



**GOVERNMENT OF SINDH
ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN (ESMP)
FOR**

**Expansion of Emergency Rescue 1122 Stations at 09 Districts of Sindh
PROJECT IMPLEMENTATION UNIT (PIU-SFERP)**

**Sindh Flood Emergency
Rehabilitation Project (SFERP)
Planning and Development
Department (P&DD Component)**



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This document and its contents have been prepared and intended solely for the information and use of the Government of Sindh, Project Implementation Unit (PIU) concerning the **SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)**

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LIST OF ABBREVIATION

BOQ	Bill of Quantity
CC	Construction Contractor
CSC	Construction Supervisory Consultant
DC	Deputy Commissioner
EC	Electrical Conductivity
ECA	Employment of Child Act
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
ESIA	Environmental & Social Impact Assessment
ESF	Environmental & Social Framework
ESMF	Environmental and Social Management Framework
ESMP	Environmental& Social Management Plan
ESS	Environmental & Social Standards
FGDs	Focus Group Discussions
GFP	Grievance Focal Point
GoS	Government of Sindh
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
IBIS	Indus Basin Irrigation System
IEE	Initial Environmental Examination
IPF	Investment Project Financing
IUCN	International Union for Conservation of Nature
NGO	Non-Governmental Organization
OP	Operational Policy
P&DD	Planning & Development Department
PAP	Project Affected Person
PCC	Public Complaint Centre
PC-I	Pakistan Planning Commission Form – 1 Appraisal of Development Project
PD	Project Director
PDMA	Provincial Disaster Management Authority
PEPC	Pakistan Environmental Protection Council
PID	Project Information Document
PIU	Project Implementation Unit
PKR	Pakistani Rupee
POPs	Persistent Organic Pollutants
SEPA	Sindh Environmental Protection Agency
SEQSs	Sindh Environmental Quality Standards
SFERP	Sindh Flood Emergency Rehabilitation Project
WB	World Bank
WHO	World Health Organization

1. EXECUTIVE SUMMARY

The monsoon season of 2022 brought heavy rains coupled with a high river flood in the province. Its catastrophic consequences jeopardize food and livelihood security, basic utilities, infrastructure, human security and gender equality, exacerbating socio-economic instability and triggering conflicts over resources particularly Rescue System as well. Rainfall in various districts was recorded up to 900 mm. The River Indus raised to above 0.6 million cusecs due to heavy downpours in its catchment coupled with local rains. The high flood at Kotri Barrage persisted due to hill torrent emanating from Kirthar Mountains. The two month's rains and River Indus Flood caused heavy losses to human life, livestock, crops, houses, private buildings, Industries, and Public Infrastructures like Roads, Irrigation; river protective embankments (Bunds) and Drainage networks, and Railways. Sindh was badly affected by the 2022 Pakistan floods. More than a 1,000 people died and over 12 million – about a quarter of the province's population of about 50 million – were affected. Nearly 1.5 million houses were destroyed, another 600,000 partially damaged, and around 1.5 million hectares of crops were damaged.

The proposed project (Sindh Flood Emergency Rehabilitation Project–SFERP) will expand the Rescue Services (1122) in Nine (09) Districts of Sindh i.e., Dadu, Thatta, Qamber Shahdadkot, Ghotki, Badin, Jacobabad, Jamshoro, Tharparkar and Sujawal. The expansion of Rescue Stations is an essential aspect of disaster management and emergency response. Rescue stations serve as critical hubs for coordinating and executing rescue operations during emergencies, including floods. Development of these stations involves designing and construction of main building, allied facilities, parking sheds of rescue machinery & vehicles, Staff Quarter and officer Quarters to ensure their optimal functionality and effectiveness in times of crisis.

Construction works are limited to the proposed sub-project area. No construction will be involved outside of the demarcation hence, the proposed sub-project “nine (09) Rescue Station at different districts of Sindh” will have some minor environmental impacts that are reversible and site-specific with short term duration. Therefore, this sub-project falls under the moderate risk category of SFERP ESMF. The Environment and Social Management Plan (ESMP) has been prepared accordingly to mitigate these minor and moderate levels of requirements.

Furthermore, the sub-project screening was performed through the checklist covering environmental and social issues. Surveys were conducted to fill individual checklists and a summary of environmental and social concerns noted during surveys. The construction and development of proposed sub-project will remain confined within demarcation of proposed boundary. No human interventions, public infrastructure or commercial activities exist within the proposed sub-project areas.

No archaeological or environmental sensitive site was observed near (within 500 meters) the sub-project areas and no physical cultural resources at or near the proposed sub-project sites are observed which may likely to be affected by construction activities. No graveyard is situated within the construction area. A number of the settlements were observed near the proposed sub-project sites but not inside the demarcated boundary. During the construction phase, a few socially sensitive receptors like mosques, schools, basic health unit, graveyards, etc. might be indirectly impacted but this impact is temporary and reversible having a short-term duration with low significance (by adopting the mitigation measures). No protected forests were observed near the proposed sub-project area. As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from sub-project sites.

The sub-project areas fall in a semi-urban locality and have a limited diverse habitat, which supports a few varieties of faunal and floral species. As the population has increased in the sub-project area, wildlife abundance and diversity have decreased to a minimum. Among the small mammal species in

the riverine forests include the hog deer, wild boar, jackals, wolves, and porcupine. Among birds, partridges (both black and grey), and the sand grouse are common but in the thick plantations. Many varieties of waterfowl like cattle egret, Indian reef heron, and Mongolian sand plover are also found. Other birds found in the district are little brown dove, koel or cuckoo, Indian scoop owl, and Indian great horned owl.

The proposed sub-projects are situated within the Nine Districts of Sindh, which fall under the Riverine Tract Habitat of Sindh. Due to the arid and subtropical climate in these regions, the native vegetation primarily comprises tropical thorn forest type. The dominant plant species found in the areas are wild Sugarcane (*Saccharum officinarum*), and Babul (*Acacia nilotica*).

Other flora includes Jand (*Prosopis cineraria*), Khejri (*Prosopis specigara*), Bahan (*Populus euphratica*), Berry (*Zizyphus numularia*), and Jhao (*Tamarisk dioca*). On the roadside and in gardens, Indian Fig (*Ficus indica*), Pipal (*Ficus religiosa*), Siras (*Mumosa sirissa*), Neem (*Azadirachta indica*) and Tamarind (*Tamarandus indica*) are also found in the area. Ak (*Calatropis procera*) is also found in abundance in the areas.

Agricultural fields are mostly of wheat (*Triticum aestivum*), maize (*Zea mays*) and Mustard (*Brassica nigra*). Fruit trees are also common mostly found in and around the built-up property. Land use pattern is largely scrub forest in the sub-project areas. Ornamental flowers grown in the district are Roses (*Rosa indica*), Jasmine (*Jasminum officinale*).

The proposed sub-project land is owned by the government, no private land acquisition is necessary for this sub-project. Furthermore, there will be no demolitions or resettlements involved as the sub-project areas are located in sparsely populated regions with scattered population. There are no informal settlers or squatters present within the proposed sub-project areas, and no disruption to livelihoods is anticipated. Indirect impacts such as noise, dust emissions, campsites, and borrow sites may extended. There is a possibility of socio-environmental impacts due to the influx of external workforce, unattended residual wastes, and occupational health and safety concerns for laborers and the community. To address these issues, an Environmental and Social Management Plan (ESMP) has been prepared. The transportation of materials will utilize the existing tracks. Any negative impacts are expected to be limited to the construction phase, which will be of short duration. It is important for the contractor to strictly adhere to the recommended mitigation measures outlined in the report during the construction period.

The potential negative effects can be mitigated by implementing appropriate measures such as regular inspection and maintenance of vehicles and machinery to minimize exhaust emissions, equipping heavy equipment with noise suppressors or mufflers, and wetting unpaved roads. Adverse impacts from construction debris or residual waste can be controlled through proper handling and prompt removal. Water pollution can be controlled by appropriately storing and managing oil waste, as well as treating wastewater at the active construction site. Solid waste can be managed through sanitary storage and regular collection for proper disposal.

To ensure occupational health and safety, a series of measures will be implemented. These include conducting regular inspections to prevent diseases and accidents, raising awareness among both the labor force and the local community, implementing sanitation measures, managing and monitoring communicable diseases, establishing emergency response and rescue procedures, providing appropriate sanitary facilities, supplying potable water, and placing garbage bins for the workers.

