

# Environmental Management Plan

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Project Number: 51036-002  
November 2021

## Pakistan: Khyber Pakhtunkhwa Cities Improvement Project

### Establishment of Women Business Development Center, Kohat

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

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### CURRENCY EQUIVALENTS

As of 18<sup>th</sup> 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

<b>ADB</b>	Asian Development Bank
<b>CC</b>	Construction Contractor
<b>COVID</b>	Corona Virus Infectious Disease
<b>DC</b>	Design Consultant
<b>EE</b>	Environmental Engineer
<b>EMP</b>	Environmental Management Plan
<b>EPA</b>	Environmental Protection Agency
<b>IA</b>	Implementing Agency
<b>ISWM</b>	Integrated Solid Waste management
<b>KP</b>	Khyber Pakhtunkhwa
<b>KPCIP</b>	Khyber Pakhtunkhwa Cities Improvement Project
<b>KP-EPA</b>	Khyber Pakhtunkhwa Environmental Protection Agency
<b>LGE&amp;RDD</b>	Local Government Election and Rural Development Department
<b>NEQS</b>	National Environmental Quality Standards
<b>PMU</b>	Project Management Unit
<b>PPE</b>	Personal Protective Equipment
<b>PRF</b>	Project Readiness Facility
<b>RE</b>	Resident Engineer
<b>REA</b>	Rapid Environmental Assessment
<b>SC</b>	Supervision Consultant
<b>SPS</b>	Safeguard Policy Statement
<b>STD</b>	sexually-transmitted disease
<b>STPs</b>	Sewage Treatment Plants
<b>UCCRTF</b>	Urban Climate Change Resilience Trust Fund
<b>WBDC</b>	Women Business Development Center
<b>WHO</b>	World Health Organization

### NOTE

In this report, "\$" refers to US dollars

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## SECTION 1

### INTRODUCTION

#### 1.0 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. 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 liveable; 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. The Project has the following four major components:
  - Improvement of water supply systems in five cities.
  - Development of sewage treatment plants (STPs) in two cities.
  - Provision of Integrated Solid Waste management (ISWM) system in four cities.
  - Development of Urban/Green Spaces in five cities.

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5. The project aims to provide a platform where women can acquire entrepreneurial skills, exhibit and sell products and services, and participate in healthy social and recreational activities. The platform will play a role in empowering women to become business owners and building a greater sense of community amongst the women of the city. The project will be constructed on 1.5 acres of government land, owned by the Red Cross department. Location of the proposed WBDC is provided as **Figures 1 and 2** below.

### **1.1 Project Need**

6. Kohat has a network of thirteen vocational schools currently where young girls and women can learn embroidery, tailoring, beauty parlor and basic computer skills. The network is run and managed by Pakistan Red Crescent and the Department of Social Welfare, Special Education and Women Empowerment (District Kohat). Although over a hundred women access the services of the vocational schools, these existing schools lack adequate infrastructure, human resources and innovation to empower women with the right set of skillsets.
7. The establishment of a new Women Business Development Center (WBDC) will bridge this gap through the construction of new facilities and reformation of the training program at one of the central vocational schools located in the Main Bazaar area of Kohat (under Pakistan Red Crescent).

### **1.2 Project Categorization**

8. 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.
9. 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 Components of the Project**

10. The scope of the proposed works consists of the following system components:
- Business Development School for Entrepreneurs
  - Community Space & Exhibition Hall
  - Recreational park for women and their accompanying children
  - Clothing & Crafts Market
  - Commercial shops for men
  - Dense plantation around the property line

#### **1.5 Objective of EMP**

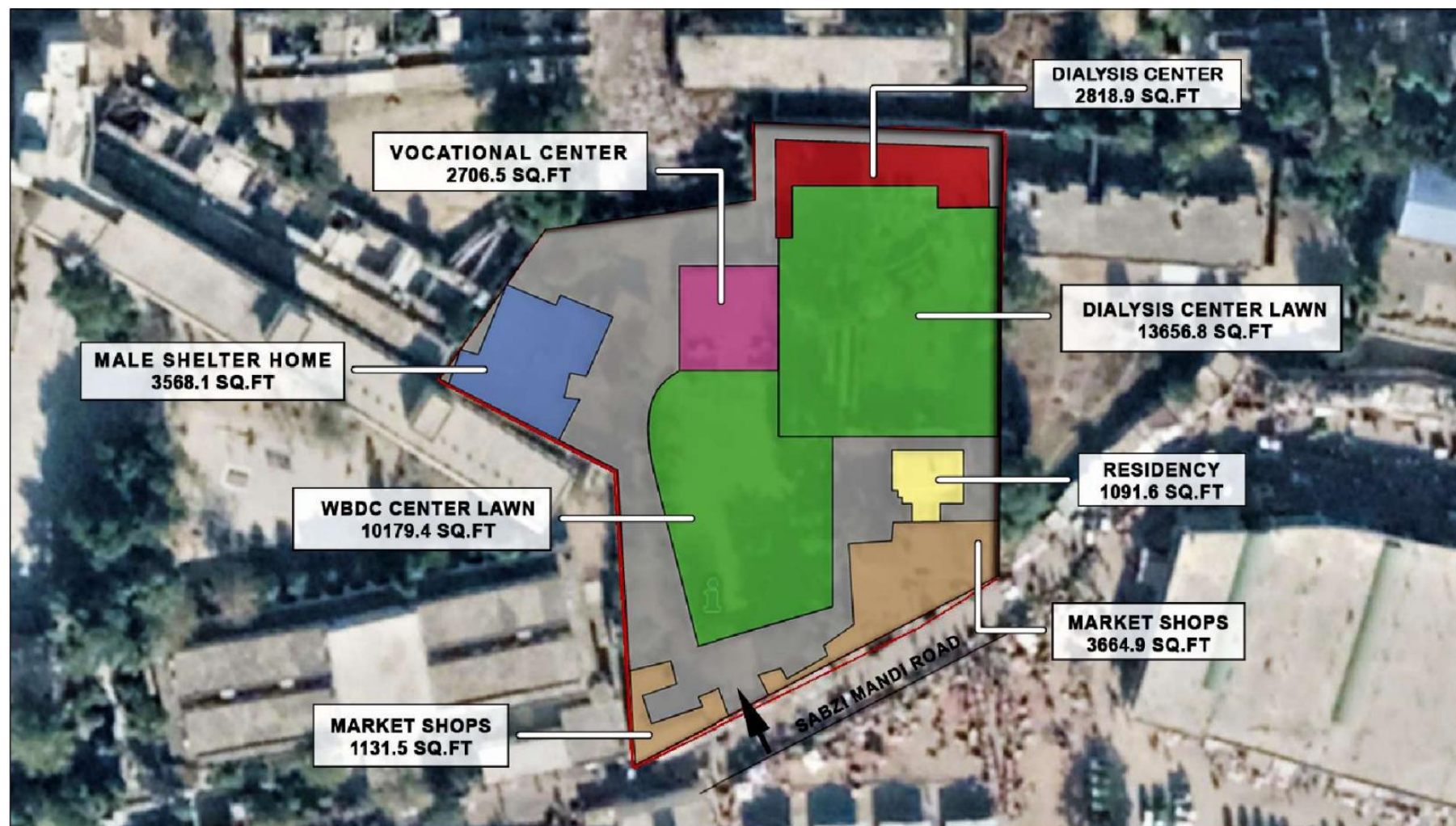
11. The EMP provides an overall approach for managing and monitoring the potential impacts and describes the institutional framework and resource allocations to implement these measures.
12. The main objectives of EMP are to:
- Provide details of the project impacts along with the proposed mitigation 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 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: Project area map of WBDC





Figure 2: Layout of Existing and Proposed WBDC



## SECTION 2

### PROJECT DESCRIPTION

#### 2.0 Project Location

13. The selected vocational centre for women in Main Bazaar is situated on old jail road at south of Kohat-Fateh Jang Road, adjacent to Liaqat Memorial Hospital. The centre can be found in a gated-compound opposite to a sabzi mandi (vegetable market) and along a double-road with heavy vehicular traffic.

