP. The contractor’s TMP shall include following mitigation measures during its preparation:

Undertake a road conditions assessment prior to and following the peak construction period, to assess any damage to road infrastructure that can be attributed to Project construction.

Repair damage as appropriate or enter into a voluntary agreement with the relevant roads authority to reimburse the cost of any repairs required to the public road network as a result of the Project.

Spoil dumpsites located close to Project site to minimize journey distance and limit movements to site access roads.

Concrete mixing plant located at Project site limiting traffic movements associated with concrete delivery to site access roads

Construction of worker accommodation on site to reduce light vehicle movements relating to travel to/ from the site

Provision of bus/minibus services for personnel living in nearby settlements

Movements of construction workers will be planned to avoid the busiest roads and times of day when traffic is at its greatest.

Schedule deliveries and road movements to avoid peak periods

Road maintenance fund to leave a useful asset for communities after the construction phase.

Driver training for HGV drivers and refresher course every six months for Project drivers

Speed restrictions for project traffic travelling through communities (to be agreed with Traffic Management Authority)

Run a safety campaign to improve the people’s knowledge of the traffic hazard on their roads, public information and other activities to address the issues.

Run a pedestrian awareness programmer

Temporary signage

The traffic management plan is provided below.

C.3 Other Recommendations

It is important to manage public access routes during construction because it can cause delay to local traffic and create a safety hazard both on and offsite. People working and living near

the project site would be annoyed by the emissions, noise and visual intrusion of queuing vehicles. Some important factors involved in access routes and site traffic are as follows:

C.3.1 Public Access Routes

The use of public road for site access may be restricted in terms of:

Vehicle size, width and type of load

Time limits

Parking

Pedestrian conflicts

Contractor should have consultation with the local police or local authority to address these issues and to effectively manage them before the beginning of the construction.

C.3.2 Site Workers Traffic

Site personnel should not be permitted to park vehicles near the site boundary; this will lead to disruption in material deliveries. Designated parking area with appropriate parking space will be needed for this purpose; any plain area near construction site can be used for this purpose.

C.3.3 Site Rules

Access to and from the site must be only via the specified entrance.

On leaving the site, vehicles must be directed to follow the directions given.

Drivers must adhere to the site speed limits.

All material deliveries to site must keep allocated time limits.

No material or rubbish should be left in the loading-unloading area.

Develop a map for alternate routes showing material delivery services.

Assign designated personnel on site to receive deliveries and to direct the vehicles.

Monitor vehicle movement to reduce the likelihood of queuing or causing congestion in and around the area.

Project vehicles should have a unanimous badge or logo on windscreen displaying that they belong to the Sport complex project.

C.4 Contractor's Obligation

The traffic management plan of the Contractor should be safe enough and widening of access roads and construction of the detours must be completed before start of project construction activities so that heavy vehicular transportation for construction activities do not hinder the normal course of traffic lanes. Contractor must ensure that road closures are carried out by a competent person. The Contractor obligation must include the display of traffic signs according to the need to divert the traffic volume and to guide the road users in advance. The traffic sign, traffic light should be placed from any diverting route or road marking.

The Contractor should consider the environmental and social impacts of the traffic during construction. It will be sole responsibility of the Contractor to implement a plan which produces minimum nuisance to the local people and to the environment. Safety of the people should be given due importance. It will be under Contractor obligation to notify the traffic management plan and its later changes to SC, PMU, emergency services and Traffic Police, and also publish weekly programmer in local newspapers.