E&S monitoring will adhere to the guidelines set forth in the Environment and Social Framework (ESF) 2018 of the World Bank, SEPA Act 2014, Environmental and Social Management Framework (ESMF) of SFERP, Labor Management Procedures developed for SFERP, and Stakeholder Engagement Plan



(SEP). The objective is to ensure the regular and effective implementation of mitigation plans. The monitoring will be conducted at three levels. Firstly, at the Project Implementation Unit (PIU) level, environmental and social specialists will oversee safeguard monitoring, ensuring the proper implementation of mitigation plans through regular field visits. Secondly, at the field level, relevant staff from the concerned Construction Supervision Consultant (CSC) will conduct more frequent safeguard monitoring. Finally, the Contractor's E&S team will be responsible for implementing the mitigation plans and generating monthly, quarterly, and bi-annual reports.

The primary responsibility for executing the SFERP project and the current Environmental and Social Management Plan (ESMP) lies with the Project Implementation Unit (PIU), led by the Project Director. The PIU is supported by a dedicated Environmental and Social team. Additionally, the PIU has enlisted the services of a Construction Supervision Consultant (CSC) to oversee the construction activities. To ensure compliance, relevant clauses will be incorporated into the construction contracts.

A specific budget of Rs 11.296 million has been set aside for the effective implementation of the Environmental and Social Management Plan (ESMP), which includes the management of communicable diseases as well. This allocation has been included as a provisional sum item in both the ESMP bill and Bill of Quantities (BOQ). The implementation of the ESMP requires collaboration from the Construction Contractor (CC), Construction Supervision Consultant (CSC), and Project Implementation Unit (PIU). The CC holds primary responsibility for ensuring the implementation of the mitigation measures outlined in the ESMP, which will be incorporated into the contract documents. Consequently, it is mandatory to include a separate category for environmental mitigation costs in the BOQs within the contract documents.

However, in the event that the CC fails to comply with the implementation of the ESMP and adequately report on its progress, the proponent will enforce compliance in accordance with the contract terms, including adherence to the ESMP and the World Bank's Environment and Social Framework (ESF) 2018. To ensure the smooth execution of ESMP implementation activities, it is recommended that all bills and payments related to ESMP implementation be approved and authenticated by the CSC. The ESMP implementation costs will be deducted from Interim Payment Certificates (IPC) until compliance has been achieved.

2. INTRODUCTION

Following the Flood 2022 emergency, the Federal Government of Pakistan requested the global community and development partners for assistance to respond to the flood disaster. Subsequently, the World Bank (WB) task team visited the province and conducted a series of meetings with the Provincial Govt. During the discussions held with the WB Mission, a two-pronged strategy was agreed i.e.,

- Restoration/Rehabilitation of Rural (Farm to Market) Roads in affected Districts, Talukas and UCs.
- Restoration of Water Supply, drainage and sanitation schemes in affected Districts, Talukas and Union Councils.
- To provide immediate financial assistance, cash for work is proposed to rehabilitate small community structures like rural roads, watersheds, watercourse (s) to carry irrigation water to Farm(s), Rehabilitation of village streets and restoration of village sanitation work including removal of stagnant water in villages. The exact number to be arrived at after assessment.
- The Rain/River Flood 2022, witnessed a serious shortage of Emergency Rescue arrangements. The proposal is to expand the Emergency Rescue Service (Sindh Emergency Rescue Services-1122) to the remaining nine Districts of Sindh i.e., Dadu, Qamber Shahdadkot, Ghotki, Badin, Jacobabad, Jamshoro, Tharparkar, Thatta and Sujawal. The Provincial Government has already launched Sindh Emergency Rescue 1122 in Six Districts HQs – Karachi, Hyderabad, Mirpurkhas, Shaheed Benazirabad, Sukkur, and Larkana. The ongoing schemes will remain in implementation as per the existing arrangement, in case of the present scenario if its revision is required that must be undertaken.

2.1 Project Components

The proposed Sindh Flood Emergency Rehabilitation Project–SFERP falls into following main components.

- i. Component—1: Infrastructure Rehabilitation
- ii. Component—2: Livelihoods Restoration
- iii. Component—3: Institutional Strengthening for Resilience and Technical Assistance
- iv. Component—4: Project Management and Operational Cost

2.2 The Proposed Sub–Project

The proposed sub-project under Flood 2022 Emergency Response is a sub-component of Component-3, that will involve expansion of the Rescue Stations which serve as critical infrastructure for emergency response, rescue operations, and providing assistance during crisis. They aim to safeguard lives, minimize damages, and ensure public safety within their designated areas of responsibility.

Under the Flood, 2022 Emergency Response, following areas for Rescue Stations were identified and proposed for immediate expansion (Table 1).

Table 1: List of Districts for Expansion of Rescue (1122) Stations under SFERP

S. No.	Description
1	Expansion of Emergency Rescue 1122 Station in District Dadu
2	Expansion of Emergency Rescue 1122 Station in District Thatta
3	Expansion of Emergency Rescue 1122 Station in District Sujawal
4	Expansion of Emergency Rescue 1122 Station in District Badin
5	Expansion of Emergency Rescue 1122 Station in District Ghotki
6	Expansion of Emergency Rescue 1122 Station in District Jamshoro
7	Expansion of Emergency Rescue 1122 Station in District Qamber-Shahdadkot
8	Expansion of Emergency Rescue 1122 Station in District Tharparkar
9	Expansion of Emergency Rescue 1122 Station in District Jacobabad

2.3 Objective of ESMP

The Environmental and Social Management Plan (ESMP) for the expansion of damaged rescue stations in flood-affected areas aims to address the potential environmental and social impacts of the project. The main objectives of the ESMP are as follows:

- Assess the potential social impacts of the project on local communities, including vulnerable groups and indigenous populations. Identify potential risks and opportunities related to livelihoods, health, access to services, and cultural heritage.
- Mitigate negative social impacts and enhance positive outcomes through inclusive and participatory approaches.
- Ensure that the project adheres to relevant environmental and social regulations, laws, and standards.
- Promote legal and ethical practices throughout the project implementation.
- Engage with local communities, stakeholders, and relevant authorities throughout the expansion process. Facilitate their meaningful participation in decision-making, planning, and implementation.
- Identify and assess potential risks associated with the project, such as pollution, waste management, occupational health and safety hazards, and community disruption. Develop mitigation measures and management plans to minimize these risks and ensure the safety and well-being of workers and affected communities.
- Establish monitoring and evaluation mechanisms to track the environmental and social performance of the project. Regularly assess the implementation of mitigation measures, monitor environmental indicators, and evaluate social outcomes.
- Capacity building and training programs to project staff, contractors, and relevant stakeholders on environmental and social management practices and to enhance the knowledge and skills necessary for the effective implementation of environmental and social measures.

By addressing these objectives, the Environmental and Social Management Plan ensures that the expansion of damaged Rescue Stations in flood-affected areas is conducted in an environmentally sustainable and socially responsible manner, minimizing negative impacts and maximizing positive outcomes for both the environment and the affected communities.

As per World Bank Operational Policy 4.01 on Environmental Assessment, the sub-project i.e., Development of Rescue Stations in nine districts of Sindh is categorized as a 'Category B' project with site specific, temporary impacts for which mitigation measures can be readily designed.

2.4 Sub-project Screening Procedure

Environmental and Social Impacts screening and subproject categorization provided in the ESMF and approved by the World Bank, were used for preliminary screening of the subproject site to help in identification of impacts. The criteria for sub-project categorization under SFERP-ESMF, developed in light of the Sindh Environmental Protection Agency (SEPA) Regulations and World Bank OPs are given in **Table 2** below;

Table 2- SFERP ESMF Criteria for Categorization of Subprojects

Large Sub-projects Full EIA / ESIA Required (Category A Sub-projects)	Medium sized Sub-projects ESMP Required (Category B Sub-projects)	Smaller Sub-projects Environmental Social Checklist Required
<p>Sub-project requiring / involving;</p> <ul style="list-style-type: none"> • Large scale construction • Requiring land acquisition that may affect more than 20 households. • Dam height more than 10 meters. • Category A according to WB OP 4.01. • Requiring EIA according to SEPA regulations. • Involving significant degradation of forest or sensitive habitat. 	<p>Sub-projects involving;</p> <ul style="list-style-type: none"> • Rehabilitation of existing structures, potentially causing low to moderate level of impacts, temporary, reversible and localized impacts such as minor traffic disturbance, disposal of excavated soil, shallow borrow pits, minor soil erosion, generation of solid and liquid wastes from temporary camp sites. • Construction of small-scale civil works. • Significant but manageable impacts on no-critical habitats such as forests. 	<p>All other small projects.</p>

Initial screening for potential impact assessment were conducted by field visits of the sub-project sites using a comprehensive checklist (provided in Annexure - I) that addressed Environmental and Social aspects and meetings with SFERP project office and Rehabilitation Department officials. The initial screening identifies the proposed sub-project sites as an urban area infrastructure development and established that:

- There is no land acquisition required for construction and development work of proposed sub-project site;



- No archaeological, environmental and culturally sensitive sites were found within a 500-meter radius of the sub-project area, that would be affected by construction activities;
- The associated environmental and social impacts of the proposed sub-project are confined to construction phase and are of temporary in nature;
- The residing population will get benefits in terms of improved response during disaster and emergencies specially during urban flooding.