#### 2.2 Component Wise Project Scopes and Objectives

14. The scope and objectives of the project are provided in **Table 2.1** below.

**Table 2.1: Project Scope and Objectives**

	Scope	Objectives
1.	Business Development School for Entrepreneurs	<ul style="list-style-type: none"> <li>Women empowerment through vocational training centre.</li> <li>The vocational school will provide training in skills such as tailoring, woodworking and cooking for catering businesses.</li> <li>Women will have the opportunity to become business owners and have the option of renting shops within the WBDC compound.</li> </ul>
2.	Community Space & Exhibition Hall	<ul style="list-style-type: none"> <li>Multipurpose community hall for social gathering and events for women only.</li> <li>Indoor / Outdoor open exhibition area for selling and display of products.</li> </ul>
3	Recreational park for women and their accompanying children	A small park within the compound of the WBDC will provide much needed breathing space for women and children.
4	Clothing & Crafts Market	Shops within the WBDC compound will be reconstructed for the women and students of WBDC.
5	Commercial shops for men	Small plaza based on commercial shops for men



		participating in the business of WBDC.
6	Dense plantation around the property line	<ul style="list-style-type: none"> <li>▪ Reduction in urban heat island effect. Cooling effect on pathways from tree shading.</li> <li>▪ O<sub>2</sub> production and air purification.</li> <li>▪ Absorption of Greenhouse Gases (CO<sub>2</sub>, CH<sub>4</sub> etc.).</li> <li>▪ Maintain privacy</li> </ul>

## 2.3 Site Description

15. The description of the proposed site based on the field observations made during visits to the site are summarized below:

- The selected vocational centre for women in Main Bazaar is situated on old jail road at south of Kohat-Fateh Jang Road, adjacent to Liaqat Memorial Hospital. The centre can be found in a gated-compound opposite to a sabzi mandi (vegetable market) and along a double-road with heavy vehicular traffic. The compound is known as Malam Welfare Center Kohat.
- The center is located inside a compound (Malam Welfare Center Kohat) opposite to sabzi mandi (vegetable market). The facility is currently being used as a vocational training center for women (Picture 1); shelter home for men (Picture 2) and few shops on its front side that have been leased out to small businesses by the Red Crescent Society of Pakistan (Picture 3). The existing center has an open lawn with sparse vegetation in front of the facility (Picture 4).
- The existing vocational center for women building has four small rooms with broken furniture, no water supply, washroom, no kitchen, obsolete computers and equipment are piled in a storeroom. The front lawn and a lot of space within the gated compound is underutilized with no plantation and other greenery around it.



Picture 1. Exterior of Vocational Centre for Women



Picture 2. Exterior of Shelter Home for Men



Picture 3. Shops at the front



Picture 4. Shared Outdoor Space

## 2.4 Design Features of Proposed WBDC

16. The proposed WBDC project in Kohat is spread over an area of 0.813 acres of land and will have a Business development school/vocational centre for entrepreneurs, Outdoor community space & exhibition hall, Clothing & crafts market for women, Commercial Shops for women and men, Canteen, Baby setting facility for working mothers and Park for women.
17. This project of Khyber Pakhtunkhwa Cities Improvement Project (KPCIP) will benefit 210 families, including students, teachers, women and men shopkeepers and other employees working in the center and shops, of Kohat city directly, while the indirect beneficiaries will be 228,779 residents, including Kohat municipal committee and Kohat cantonment residents. The project will enhance the quality of life of the local community of Kohat city specially women of Kohat.
18. The architectural detailed designs for the proposed WBDC are as follows:

### Women's Business and Vocational Training Centre:

- Main reception and waiting area
- 4 offices, 1 conference and 1 teacher staff room
- 5 classrooms/ audiovisual rooms with capacity of 25-30 students
- 6 design studios with capacity of 25-30 students
- Girl's common room with capacity of 25-30 students
- Student toilet block

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- Baby sitting area
  - Canteen
  - Indoor courtyard with sitting arrangements
  - Library facility
  - Multipurpose hall/display hall
  - Stationary shop

PARKING AREA:

- 3 cars and 2 vans parking provided

MARKET FOR WOMEN:

- A clothing and craft market based on 20 shops is designed with the boundary of WBDC for women only.

COMMERCIAL SHOPS FOR MEN:

- A small market based on 24 shops is designed adjacent to the boundary of WBDC for men only.

OUTDOOR LAWN / PARK:

- A small park within the compound of the WBDC is provide as a breathing space for women and children with proper sitting arrangements, garden lights, flower beds etc. This outer door open lawn can be used as open-air exhibition area also for WBDC events.

PLANTATION:

- The boundary plantation, seasonal flower beds, row plantation will beautify the park. Trees will play a role providing privacy, shade and keeping the area cool.