As no significant adverse impacts were identified, there is no need for further resettlement impact screening and development of Resettlement Action Plans. Environmental and other social concerns associated with the construction phase of proposed subproject will be minimized and mitigated by adapting best practices for environmental protection proposed in this Environmental and Social Management Plan (ESMP).

According to Sindh Environmental Protection Agency (Environmental Assessment) Regulations, 2021¹, the sub-project does not fall under any category of schedule-I, II and checklist. Hence, there will be no need to prepare an EIA/IEE and proceed for NOC from Sindh Environmental Protection Agency (SEPA).

According to Donor Agency (World Bank), the sub-project requires construction of small-scale civil works which will be limited to the premises of government owned land. Hence, the proposed project will have some minor adverse environmental impacts that are reversible and site-specific with short duration. Therefore, this sub-project falls under the low to moderate risk category under the ESMF of the SFERP.

2.5 Need of Sub-Project

The Sindh Emergency Rescue Service (Rescue 1122) was established under SRP with the service operational as of May 2022 and is providing critical lifesaving, emergency response and rescue services to the citizens of Sindh. The service is currently functioning in selected districts including Karachi, Sujawal, Thatta, Hyderabad, Larkana, Dadu and Qamber Shahdadkot. Under SFERP, the service will be expanded to other districts as an integrated and independent service of first responders covering the entire spectrum of emergency response from floods, fires, earthquakes, windstorms, and health emergencies. Districts to be covered under SFERP include Sukkur, Ghotki, Shikarpur, Jacobabad, Badin and Jamshoro which have been badly affected by the floods of 2022.

¹ Sindh Environmental Protection Act, 2014

3. DESCRIPTION OF SUB-PROJECTS

3.1 Sub-Project Location

The proposed sub-projects are located in Nine (09) Districts of Sindh Province. The proposed sub-project is aimed to expand Rescue1122 Stations in Districts Dadu, Qamber Shahdadkot, Ghotki, Badin, Jacobabad, Jamshoro, Tharparkar, Thatta and Sujawal with the objective to effectively manage affected communities during any emergent situation or provide rescue services in above mentioned districts. Location map of sub-project area is presented below (Figure 1).

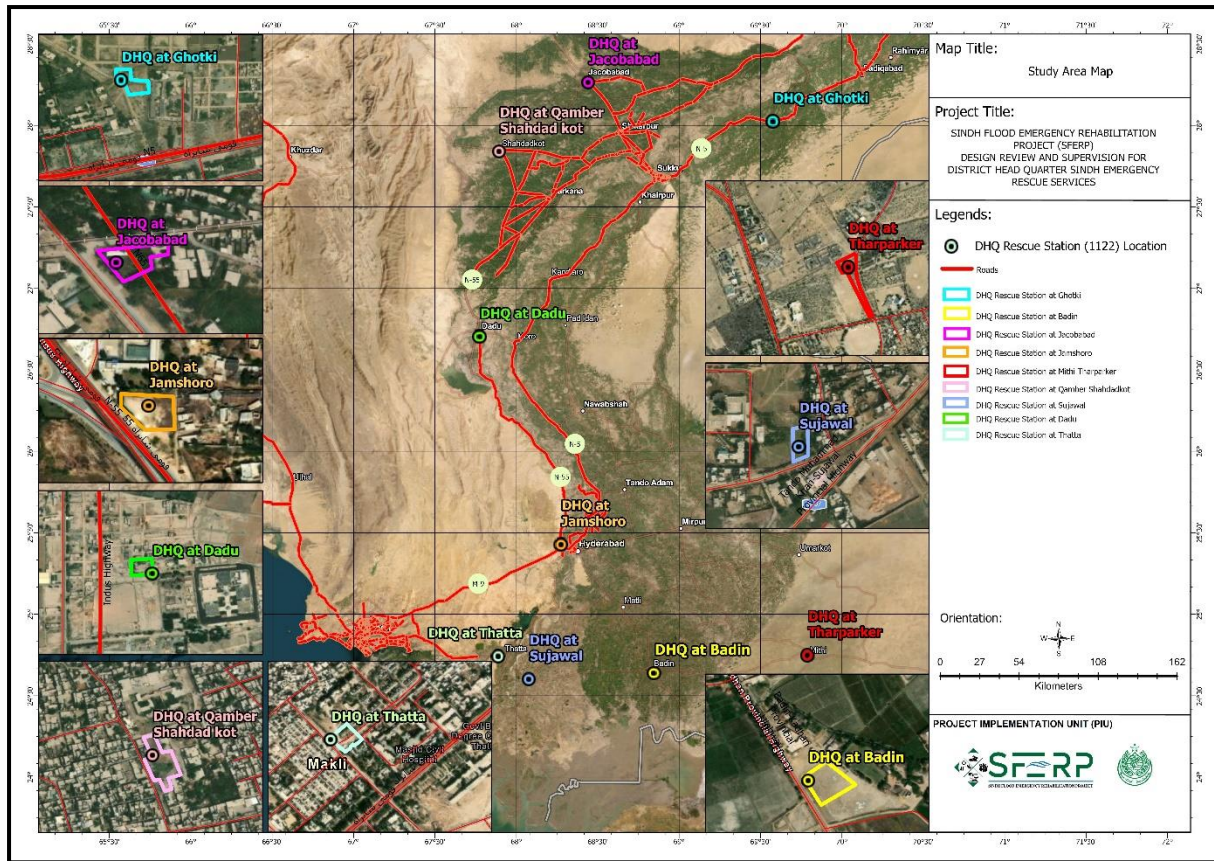


Figure 1: Location map of Sub-Project Area (Rescue Stations 1122)

The sub-project sites can easily be accessed from M9 motorway and National Highway (N5, N455, N65, N55). Construction will be carried out within existing premises Government owned land of proposed sub-project sites. The area within the boundary wall is almost barren and devoid of trees. Land use of surrounding site is mix of vacant land, commercial, residential and agricultural areas. Central geographical coordinates of the sites are given in Table-3 and location maps are shown from Figure 2-9.



Figure 2: Badin Rescue Station 1122



Figure 3: Dadu Rescue Station 1122



Figure 4: Ghotki Rescue Station 1122



Figure 5: Jacobabad Rescue Station 1122



Figure 6: Jamshoro Rescue Station 1122



Figure 7: Qamber Shahdadt Kot Rescue Station 1122



Figure 8: Thatta Rescue Station 1122



Figure 9: Sujawal Rescue Station 1122



Table 3: Details of Sub-projects for Expansion of Emergency Rescue Stations (1122)

S. No.	Name of the Sub-Project	District	Sub-Project Location	Cost in PKR	Coordinates
1	Expansion of Emergency Rescue 1122 Station	Dadu	DHQ Hospital Area	249,493,559	26°42'34.2"N 67°46'51.4"E
2	Expansion of Emergency Rescue 1122 Station	Qamber Shahdadkot	Taluka Hospital Miro Khan	249,493,559	27°50'45.9"N 67°53'58.6"E
3	Expansion of Emergency Rescue 1122 Station	Ghotki	D.C Office Mirpur Mathelo	249,742,161	28°15'06.7"N 69°34'52.8"E
4	Expansion of Emergency Rescue 1122 Station	Badin	Near PPHI District Office Civil Hospital Road	248,242,021	24°38'48.3"N 68°49'50.9"E
5	Expansion of Emergency Rescue 1122 Station	Jacobabad	Near Poly Technical Institute	249,742,161	28°16'24.5"N 68°27'04.6"E
6	Expansion of Emergency Rescue 1122 Station	Jamshoro	N55 Near PAK-Turk Maarif International school	248,242,021	25°95'5.9"N 67°46'49.8"E
7	Expansion of Emergency Rescue 1122 Station	Thatta	Civil hospital Residency Near Rescue 1122 Thatta Station	248,242,021	24°44'52.8"N 67°53'34.0"E
8	Expansion of Emergency Rescue 1122 Station	Sujawal	Near DHO Office at Sujawal Bypass	248,242,021	24°36'27.5"N 68°04'53.6"E



S. No.	Name of the Sub-Project	District	Sub-Project Location	Cost in PKR	Coordinates
9	Expansion of Emergency Rescue 1122 Station	Tharparkar	Near DPO House Mithi	249,241,679	24°45'13.04"N 69°47'38.86"E

3.2 Area of Influence (AoI)

The area of influence is a 5 km buffer surrounding all nine DHQs Rescue Stations. The AoI in an environmental and social assessment informs a first step early in the process to screen sensitive receptors. These receptors are systematically screened to confirm if they are possible environmental or social triggers and are likely to regularly occur near the sub-project area.

Social Sensitive Receptors like religious structures (mosques, shrines and graveyards), basic/rural health units (BHU/RHU), hospitals, schools, cultural and archeological etc. were observed during the survey and consultation in the sub-project areas. The indirect impacts on the receptors have been evaluated at 200 meters buffer zone of the proposed sub-project sites. Most of the social receptors are located in urban settlement and far away from proposed sub-project sites. A detailed inventory of the sites showing the approximate location of the social receptors has been provided in **Table 4**.

Whereas, environmental receptors were analyzed in a broad spectrum of 5km radius buffer including protected areas like forests, national parks, wildlife sanctuaries and game reserves. Environmental sensitive receptors were observed individually for all nine DHQ rescue station sites and none of the protected area falls within 5km buffer from sub-project sites. By applying a careful design strategy all potential impacts were avoided. However, care will need to be taken during construction activity.

Table 4: Social Sensitive Receptors around DHQ Rescue Stations

Social Sensitive Receptors	Coordinates	Distance (meters)	Direction from Rescue Station
DHQ Rescue Station Thatta			
Masjid Ibrahim Khalilullah	24°44'52.05"N, 67°53'28.10"E	238	North West
Masjid	24°44'56.57"N, 67°53'28.62"E	265	North East
Public School Makli	24°44'47.94"N, 67°53'28.46"E	266	South West
DHQ Rescue Station Sujawal			
Civil Hospital Sujawal	24°36'25.33"N 68° 4'46.79"E	302	Southwest
DHQ Rescue Station Jamshoro			



Social Sensitive Receptors	Coordinates	Distance (meters)	Direction from Rescue Station
Midway Hospital	25° 9'55.79"N, 67°46'50.57"E	22	North East
DHQ Rescue Station Badin			
The smart School Badin Campus	24°38'53.21"N 68°50'49.14"E	629	North
Masjid Touheed	24°38'54.79"N 68°51'4.37"E	587	Northeast
DHQ Rescue Station Dadu			
Dadu Hospital	26°42'35.94"N, 67°46'49.71"E	154	South East
Agriculture and research station dadu	26°42'32.82"N, 67°46'48.53"E	196	South East
DHQ Rescue Station Tharparkar			
Thar Institute of Engineering and Science	24°45'6.98"N 69°47'45.92"E	301	Southeast
Thar Foundation TCF School Engro Campus	24°45'16.56"N 69°47'24.32"E	395	Northwest
DHQ Rescue Station Qambar Shahdadkot			
Taluka Hospital Shadadkot	27°50'48.97"N, 67°53'57.94"E	88	North East
GBPS Faiz Muhammadi Primary School	27°50'48.28"N, 67°53'51.44"E	180	North West
Imam Bargha	27°50'41.66"N, 67°53'56.10"E	143	South West
Syed Gul Muhammad Shah Masjid	27°50'43.20"N, 67°53'53.42"E	147	South West
DHQ Rescue Station Jacobabad			
Darbar-e-Alia of Pir Hazrat Syed Imam Ali Shah	28°16'12.00"N, 68°26'43.86"E	135	North West
SVTI Jacobabad - Vocational college	28°16'8.76"N, 68°26'46.56"E	83	South West
IPS Jacobabad - School	28°16'5.45"N, 68°26'48.62"E	158	South



Social Sensitive Receptors	Coordinates	Distance (meters)	Direction from Rescue Station
Channa Mohallah Primary School Jacobabad	28°16'14.58"N, 68°26'48.19"E	121	North
MCHC affarabadJ - Hospital	28°16'8.14"N, 68°26'54.23"E	167	South East
DHQ Rescue Station Ghotki			
Regional Blood Center (RBC)	28° 1'45.83"N 69°34'52.03"E	150	South
Civil Hospital Mirpur Mathelo	28° 1'45.93"N 69°34'48.72"E	186	South West

3.3 Construction of Rescue Stations (1122)

Construction of rescue stations falls under project components; Institutional Strengthening for Resilience and Technical Assistance. The sub-project aims to expand rescue station facilities across nine districts of Sindh. The sub-project plots area is 4000 Sq. Yards and is likely to construct a ground+2 story building covering an area of approximately 2600 Sq. Yards for rescue station and allied facilities, parking sheds of rescue machinery & vehicles, Staff/officer Quarters (Male and Female). The ground floor plan with front elevation is shown in Figure 10. The construction duration will be 12 months approximately. The objective of the sub-project is to strengthen the capacity of Sindh Rescue Services for improved disaster and emergency response and relief to affectees.

3.3.1 Climate resilient Design Details

Designing a climate-resilient rescue station with engineering structures that can withstand floods and other natural hazards requires a comprehensive approach. Below are detailed design considerations for DHQ Rescue Stations Engineering components that will be considered in the design for resilience:

1. Foundation and Elevation

Design a raft Foundation with Ties of Pedestal to sustain in flood against uneven settlement and for earth quake Raft Foundation is sustainable against movements deep foundation with tie beams, to anchor the structure securely into stable soil or rock to resist ground movements during floods or seismic events.

Elevate the building on stilts or columns to raise the ground floor above potential flood levels. The elevation should consider current and projected future flood heights due to climate change.

2. Boundary wall as a Barriers

Construct a Boundary wall with foundation ground to structure walls or barriers around the perimeter of the rescue station to prevent floodwater from entering the building. The Boundary wall design to withstand the forces exerted by floodwater and any potential debris impact.



3. Reinforced Concrete Structure

Using a reinforced concrete as the primary building material for the structure, as it offers high strength and durability. Reinforce critical elements of the building, such as columns, beams, and walls, to enhance their ability to resist loads during extreme events.

4. Wind-Resistant Design

Incorporated wind-resistant design principles, such as streamlined shapes and aerodynamic features, to reduce wind loads on the structure. Considered the local wind speed design requirements and design the building accordingly.

5. Roof Design

Choose a robust roofing system that can withstand strong winds and impact from flying debris. Secure the roof to the structure using appropriate connectors and anchorages.

6. Openings and Flood Vents

Install flood-resistant doors and windows with water-tight seals to prevent water ingress during floods. Incorporate flood vents in the foundation walls to allow floodwater to flow through and reduce hydrostatic pressure on the structure.

7. Resilient Utilities

Elevate electrical equipment, switches, and outlets above potential flood levels. Use water-resistant materials and seals for electrical and mechanical components.

8. Emergency Power Supply

Install a reliable and independent emergency power supply, such as solar panels, generators, or batteries, to maintain essential services during power outages.

9. Sustainable Materials

Opt for sustainable and locally sourced construction materials to reduce the carbon footprint and promote long-term resilience.

10. Soil Erosion Prevention

Implement erosion control measures, such as retaining walls and vegetation, to protect the site from erosion and slope failures.

By integrating these climate-resilient engineering design elements, the rescue station will be better equipped to withstand floods and other natural hazards, providing a safe and functional facility for emergency response during extreme events.

3.4 Sub-project Scope

Sub-project activities covered in ESMP include;

- I. Earthen filling and leveling of site
- II. Construction of District Head Quarter Office Building
- III. Construction of Staff/officers' Quarters (male and female)



- IV. Construction of parking sheds for vehicles
- V. Construction of Overhead & Underground Water Tanks
- VI. Laying of Tuff Pavers
- VII. Construction of Septic Tank
- VIII. Rainwater harvesting

The construction will be carried out considering weather conditions to avoid environmental damage, as monsoon rains in Sindh often cause blockage to the drainage system and to avoid nuisance to the general public. Following activities will take place during construction at site;

- Site clearing and preparation for construction
- Earthen filling, leveling at site
- Civil work including laying of foundation and construction concrete base for rescue Vehicles
- Electrical and plumbing layout including installation equipment and supply of electricity designed to ensure energy and water conservation

The construction work doesn't require major excavation or use of heavy machinery such as cranes. Construction vehicles will be parked in designated parking areas for machinery. The construction machinery to be used includes:

- Earth moving equipment
- Construction vehicles
- Material handling equipment
- Construction equipment

The subproject is located in Districts Dadu, Qamber Shahdadkot, Ghotki, Badin, Jacobabad, Jamshoro, Tharparkar, Thatta and Sujawal so the labor will be hired from surrounding areas and communities. The construction administration is given in Table-4.