19. The project design layouts are provided as **Figures 3, 4 and 5** below.



Figure 3: Master Plan for WBDC

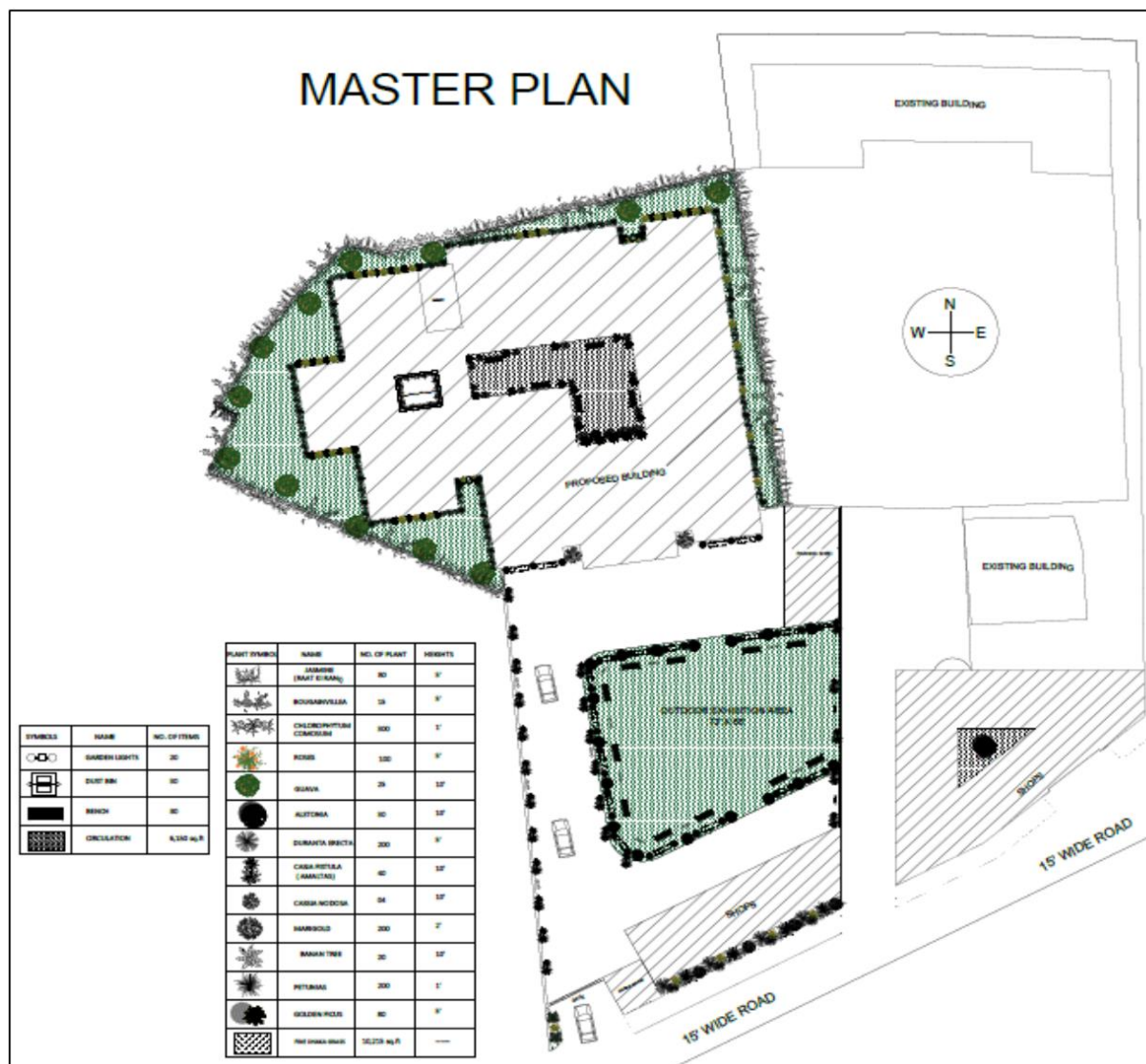




Figure 4: Ground Floor Plan for WBDC

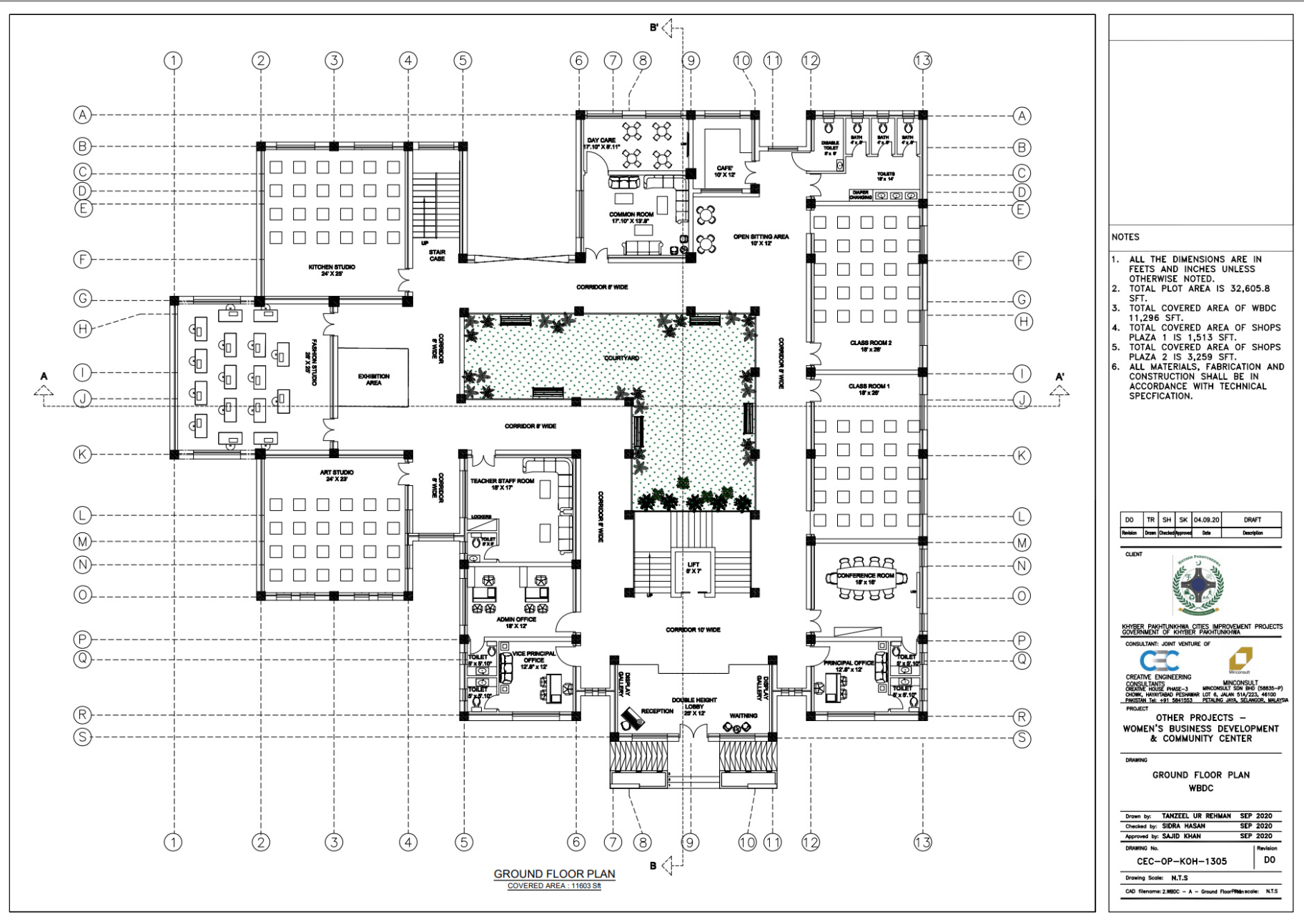
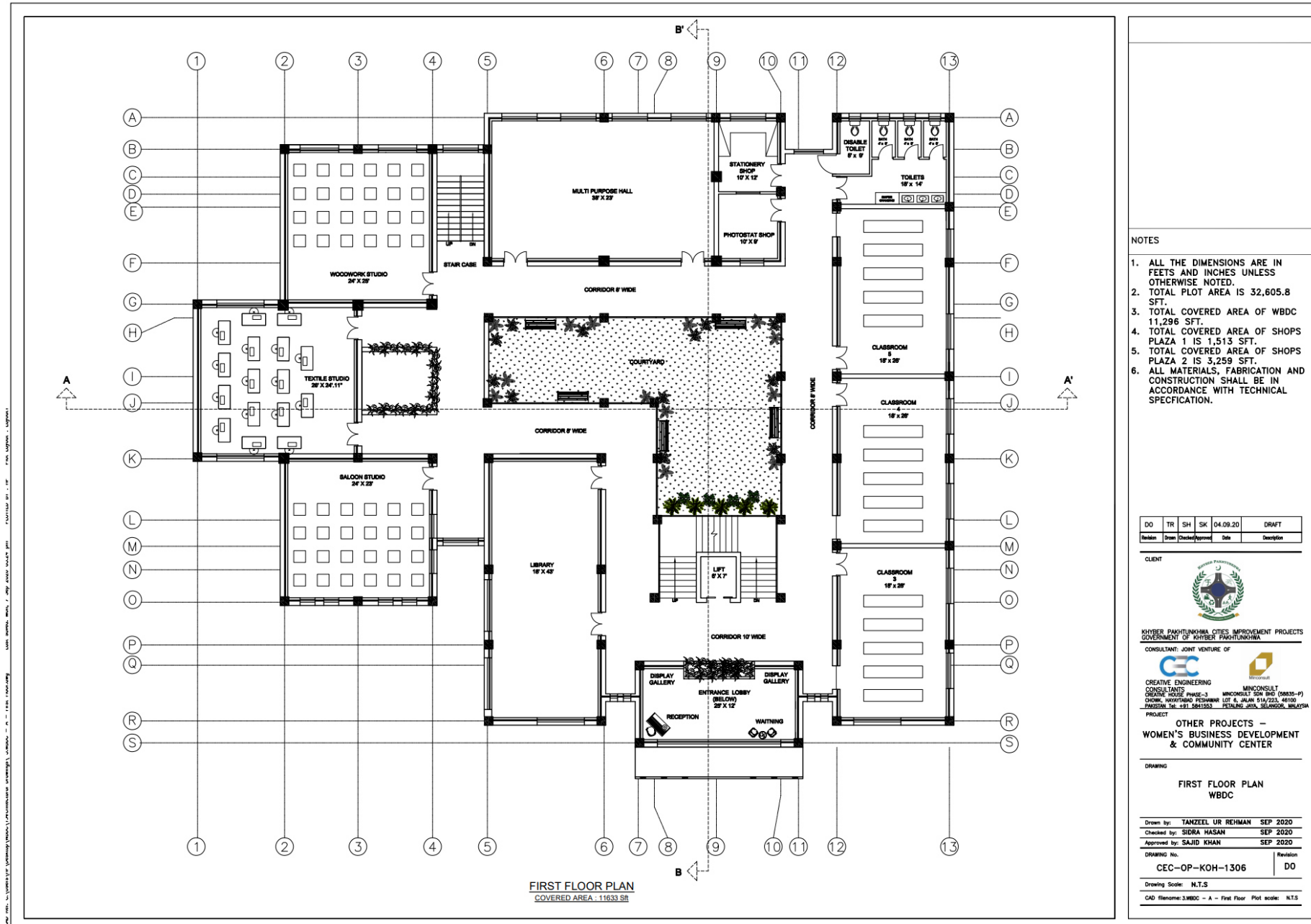