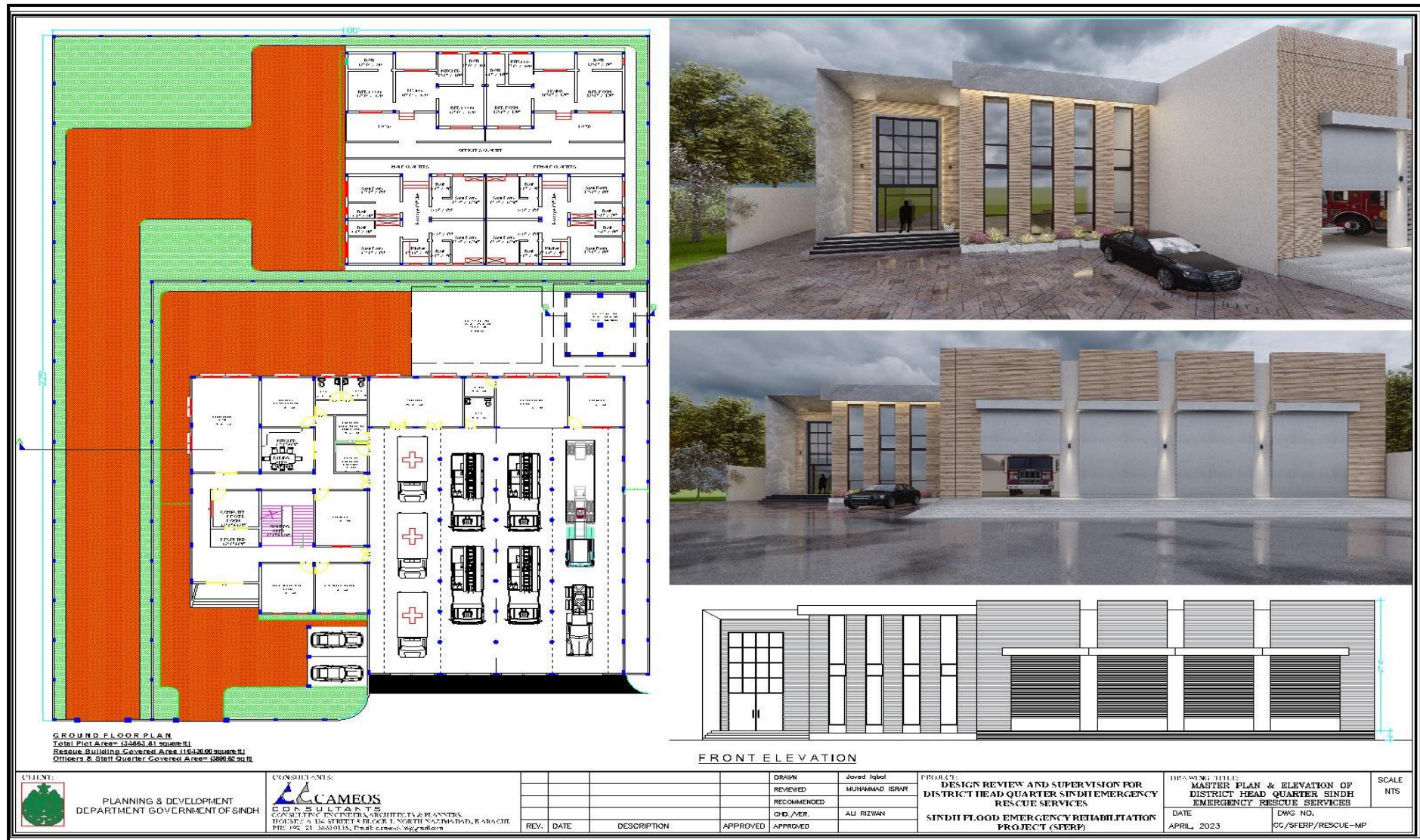


Figure 10: Floor Plan and Front Elevation Drawing of Emergency Rescue Stations (1122)



Table 5: Construction administration

Construction administration

Phase	Requirement	Activities
Design Phase	Site Survey	Selection of Sites, Soil tests and hydrology for foundation and input to civil design
	Civil Design	Formulation of conceptual, detailed and final designs
Construction Phase	Site Establishment	Site clearance, laying of foundation, filling earth, anti-termite soil treatment, surface finish, Compacted Earth
	Concrete Work	Building construction using bricks/ Block Masonry, cement and concrete, steel reinforcement, curing and protecting concrete.
	Mechanical Work	No Any Mechanical Works involved in Construction of DHQ.
	Drainage system	Waste water sewage system, surface water drainage system.
	Plumbing Work	G.I Pipes for Fire Fighting System & Polypropylene (PPR) pips for Washrooms & Kitchen
	Electrical Work	Power cable for electricity connection, installation of Standby Generators
	Finishing	Tile works, Paint, Earth mats, testing/inspection of building
Post Construction		<ul style="list-style-type: none"> Shifting of manpower and operationalization of rescue station facilities and services Shifting rescue vehicles, machinery and equipment

3.5 Construction Materials

The materials used in construction of the building would include coarse aggregates (crush), fine aggregates (sand), steel, water, asphalt, reinforcement, cement. Fine aggregates are locally available in the area, while the cement and steel will be procured from approved local vendors. The use of hazardous material like asbestos and those identified in the list of Hazardous Chemical Rules 2003 will be banned. Special care will be taken for inflammable materials and fuel.

3.6 Manpower Requirements

The manpower requirement during construction project will be approximately 30-40 persons including managerial staff, skilled and unskilled labor. The labor for construction activities will be hired from nearby areas, hence there will be no requirement for setting up a labor camp at the sub-project site.

3.7 Water Requirements

it is revealed from electrical resistivity survey that the ground water quality of the sub-project areas is mostly brackish, therefore water requirements during construction phase shall be meet through water tanker supply from nearby hydrants. The contractor will not be allowed to use the community water resources.



3.8 Waste Generation

There will be an increase of waste generation during construction, including debris, excavated earth and unused construction materials, especially during site clearing and landscaping. The excavated soil waste will be utilized to refill borrow pits and spread on earthen link roads, leveling of proposed building elevation above flood level and compacted with rollers, improving the road surface as well as reducing road dust. The construction contractor will hire a certified waste contractor for disposal of construction material and debris who will be responsible for safe disposal of waste according to regulations and provide a certificate to the contractor.

3.9 Electricity

During construction phase electrical requirement shall be met through power generator supply. During operational phase for green energy and energy conservation solar power is recommended for installation to meet the major power requirements in addition to conventional electricity supply in the city.

The solar power installation provision is proposed in design documents and ensured during ducting/wiring. Installation of solar panel is included in scope of work.



4. DESCRIPTION OF ENVIRONMENT

4.1 Introduction

This section describes the existing environmental and socio-economic conditions of the sub-project areas. The environmental and social baseline aims to provide a generic baseline against which the project impacts can be measured. Due to the emergency nature of work, the details have pertained to the important areas according to the rehabilitation works.

4.2 Physical Environment

4.2.1 Geology and Soil of Sindh

4.2.1.1 Regional Geology

Sindh is located in the southern part of Pakistan and is primarily situated within the Indus Basin. It is bounded by the Arabian Sea to the south and is influenced by the Indus River and its tributaries. Sindh is characterized by extensive sedimentary rock formations, which have been deposited over millions of years. These sedimentary deposits include alluvial plains, sandstones, shales, and limestones. The Indus River and its tributaries have created large alluvial plains in Sindh. These plains consist of fine-grained sediments such as silt, sand, and clay. The alluvial deposits are generally fertile and suitable for agricultural activities.

4.2.1.2 Soil of Sindh

The soil in the plains of Sindh is plastic clay that has been deposited by the Indus, combined with water it develops into a rich mold and without water it degenerates into a soil of desert category. The soil along the project area corridor is very fertile and composed of alluvial deposits formed by River Indus having various proportions of sand, silt and clays at different locations. The soils are calcareous alluvial loam fine to medium textured homogenized, well drained and productive. Moisture content in the soils is very high and falls in erinaceous zone. The consistency and depth vary according to the topographical features. The low-lying loams are heavier and may have a hard pan.

4.2.2 Topography

Topographically, Sindh consists of three parallel belts extending from north to south: The Kirthar Range on the west, a central alluvial plain bisected by the Indus River, and an eastern desert belt. The Kirthar Range is composed of three parallel tiers of ridges, has little soil, and is mostly dry and barren. To describe subprojects specific land form and topography the district wise information is given as below:

4.2.2.1 Dadu

The topography within 3 kilometers of Dadu is essentially flat, with a maximum elevation change of 11 meters and an average elevation above sea level of 41 meters. Within 16 kilometers is essentially flat (33 meters). Within 80 kilometers contains only modest variations in elevation (2,085 meters). The area within 3 kilometers of Dadu is covered by cropland (82%) and artificial surfaces (18%), within 16 kilometers by cropland (79%), and within 80 kilometers by bare soil (45%) and cropland (45%).

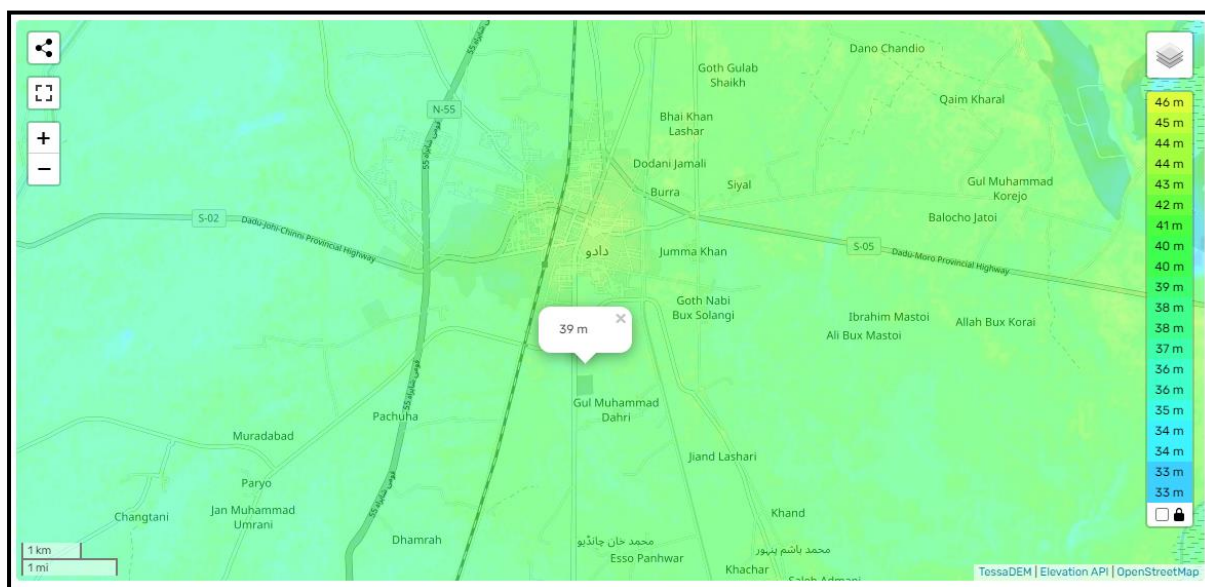


Figure 11: Elevation Map of DHQ Rescue Station Dadu, Sindh

4.2.2.2 Qamber Shahdadkot

For the purposes of this report, the geographical coordinates of Qamber are 27.588° latitude, 68.001° longitude, and 53 m elevation. The topography within 3 kilometers of Qamber is essentially flat, with a maximum elevation change of 17 meters and an average elevation above sea level of 48 meters. Within 16 kilometers is essentially flat (42 meters). Within 80 kilometers contains only modest variations in elevation (2,127 meters). The area within 3 kilometers of Qamber is covered by cropland (77%) and artificial surfaces (19%), within 16 kilometers by cropland (96%), and within 80 kilometers by cropland (68%) and bare soil (24%)².

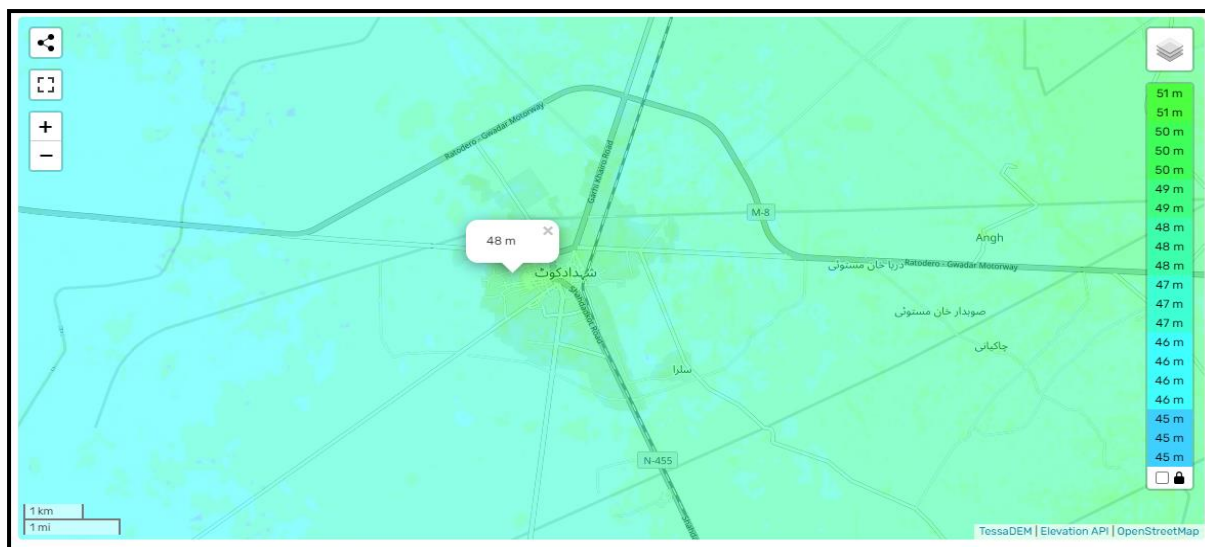


Figure 12: Elevation Map of DHQ Rescue Station Qamber Shahdadkot, Sindh

² <https://weatherspark.com/y/106596/Average-Weather-in-Kambar-Pakistan-Year-Round#:~:text=The%20hottest%20month%20of%20the,high%20of%2073%C2%B0F.>

4.2.2.3 Ghotki

The geographical coordinates of Ghotki are 28.006° latitude, 69.316° longitude, and 72 m elevation. The topography within 3 kilometers of Ghotki is essentially flat, with a maximum elevation change of 16 meters and an average elevation above sea level of 69 meters. Within 16 kilometers is also essentially flat (29 meters). Within 80 kilometers is essentially flat (340 meters). The area within 3 kilometers of Ghotki is covered by cropland (88%) and artificial surfaces (12%), within 16 kilometers by cropland (74%) and bare soil (16%), and within 80 kilometers by cropland (52%) and bare soil (43%).

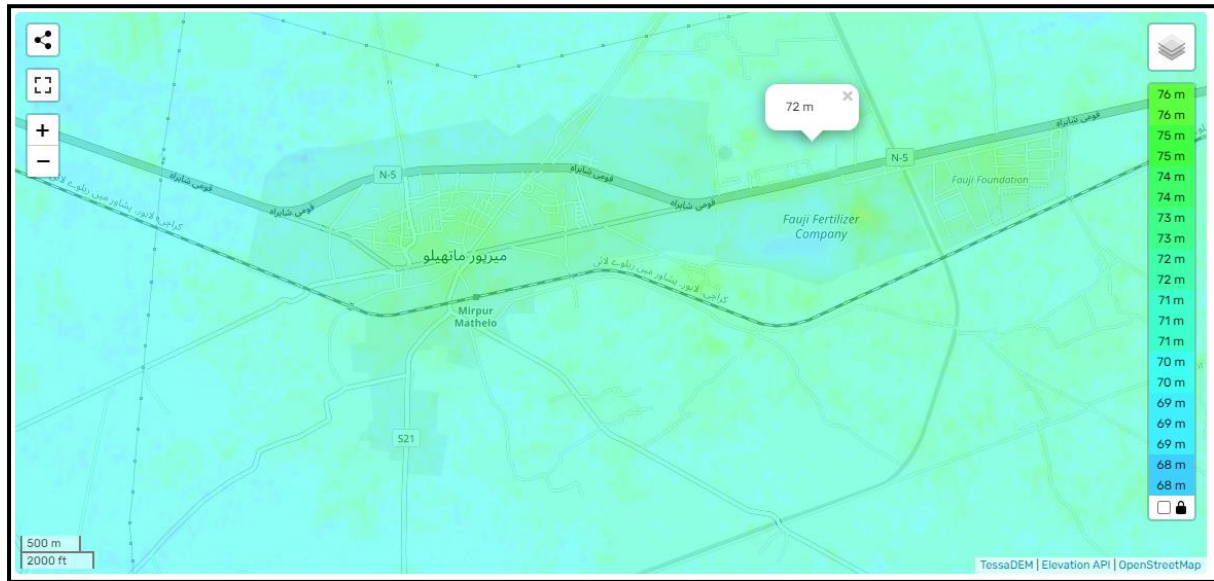


Figure 13: Elevation Map of DHQ Rescue Station Ghotki, Sindh

4.2.2.4 Badin

The geographical coordinates of Badin are 24.656° latitude, 68.837° longitude, and 13 m elevation. The topography within 3 kilometers of Badin is essentially flat, with a maximum elevation change of 21 meters and an average elevation above sea level of 10 meters. Within 16 kilometers is essentially flat (32 meters). Within 80 kilometers also contains only modest variations in elevation (136 meters). The area within 3 kilometers of Badin is covered by cropland (87%) and artificial surfaces (13%), within 16 kilometers by cropland (98%), and within 80 kilometers by cropland (55%) and bare soil (37%).