Figure 5: First Floor Plan for WBDC



## **2.5 Stakeholder Consultations**

20. Several consultative sessions were held between the Kohat city management 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.
21. 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:
  - This WBDC is greatly needed to provide an avenue to the women in the community for their recreational and social development needs.
  - The Center will greatly benefit the women in the community to obtain vocational traits which they are presently lacking and as a result will be able to generate income and support themselves as well as their families.
  - The Center will provided a much needed safe and comfortable environment for women from all backgrounds, including very conservative women to also attend the Center.

## SECTION 3

### INSTITUTIONAL ARRANGEMENTS AND CAPACITY BUILDING

#### 3.0 General

22. 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.

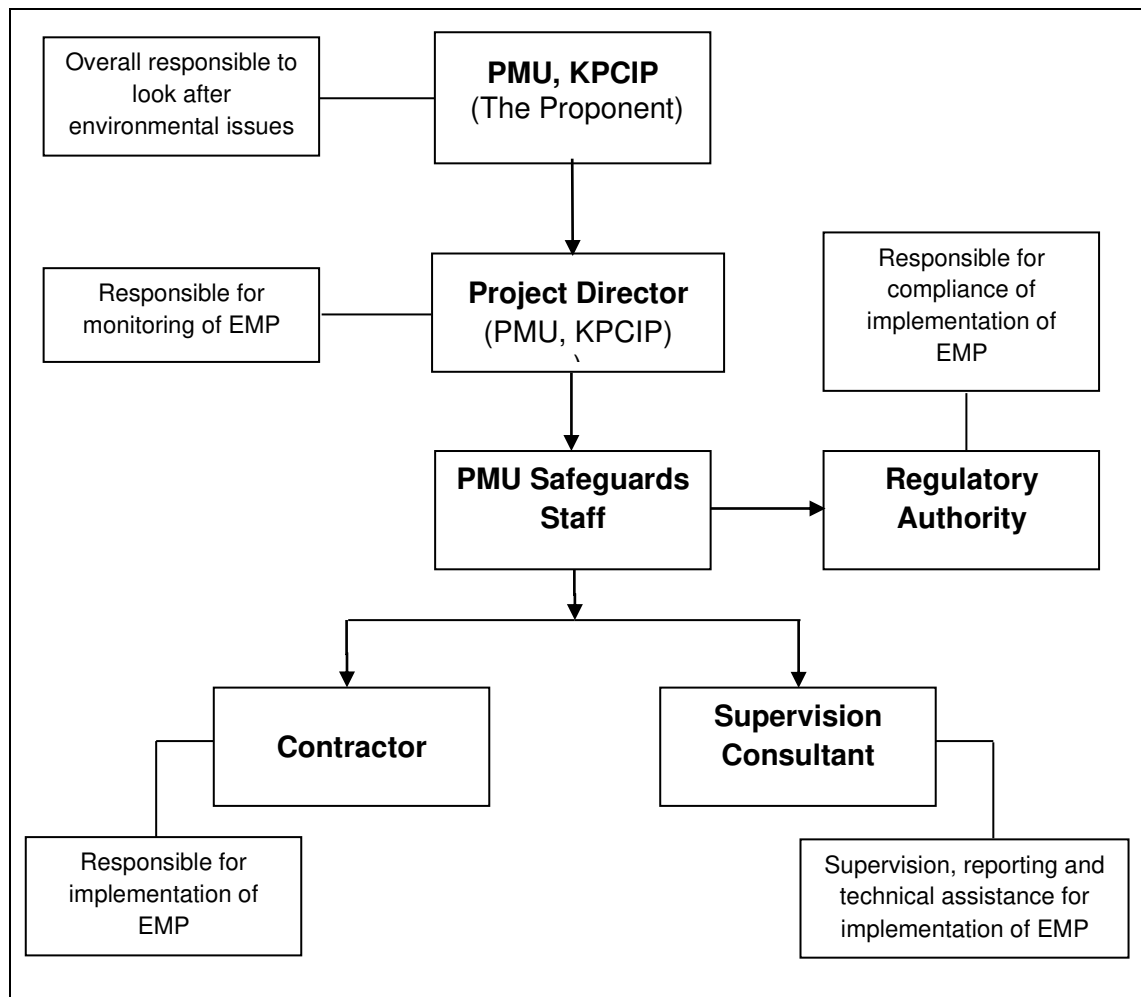
#### 3.1 Organizational Set-up for Implementation of EMP

23. The following functionaries will be involved in the implementation of EMP:

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

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

24. The PMU 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.
25. 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 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.



**Figure 3.1 Organizational Setup for Implementation of EMP**

## 3.2 Role and Responsibilities of PMU

### 3.2.1 Program Management Unit (PMU)

26. Design and Construction of the project is the core responsibility of PMU, KPCIP. The major role and responsibilities related to environment and social tasks are as follows:

- 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



### **3.2.2 Project Director (PD)**

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

- Setting up systems for environmental management;
- Ensuring that the Contractor(s) develop and carry out environmental implementation Plans that are consistent with the EMP;

### **3.2.3 Responsibilities of Environmental Engineer of Supervision Consultant**

28. 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.

29. 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**

30. 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**

31. 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**

32. 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.
33. 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.

34. The PMU, KPCIP will engage consultants to manage the environmental training program. The objective of engaging these consultants 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: Environmental laws and regulations, daily monitoring and supervision	One seminar for PMU and contractor project staff	1 day
Consultants/ organizations specializing in social management and monitoring	Short seminar and course on: Social awareness	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	One seminar for contractor's staff	2 days

## SECTION 4

### ENVIRONMENTAL MANAGEMENT PLAN

#### 4.0 General

35. The Environmental Management Plan (EMP) provides the framework for the implementation of the mitigating 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.
36. 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
<b>Design/pre-construction Phase</b>				
1	Design & Layout Planning	Intended to enhance the WBDC aesthetic and focused on certain project structures	<ul style="list-style-type: none"> <li>All structural, layout and engineering designing of project shall be strict in accordance with the applicable by laws and engineering parameters.</li> </ul>	PMU, KPCIP
2	Drainage	To prevent flooding and pooling	<ul style="list-style-type: none"> <li>Provision of appropriate drainage structures and stormwater pumping station; and</li> <li>Proper slopes shall be incorporated in design feature to avoid the formation of the water layer on road surfaces in rainy seasons.</li> </ul>	PMU, KPCIP
3	Public Utilities	To avoid disturbance to the public.	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	PMU, KPCIP
4	Seismic Hazard	To minimize the structural damage	<ul style="list-style-type: none"> <li>The proposed building and structures will be designed and constructed to withstand</li> </ul>	PMU, KPCIP



Sr. No.	Parameters	Target	Mitigation	Responsibility
			low to moderate earthquakes. For seismic hazard analysis, updated structural and seismic evaluations will be consulted.	
5	Traffic Management	To minimize traffic problems in the project area	<ul style="list-style-type: none"> <li>Proper traffic management plan shall be formulated and announced before construction to avoid traffic jams/public inconvenience;</li> <li>Plan the timing for movement of construction materials carrying vehicles to reduce traffic load and avoid inconvenience to the local residents.</li> <li>Means of communication of recommended alternative routes shall be planned to avoid inconvenience and traffic blockades during construction</li> </ul>	PMU, KPCIP
6	Health and Safety	To minimize health risks	<ul style="list-style-type: none"> <li>Preparation of health and safety plan to minimize health risks; and</li> <li>An emergency response plan shall be formulated which emphasizes line of action for rescue, medical emergencies, natural disasters and firefighting operations.</li> </ul>	PMU, KPCIP
7	Solid Waste Management	To manage (i.e. collect and dispose) the solid waste safely at appropriate sites.	<ul style="list-style-type: none"> <li>Incorporate technical design features for refuse collection at sites that would minimize burning impacts; and</li> <li>Devise plan(s) for safe handling, storage and disposal of harmful materials</li> </ul>	PMU, KPCIP

Sr. No.	Parameters	Target	Mitigation	Responsibility
<b>Construction Phase</b>				
1	Soil	To minimize soil erosion and contamination.	<ul style="list-style-type: none"> <li>All spoils shall be disposed off as desired and the site will be restored back to its original conditions;</li> <li>Unnecessary excavations shall be avoided;</li> <li>Septic tanks of adequate capacities will be constructed for receiving and treating wastewater from all temporary worksite toilets and at the temporary container offices, if any. The toilet wastewater shall not be discharged untreated onto the adjacent lands/sewers/disposal station; and</li> <li>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.</li> </ul>	CC, SC
2	Camp Site	To minimize loss of assets and vegetation due to labor movement and to prevent degradation of environment due to construction camps.	<ul style="list-style-type: none"> <li>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.</li> <li>Training will be provided to all staff members on camp management rules and overall discipline and cultural awareness.</li> </ul>	CC, SC
3	Health and safety of workers and	To minimize health risks	<ul style="list-style-type: none"> <li>Obligatory insurance against accidents for laborers/workers shall be ensured;</li> </ul>	CC, SC

Sr. No.	Parameters	Target	Mitigation	Responsibility
	associated communities		<ul style="list-style-type: none"> <li>Basic medical training shall be imparted to specified work staff and basic medical service and supplies to workers;</li> <li>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;</li> <li>Work safety measures and good workmanship practices are to be followed by the contractor to ensure no health risks for laborers;</li> <li>Protection devices (ear muffs) shall be provided to the workers doing job in the vicinity of high noise generating machines;</li> <li>Provision of protective clothing for laborers handling hazardous materials, e.g. helmet, adequate footwear for bituminous pavement works, protective goggles and gloves etc;</li> <li>Ensure strict use of wearing these protective clothing during work activities;</li> <li>Emergency number shall be placed at worksites;</li> <li>Elaboration of contingency planning in case of major accidents;</li> <li>Instruct construction supervisor to strictly enforce the keeping out of non-working persons, visitors, particularly children, off work sites; and</li> </ul>	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<ul style="list-style-type: none"> <li>Adequate signage, lightning devices, barriers, yellow tape and persons with flags during construction to manage traffic at construction sites, haulage and access roads.</li> <li>There shall be proper control on construction activities and oil spillage leakage of vehicles;</li> <li>The labor staff with any transmittable diseases shall be restricted within the construction site;</li> <li>Efforts will be made to create awareness about road safety among the drivers operating construction vehicles;</li> <li>Timely public notification on planned construction works;</li> <li>Provision of proper safety and diversion signage, particularly at sensitive/accident-prone spots;</li> <li>Setting up speed limits in close consultation with the local stakeholders;</li> <li>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</li> <li>Reducing the impacts of vector borne</li> </ul>	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			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.	
5	Air Pollution	To minimize air pollution	<ul style="list-style-type: none"> <li>▪ All excavation work will be sprinkled with water to control dust;</li> <li>▪ The excavated material shall be covered and shall not be stored for long intervals;</li> <li>▪ 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;</li> <li>▪ 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;</li> <li>▪ Filter shall be installed at the point sources (machinery or equipment) of air emissions and shall be replaced regularly;</li> <li>▪ Emissions from power generators and construction machinery are important</li> </ul>	CC, SC



Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>point sources at the construction sites. Proper maintenance and repair is needed to minimize the hazardous emissions;</p> <ul style="list-style-type: none"> <li>▪ Open burning of solid waste from the Contractor's camps shall be strictly banned;</li> <li>▪ 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);</li> <li>▪ Construction workers shall be provided with masks for protection against the inhalation of dust; and</li> <li>▪ PEQS applicable to gaseous emissions generated by construction vehicles, equipment and machinery shall be enforced during construction works.</li> </ul>	
6	Noise and Vibration	To minimize noise pollution	<ul style="list-style-type: none"> <li>▪ Selection of up-to-date and well-maintained plant or equipment with reduced noise levels ensured by suitable in-built damping techniques or appropriate muffling devices;</li> <li>▪ Confining excessively noisy work to normal working hours in the day, as far as possible;</li> <li>▪ Providing the construction workers with suitable hearing protection like ear cap, or earmuffs and training them in their use;</li> <li>▪ Preferably, restricting construction</li> </ul>	CC, SC

Sr. No.	Parameters	Target	Mitigation	Responsibility
			vehicles movement during night time; <ul style="list-style-type: none"> <li>▪ Avoid use of heavy drill machines to avoid the vibration effect on the historical buildings.</li> <li>▪ Vehicles and equipment used shall be fitted, as applicable, with silencers and properly maintained;</li> <li>▪ Use of low noise machinery, or machinery with noise shielding and absorption;</li> <li>▪ 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</li> </ul>	
7	Construction Waste and Hazardous Waste	To minimize the construction and hazardous waste	<ul style="list-style-type: none"> <li>▪ 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;</li> <li>▪ Training of working force in the storage and handling of materials and chemicals that can potentially cause soil contamination;</li> <li>▪ 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;</li> <li>▪ Burning of waste will be prohibited;</li> </ul>	CC, SC

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<ul style="list-style-type: none"> <li>Proper labelling of containers, including the identification and quantity of the contents, hazard contact information etc.;</li> <li>Training employees involved in the transportation of hazardous material regarding emergency procedures;</li> <li>Providing the necessary means for emergency response on call 24 hours/day;</li> <li>The sewage system for camps will be properly designed (pit latrines or, as required, septic tanks) to receive all sanitary wastewaters; and</li> <li>Lined wash areas will be constructed at site, for the receipt of wash waters from construction machinery.</li> <li>Covering material during heavy rainfall;</li> <li>Locating stockpiles to minimize potential visual impact, and</li> <li>Minimizing land intake of stockpiles areas as far as possible.</li> </ul>	
8	Resource Conservation	Sustainable use of energy resources	<ul style="list-style-type: none"> <li>Wastage of water shall be controlled through providing proper valves and through controlling pressure of the water;</li> <li>Water jets and sprays shall be used for watering surfaces rather than using overflow system;</li> <li>Source of water shall be carefully selected. Water use shall not disturb the existing community water supplies;</li> </ul>	CC, SC