Figure 14: Elevation Map of DHQ Rescue Station Badin, Sindh

4.2.2.5 Jacobabad

The geographical coordinates of Jacobābād are 28.282° latitude, 68.438° longitude, and 60 m elevation. The topography within 3 kilometers of Jacobābād is essentially flat, with a maximum elevation change of 20 meters and an average elevation above sea level of 56 meters. Within 16 kilometers is essentially flat (47 meters). Within 80 kilometers contains only modest variations in elevation (1,082 meters). The area within 3 kilometers of Jacobābād is covered by cropland (79%) and artificial surfaces (16%), within 16 kilometers by cropland (90%), and within 80 kilometers by cropland (66%) and bare soil (28%).

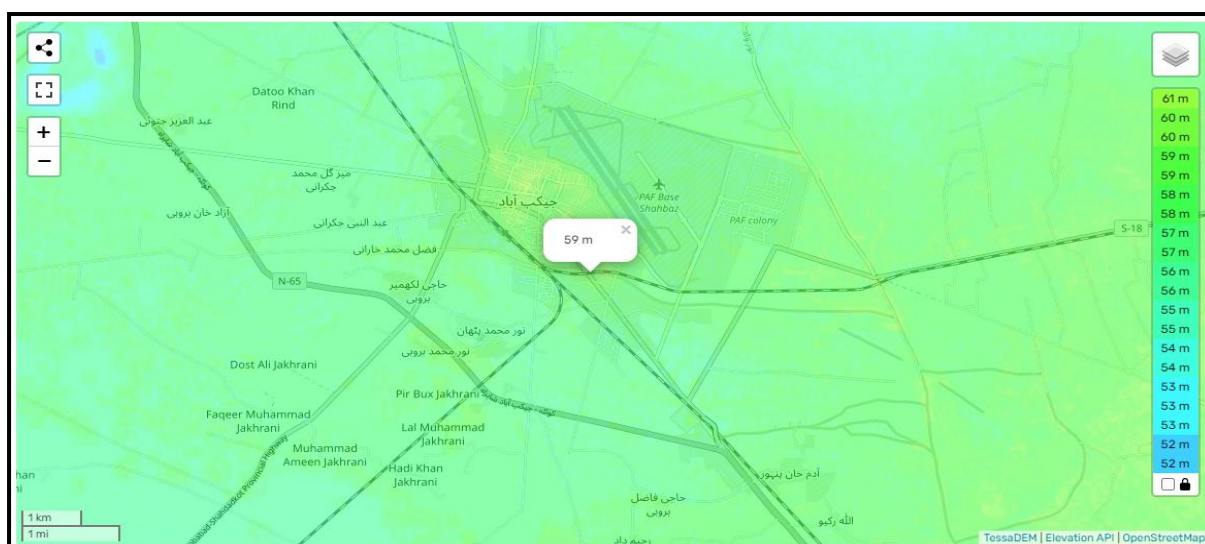


Figure 15: Elevation Map of DHQ Rescue Station Jacobabad, Sindh

4.2.2.6 Jamshoro

The geographical coordinates of Jāmshoro are 25.436° latitude, 68.280° longitude, and 27 m elevation. The topography within 3 kilometers of Jāmshoro contains only modest variations in elevation, with a maximum elevation change of 57 meters and an average elevation above sea level of 32 meters. Within 16 kilometers contains only modest variations in elevation (159 meters). Within 80 kilometers contains significant variations in elevation (1,000 meters). The area within 3 kilometers of Jāmshoro is covered

by cropland (45%) and bare soil (43%), within 16 kilometers by bare soil (63%) and cropland (24%), and within 80 kilometers by bare soil (49%) and cropland (43%).

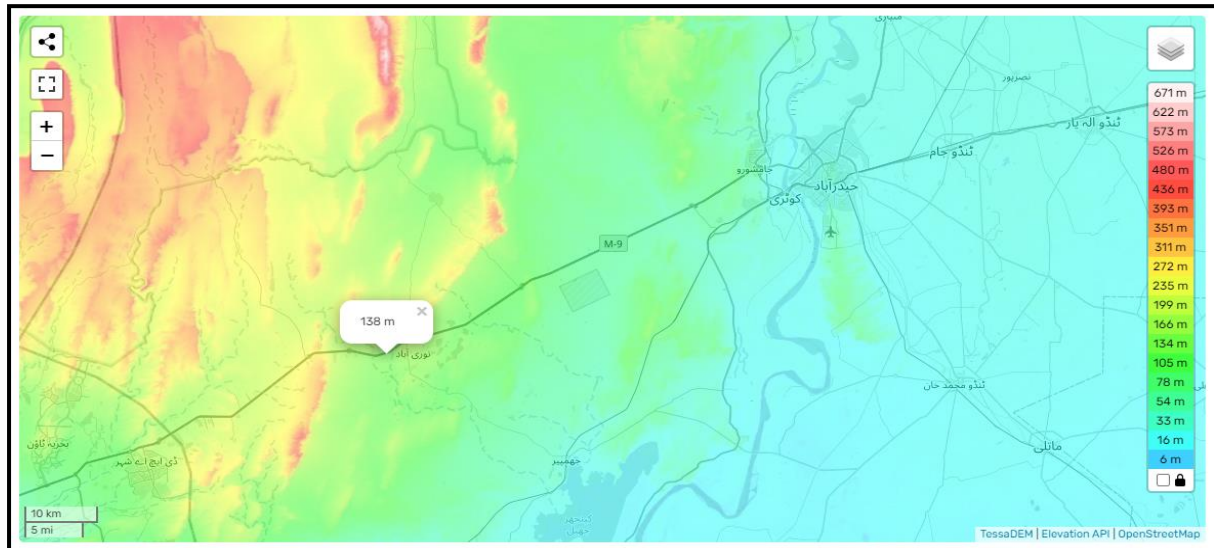


Figure 16: Elevation Map of DHQ Rescue Station Jamshoro, Sindh

4.2.2.7 Thatta

The geographical coordinates of Thatta are 24.747° latitude, 67.924° longitude, and 17 m elevation. The topography within 3 kilometers of Thatta is essentially flat, with a maximum elevation change of 23 meters and an average elevation above sea level of 11 meters. Within 16 kilometers is essentially flat (75 meters). Within 80 kilometers contains only modest variations in elevation (467 meters). The area within 3 kilometers of Thatta is covered by cropland (81%) and bare soil (13%), within 16 kilometers by cropland (57%) and bare soil (34%), and within 80 kilometers by bare soil (50%) and cropland (36%).

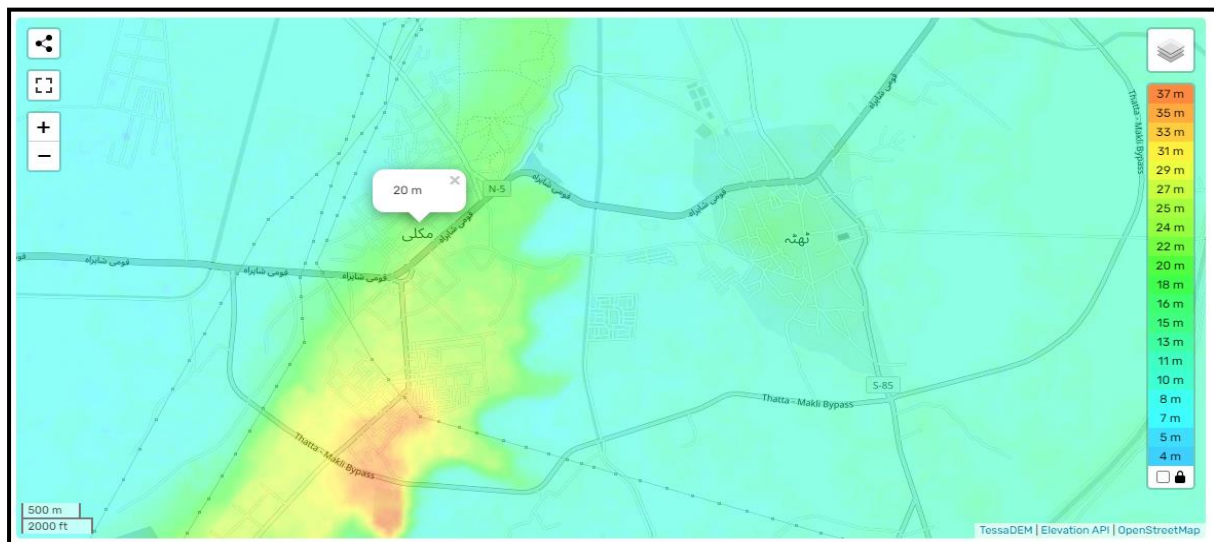


Figure 17: Elevation Map of DHQ Rescue Station Thatta, Sindh

4.2.2.8 Sujawal

Sujawal is a southern district of Sindh province, located between 36 °59'23" N and 68°4'19" E. It is located at the lower end of the Indus River and has a flat topography with maximum elevation of 57 meters and an average elevation of 9 meters.