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<ul style="list-style-type: none"> <li>Reuse of construction waste materials;</li> <li>Unnecessary equipment washings shall be avoided;</li> <li>A good camp design and an efficient worksite management plan can help the contractor to reduce the water demand to the lowest levels</li> </ul>	
9	Energy Efficiency	To minimize energy efficiency	<ul style="list-style-type: none"> <li>Ensure adequate insulation to reduce heat loss through batching plants;</li> <li>Regularly monitor CO and CO2 content of the flue gases to verify that combustion systems are using practical excess air volumes;</li> <li>Maintain clean heat transfer surfaces in asphalt batching plant;</li> </ul>	CC, SC
10	Surface and Groundwater	To protect the ground and surface water resources from any kind of pollution due to project	<ul style="list-style-type: none"> <li>Protection of surface and groundwater reserves from any source of contamination such as the construction and oily waste that will degrade its potable quality;</li> <li>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 natural streams</li> <li>The solid waste will be disposed off in designated landfill sites to sustain the water quality for domestic requirements;</li> <li>water required for construction is obtained</li> </ul>	CC, SC

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>in such a way that the water availability and supply to nearby communities remain unaffected;</p> <ul style="list-style-type: none"> <li>For construction purposes, water shall be drawn from surface water bodies on priority and as available;</li> <li>Regular water quality monitoring according to determined sampling schedule;</li> <li>The contractor shall ensure that construction debris do not find their way into the drainage network, which may get clogged;</li> <li>To maintain the surface water flow/drainage, proper mitigation measures will be taken, like drainage structures</li> <li>Prohibit washing of machinery and vehicles in surface waters, provide sealed washing basins and collect wastewater in sedimentation/retention pond;</li> <li>Construction work close to the streams or other water bodies will be avoided, especially during monsoon period;</li> <li>Take precautions construct temporary or permanent devices to prevent water pollution due to increased siltation; and</li> <li>Waste must not be disposed off into any surface water body.</li> </ul>	
11	Flora and fauna	To minimize the impact on flora and fauna	<ul style="list-style-type: none"> <li>The Contractor's staff and labor will be strictly directed not to damage any</li> </ul>	CC, SC

Sr. No.	Parameters	Target	Mitigation	Responsibility
			vegetation such as trees or bushes; and <ul style="list-style-type: none"> <li>Contractor will provide gas cylinders at the camps for cooking purposes and cutting of trees/bushes for fuel will not be allowed.</li> <li>Hunting, poaching and harassing of animals will be strictly prohibited and Contractor will warn their labor accordingly;</li> <li>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;</li> <li>Special measures will be adopted to minimize impacts on the birds, such as avoiding noise generating activities during critical periods of breeding;</li> <li>Staff working on the project shall be given clear orders, not to shoot, snare or trap any bird.</li> </ul>	
12	Public Utilities/ Infrastructure	To minimize the disturbance to public utilities and infrastructure	<ul style="list-style-type: none"> <li>All public utilities likely to be affected by the proposed project need to be relocated well ahead of the commencement of construction work;</li> <li>Unnecessary excavation shall be avoided; and</li> <li>Excavations shall be carried out carefully to avoid damaging infrastructure in the</li> </ul>	CC, SC

Sr. No.	Parameters	Target	Mitigation	Responsibility
			surroundings of the project area.	
13	Traffic Management	To minimize traffic problems in the project area	<ul style="list-style-type: none"> <li>Proper traffic management plan will be needed to avoid traffic jams/public inconvenience;</li> <li>Movement of vehicles carrying construction materials shall be restricted during the daytime to reduce traffic load and inconvenience to the local residents;</li> <li>Availability of continuous services of the Traffic Wardens in the diversion and control of traffic; and;</li> <li>The executing agency is required to maintain liaison between the Traffic Police, local residents/visitors, travelers and the contractor to facilitate traffic movement during construction stage.</li> </ul>	CC, SC and Traffic Police
14	Communicable diseases	To minimize the spread of corona virus	<b>COVID-19 specific measures</b> <ul style="list-style-type: none"> <li>All workers must perform complete sanitization at the site as per SOPs/guidelines issued by WHO.</li> <li>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.</li> <li>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</li> </ul>	CC



Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>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.</p> <ul style="list-style-type: none"> <li>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 taking this measure seriously, strict penalties must be imposed to ensure implementation.</li> <li>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.</li> <li>All workers will be strictly advised to wash their hands as frequently as practicable and not to touch their face during work.</li> <li>A supply of safe drinking water will be made available and maintained at the project site(s).</li> <li>COVID awareness sign boards must be installed at the clinic premises and at the work site(s).</li> <li>Contact details of all workers will be kept in a register on site in order to efficiently trace and manage any</li> </ul>	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>possible workers that might experience symptoms of COVID-19.</p> <ul style="list-style-type: none"> <li>Prohibition of entry for local community/any unauthorized persons at work sites.</li> <li>Proper hygiene practices in the toilets and washrooms will be implemented with proper and adequate use of soaps and disinfectant spray.</li> <li>Social distancing must be maintained during the pick-up and dropping off of workers from their residences to and from the work site(s).</li> </ul> <p><b>COVID-19 specific measures GOP</b></p> <p><b>Advice for Site Managers:</b></p> <ul style="list-style-type: none"> <li>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.</li> <li>Workers shall not use biometric attendance machines or crowd during attendance, entry or exit to the premises of the construction site.</li> <li>Ensure the availability of the thermal gun at the entry and exit of the construction site and no worker shall</li> </ul>	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>be allowed without getting his/her temperature checked.</p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>Non-essential work trainings must be postponed avoiding gathering of</li> </ul>	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>people.</p> <ul style="list-style-type: none"> <li>▪ Ensure the physical distance by creating more than one route of entry and exit to the site.</li> <li>▪ Instruct the workers to inform the construction manager (or authorities) if</li> <li>▪ They develop any symptoms of cough, flu or fever.</li> <li>▪ They have been exposed to someone suspected or confirmed with COVID 19.</li> <li>▪ 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.</li> <li>▪ 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.</li> <li>▪ Persuade the workers to inform the authorities for their safety and of other</li> </ul>	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>if they observe any signs and symptoms in a colleague.</p> <ul style="list-style-type: none"> <li>Do not allow any worker at the construction site who has the symptoms</li> <li>Display the awareness banners about hand hygiene and physical distancing, where you can, around the work site.</li> <li>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.</li> <li>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.</li> <li>Only sanitizable dinning surfaces shall be used, which must be cleaned before each service.</li> <li>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</li> </ul>	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>and while any other activity requiring interpersonal communications.</p> <ul style="list-style-type: none"> <li>Adequate ventilation shall be provided in dining areas, resting places and sleeping areas.</li> <li>In the wake of current restrictions on transportations site managers 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.</li> <li>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.</li> <li>A supply of safe drinking water must be made available at the project site and maintained.</li> </ul> <p><b>Advice for Construction Workers:</b></p> <ul style="list-style-type: none"> <li>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.</li> <li>Follow hygiene practices at washrooms and shower facility with proper and adequate use of soaps</li> </ul>	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>and disinfectants.</p> <ul style="list-style-type: none"> <li>▪ 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.</li> <li>▪ 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.</li> <li>▪ Workers shall wash their hands as frequently as practicable and shall not to touch their face with their hands during work.</li> <li>▪ Everyone on the construction site must observe sneezing and coughing etiquettes.</li> <li>▪ 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.</li> <li>▪ Sick worker shall immediately inform the site manager and must get</li> </ul>	



Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>medical advice from nearby health Centre.</p> <ul style="list-style-type: none"> <li>Only sanitizable dining surfaces shall be used.</li> <li>Do not sit at less than 2 meters' distance while having meals and while any other activity requiring interpersonal communications.</li> <li>Do not use biometric attendance machines or crowd during attendance, entry or exit to the premises of the construction site.</li> <li>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.</li> <li>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</li> </ul> <p><b>Deliveries or Other Contractors Visiting the Site:</b></p> <ul style="list-style-type: none"> <li>Non-essential visits to the construction sites shall be cancelled or postponed.</li> <li>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</li> </ul>	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>taken while on site.</p> <ul style="list-style-type: none"> <li>▪ Designate the workers, with protective gears or at least gloved and mask, to attend to the deliveries and contractors.</li> <li>▪ Make alcohol-based hand sanitizer (at least 70%) available for the workers handling deliveries.</li> <li>▪ 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</li> </ul>	
<b>Operational Phase</b>				
1	Natural Hazard	To minimize the risk of structural collapse and flooding in the WBDC	<ul style="list-style-type: none"> <li>▪ Ensure that the new structures can withstand earthquake impacts;</li> <li>▪ Inspections shall be conducted at appropriate intervals by qualified personnel to ensure integrity of structures; and</li> <li>▪ Develop an emergency response plan for the rainwater flooding in WBDC.</li> </ul>	PO
2	Waste	To minimize and to store the solid waste	<ul style="list-style-type: none"> <li>▪ Proper waste management system including provision of waste bins, regular sweeping and collection of waste will be adopted during operational phase.</li> </ul>	PO

Sr. No.	Parameters	Target	Mitigation	Responsibility
3	Drainage	To prevent flooding and pooling	<ul style="list-style-type: none"> <li>Routine inspection and maintenance of the drainage system shall be scheduled and implemented.</li> </ul>	PO
4	Flora	To maintain flora in the WBDC	<ul style="list-style-type: none"> <li>Routine inspection will be carried out to check the maintenance of the WBDC;</li> <li>Weeds will be monitored weekly and removed no less than every two weeks;</li> <li>Any tree that poses a concern to public safety will be immediately barricaded and evaluated by ecologist. 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;</li> <li>Use of fertilizers shall be strictly monitored in order to avoid any incident. Natural nutrients shall rather be preferred.</li> </ul>	PO
5.	Use of Pesticides	To avoid harmful impact of using pesticides	<ul style="list-style-type: none"> <li>Make sure birds, pets and children are not near before mixing and applying pesticides.</li> <li>Select pesticides which are not much harmful for environment. Certain pesticides may cause injury to crops. Before application, take into account the stage of plant development, the soil type, conditions, temperature, moisture etc.</li> <li>Use PPEs while using pesticide.</li> <li>Mix pesticides in well ventilated areas and mix only the amount what is needed for</li> </ul>	PO

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>immediate use. Apply only recommended dose and dilution. While spraying, avoid windy conditions.</p> <ul style="list-style-type: none"> <li>▪ Dispose off empty containers carefully. Never reuse them. Make sure containers are not accessible to children or animals.</li> <li>▪ Never eat, smoke, drink or chew while using pesticides.</li> <li>▪ Emergency medical care in advance shall be arranged.</li> <li>▪ Do not expose pesticides to sun light or rain water and do not transfer pesticides into other container and never store weedicides with other pesticides.</li> <li>▪ Use right kind of equipment and avoid leaky defective equipment.</li> <li>▪ Select right type of nozzle.</li> </ul>	
6	Health Hazard (Respiratory illness caused by COVID-19 Infection that may lead to fatality)	Avoid Spread of Corona Virus	<ul style="list-style-type: none"> <li>▪ 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.</li> <li>▪ Body temperature monitoring through Thermal Scanner or other devices to monitor the body temperature of each employee entering/leaving the site or at camp.</li> <li>▪ Awareness and implementation of Quarantine Procedure for all employees who came back from vacation.</li> </ul>	PO

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<ul style="list-style-type: none"> <li>No Handshake Policy and ensure at least 1 meter distance at workplace.</li> <li>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</li> <li>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</li> </ul>	

DC Design Consultant  
 CC Construction Contractor  
 SC Supervision Consultant

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## SECTION 5

### ENVIRONMENTAL MONITORING

#### 5.0 General

37. 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.
38. Parameters to be analyzed during construction & operation of the project, responsibilities for monitoring & reporting and monitoring cost have been discussed in this section.

#### 5.1 Environmental Monitoring during Pre-Construction Phase, Construction and Operation Phases

39. 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

40. The PMU 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

41. 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
<b>Ambient Air Quality</b>	To establish baseline air quality levels	CO, NO <sub>2</sub> , SO <sub>2</sub> , O <sub>3</sub> & PM <sub>10</sub> (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
<b>Ambient Noise</b>	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
<b>Groundwater Quality</b>	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
<b>Surface water quality</b>	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	Once	SC

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



**Table-5.2: Construction Phase Monitoring Requirements**

<b>Project Activity and Potential Impact</b>	<b>Objective of Monitoring</b>	<b>Parameters to be Monitored</b>	<b>Measurements</b>	<b>Location</b>	<b>Frequency</b>	<b>Responsibility</b>
<b>Noise</b> 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
<b>Air Quality</b> Dust emissions from construction vehicles and equipment	To determine the effectiveness of dust control program on dust at receptor level	CO, NO <sub>2</sub> , SO <sub>2</sub> , O <sub>3</sub> & PM <sub>10</sub> (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
<b>Groundwater Quality</b>	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
<b>Surface water Quality</b>	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

Project Activity and Potential Impact	Objective of Monitoring	Parameters to be Monitored	Measurements	Location	Frequency	Responsibility
<b>Safety precautions by workers</b>	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
<b>Soil Contamination</b>	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
<b>Solid Waste &amp; Effluent disposal</b>  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
<b>Solid Waste Management</b>	To assess that solid waste generated from WBDC 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	WBDC premises	Bi-Annual	WBDC Operator

Table 5.4: Annual Cost Estimates for 'Pre-Construction Phase' Environmental Monitoring<sup>1</sup>

Monitoring Component	Parameters	Quantity	Amount PKR	Details
<b>Air Quality</b>	CO, NO <sub>2</sub> , SO <sub>2</sub> , O <sub>3</sub> PM <sub>10</sub>	3 (Once only at 3 locations)	90,000	3 readings @ PKR 30,000 per sample
<b>Noise Levels</b>	dB(A)	3 (Once only at 3 locations)	90,000	3 readings @ PKR 30,000 per reading
<b>Ground Water Quality</b>	NEQS	2 (Once only at 2 locations)	60,000	2 readings @ PKR 30,000 per sample
<b>Surface Water</b>	NEQS	2 (Once only at 2 locations)	60,000	2 readings @ PKR 30,000 per sample

<sup>1</sup> For air quality monitoring: 'Passive samplers' such as test tubes can be used or 'Active samplers' with sorbent tubes can also be used.

<sup>22</sup>For noise monitoring: sampling equipment with duration greater than 1 hour can be used.

Quality		locations)		30,000 per sample
Contingencies			15,000	5% of monitoring cost
Total (PKR)			315,000	

Table 5.5: Annual Cost Estimates for 'Construction Phase' Environmental Monitoring<sup>2</sup>

Monitoring Component	Parameters	Quantity	Amount PKR	Details
Air Quality	CO, NO <sub>2</sub> , SO <sub>2</sub> , O <sub>3</sub> PM <sub>10</sub>	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<sup>3</sup>**

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

## SECTION 6

### ENVIRONMENTAL MITIGATION AND MONITORING COST

#### 6.0 General

42. The cost required to effectively implement the mitigation measures is important for the sustainability of the Project, both in the construction and operational phases.
43. Cost for Environmental Monitoring of air, noise, drinking & wastewater 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: Annual 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
<b>Grand Total</b>			<b>1,346,000</b>

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

**Table-6.2: Annual Break-up for PPEs**

Items	Quantity	Cost / Item (Rs.)	Total Cost (Rs.)
<b>Personal Protective Equipment PPE</b>			
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
<b>Total</b>			<b>402,000</b>
<b>Time required for Construction = 12 months</b>			
<b>No. of labours required during construction = 100</b>			
<b>Detail of Personal Protective Equipment PPE</b>			
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 at each work site within WBDC		
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:

- (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:** Establishment of Women Business Development and Community Centre (Kohat)

Screening Questions	Yes	No	Remarks
<b>A. Project Sitting</b> Is the project area?			
▪ Densely populated?	✓		The site is located within a central market area, with a fairly high vehicular and foot traffic during business hours. The property itself is a gated compound.
▪ Heavy with development activities?		✓	There are commercial activities but no new development work being conducted in the area.
▪ Adjacent to or within any environmentally sensitive areas?		✓	No environmental sensitive area (national park/protected areas, estuarine etc) is present adjacent to, near or within the project area.
• Cultural heritage site		✓	No heritage site within or near the project area.
• Protected Area		✓	No protected area/s within or around the project site.
• Wetland		✓	No wetland located within or around the project site.
• Mangrove		✓	No mangroves within or around the project area.
• Estuarine		✓	No estuarine located within or around the project site.
• Buffer zone of protected area		✓	The project site does not occupy any buffer zones of protected areas.
• Special area for protecting biodiversity.		✓	The project site is not located in any special area for protecting biodiversity.
• Bay		✓	There is no bay on the site.
<b>B. Potential Environmental Impacts</b> Will the Project cause			

Screening Questions	Yes	No	Remarks
▪ Impacts on the sustainability of urban green spaces and their interactions with other urban services.		✓	The project, through its eco-friendly design, aims to enhance urban green space and also supplement urban services through its vocational business potential. There will be negligible adverse impacts and project will improve sustainability of the area.
▪ Degradation of land and ecosystems (e.g. loss of wetlands and wild lands, coastal zones, watersheds and forests)?		✓	There will be no deterioration rather the project will improve the natural character of the site as well as activities within the surroundings. A proper management plan will be developed for the project.
▪ Dislocation or involuntary resettlement of people?		✓	The site is under the ownership of Red Crescent Pakistan. Currently no particular use is being made of the site, thus the proposal for the Women Business Development and Community Center
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable group?		✓	No disproportionate adverse impacts will be caused by this project. Women of the surrounding area will all benefit particularly from the project.
▪ Degradation of cultural property, and loss of cultural heritage and tourism revenues?		✓	No such risk as cultural properties are not located in or around the project area.
▪ 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 potential community impacts are anticipated relating to low-income, squatter groups or pollution risks to the surrounding population.
▪ Water resource problems (e.g. depletion/degradation of available water supply, deterioration for surface and ground water quality, and pollution of receiving waters?		✓	No potential impacts are anticipated on water resources as existing water supply infrastructure shall serve adequately during construction and operation without the need to use additional groundwater sources.
▪ Air pollution due to urban emissions?		✓	No emissions anticipated. Tree plantation as a part of the project will support improvement of air quality.
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical and biological hazards during project construction and operation?		✓	Negligible physical, chemical and biological hazards during project construction and operation are anticipated. Appropriate occupational health and safety practices will be implemented and training imparted to avoid any physical, chemical or biological hazards during construction.
▪ Road blocking and temporary flooding due to land excavation during rainy season?		✓	Construction and development activities will be limited to inside the compound area therefore no likelihood of road blocking or floods.
▪ Noise and dust from construction activities?	✓		Some noise and dust can be expected. This will easily be mitigated through best management practices such as the use of noise barriers and spraying water.

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> <li>Traffic disturbances due to construction material transport and wastes?</li> </ul>		✓	By adopting best construction management techniques and practices, potential disturbances during construction will be minimized. Construction and development activity will be kept limited to within the project area and not onto adjacent roads or paths. Low-traffic hours will also be selected for the transportation of materials.
<ul style="list-style-type: none"> <li>Temporary silt runoff due to construction?</li> </ul>		✓	The construction activity is not intense enough to cause any significant silt runoff. Best management practices will be adopted to minimize any runoff.
<ul style="list-style-type: none"> <li>Hazards to public health due to ambient, household and occupational pollution, thermal inversion, and smog formation?</li> </ul>		✓	Construction and operation phases will not cause pollution, thermal inversion, or smog.
<ul style="list-style-type: none"> <li>Water depletion and/or degradation?</li> </ul>		✓	Minimal and efficient use of water will be made during construction and operation phases, thereby mitigating the issue of water depletion or degradation.
<ul style="list-style-type: none"> <li>Overpaying of ground water, leading to land subsidence, lowered ground water table, and salinization?</li> </ul>		✓	Construction and operation phases will not make use of groundwater.
<ul style="list-style-type: none"> <li>Contamination of surface and ground waters due to improper waste disposal?</li> </ul>		✓	Any waste generated from the construction and development process will be appropriately managed by the city's waste management system. Waste during operation (public use of the park) will be collected by installing bins or containers served by the city's waste management system.
<ul style="list-style-type: none"> <li>Pollution of receiving waters resulting in amenity losses, fisheries and marine resource depletion, and health problems?</li> </ul>		✓	Pollution of water bodies will not happen during this project.
<ul style="list-style-type: none"> <li>Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?</li> </ul>		✓	The development process will be limited in spatial and temporal terms, and not likely to place any burden on existing social infrastructure or services. No migration will occur.
<ul style="list-style-type: none"> <li>Social conflicts if workers from other regions or countries are hired?</li> </ul>		✓	To avoid social conflicts, the hiring of local laborers and construction firms will be given preference over the hiring of workers from other regions.
<ul style="list-style-type: none"> <li>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?</li> </ul>		✓	No explosives, fuel, chemicals or other harmful substances are expected to be used during construction or operation
<ul style="list-style-type: none"> <li>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?</li> </ul>		✓	No considerable natural hazards are expected during the construction or operation phases. Structural components will be constructed according to the standards of natural hazard safety factors.

<b>Climate Change and Disaster Risk Questions</b> The following questions are not for environmental categorization. They are included in this checklist to help identify potential climate and disaster risks.	<b>Yes</b>	<b>No</b>	<b>Remarks</b>
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)?		✓	The project area is not located in a hazard zone.
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 project site is not vulnerable of socio-economic aspects and demographics. The socioeconomic characteristics of the women in the surrounding population are likely to improve significantly.
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)?		✓	The project will not increase the climate or disaster vulnerability of the surrounding areas. Most of the park 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 advice on Use of Masks for the COVID-19 Virus**

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

Interim guidance  
6 April 2020



## 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).<sup>1</sup>

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<sup>a</sup> people infected with COVID-19 (full details are provided in WHO COVID-19 Sitrep79).<sup>2</sup>

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.<sup>3–8</sup> In a small number of reports, pre-symptomatic transmission has been documented through contact tracing efforts and enhanced investigation of clusters of confirmed cases.<sup>3–8</sup> This is supported by data suggesting that some people can test positive for COVID-19 from 1–3 days before they develop symptoms.<sup>9,10</sup>

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.<sup>11</sup>

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<sup>12</sup> and health care settings<sup>11</sup> 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.<sup>13</sup> 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.<sup>14–23</sup> 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

<sup>a</sup> 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.

Decision 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.<sup>7</sup>

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.<sup>3</sup>

### 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.<sup>24</sup> 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.<sup>25</sup> 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.

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