Figure 18: Elevation Map of DHQ Rescue Station Sujawal, Sindh

4.2.2.9 Tharparkar (Mithi)

The geographical coordinates of Mithi are 24.737 deg latitude, 69.797 deg longitude, and 38 m elevation. The topography within 3 kilometers of Mithi contains only modest variations in elevation, with a maximum elevation change of 65 meters and an average elevation above sea level of 55 meters. Within 16 kilometers also contains only modest variations in elevation (110 meters). Within 80 kilometers contains only modest variations in elevation (201 meters).

The area within 3 kilometers of Mithi is covered by bare soil (100%), within 16 kilometers by bare soil (100%), and within 80 kilometers by bare soil (80%) and cropland (17%).

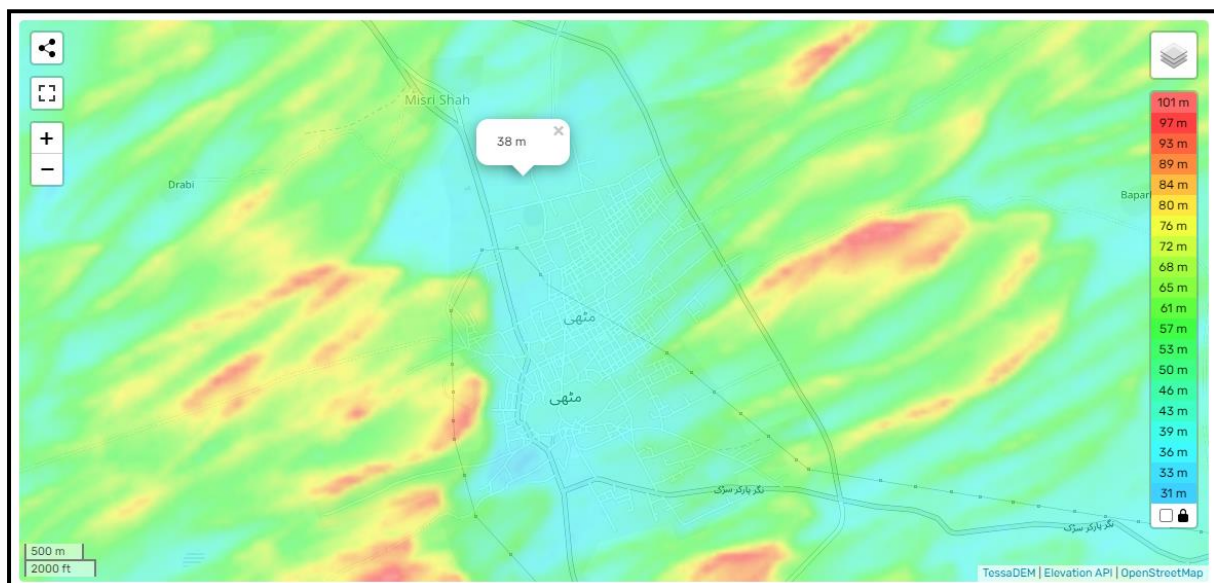


Figure 19: Elevation Map of DHQ Rescue Station Tharparkar(Mithi), Sindh



4.2.3 Climate

The province of Sindh is situated in a subtropical region; it is hot in the summer and cold in winter. Temperatures frequently rise above 46 °C (115 °F) between May and August, and the minimum average temperature of 2 °C (36 °F) occurs during December and January. The annual rainfall averages about nearly 9 inches (230 mm), falling mainly during June and September. The southwesterly monsoon wind begins to blow in mid-February and continues until the end of September, whereas the cool northerly wind blows during the winter months from October to January.

Sindh lies between the two monsoons — the southwest monsoon from the Indian Ocean and the northeast or retreating monsoon, deflected towards it by the Himalayan mountains — and escapes the influence of both. The average rainfall in Sindh is 8–9 in (20–23 cm) per year. The region's scarcity of rainfall is compensated by the inundation of the Indus twice a year, caused by the spring and summer melting of Himalayan snow and by rainfall in the monsoon season. These natural patterns have recently changed somewhat with the construction of dams and barrages on the Indus River. Parts of southeastern Sindh receive rainfall of up to 36 in (91 cm) and some cities have received very heavy rainfall on occasion.

4.2.3.1 Dadu

In Dadu, the summers are sweltering and humid, the winters are short and cool, and it is dry and mostly clear year-round. Over the course of the year, the temperature typically varies from 8°C to 45°C and is rarely below 5°C or above 48°C. The hot season lasts for 3.1 months, from April 22 to July 25, with an average daily high temperature above 41°C. The hottest month of the year in Dadu is June, with an average high of 44°C and low of 29°C. The cool season lasts for 2.6 months, from December 2 to February 20, with an average daily high temperature below 28°C. The coldest month of the year in Dadu is January, with an average low of 9°C and high of 24°C.

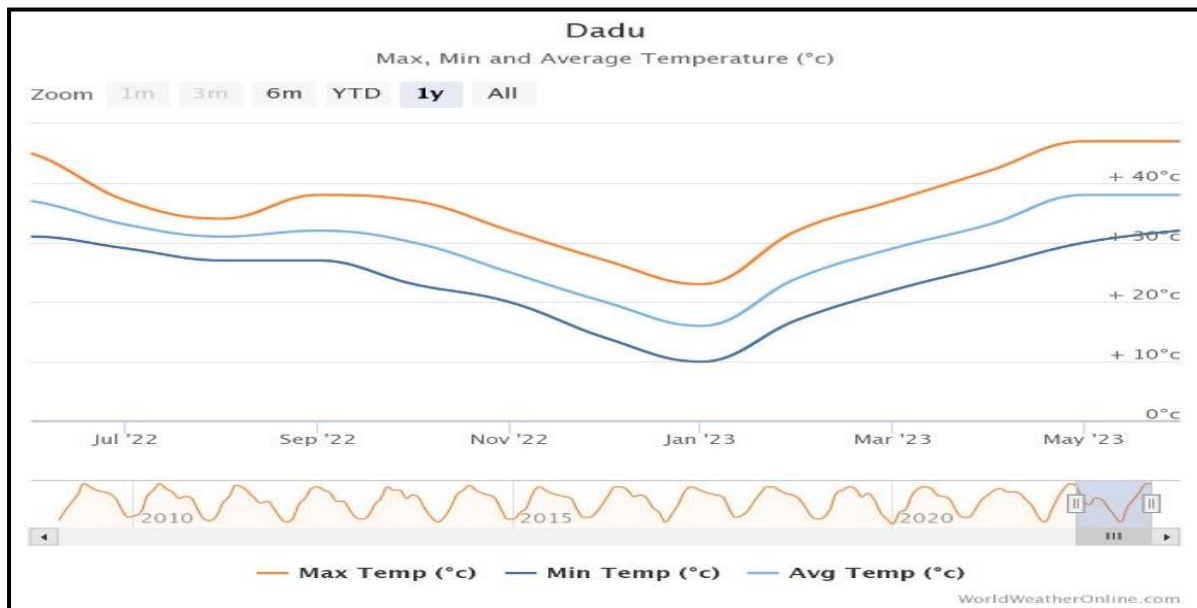


Figure 20: Average Monthly Temperature of Dadu

The rainy period of the year lasts for 2.2 months, from July 7 to September 13, with a sliding 31-day rainfall of at least 13 millimeters. The month with the most rain in Dadu is August, with an average rainfall of 23 millimeters. The rainless period of the year lasts for 9.8 months, from September 13 to July 7. The month with the least rain in Dadu is November, with an average rainfall of 1 millimeter. The muggier period of the year lasts for 4.0 months, from May 26 to September 25, during which time the comfort level is muggy, oppressive, or miserable at least 20% of the time. The month with the muggiest days in Dadu is July, with 23.7 days that are muggy or worse.

The windier part of the year lasts for 4.2 months, from May 3 to September 11, with average wind speeds of more than 8.4 miles per hour. The windiest month of the year in Dadu is June, with an average hourly wind speed of 11.1 miles per hour. The calmer time of year lasts for 7.8 months, from September 11 to May 3. The calmest month of the year in Dadu is December, with an average hourly wind speed of 5.1 miles per hour³.

³ <https://weatherspark.com/y/106473/Average-Weather-in-Dadu-Pakistan-Year-Round>

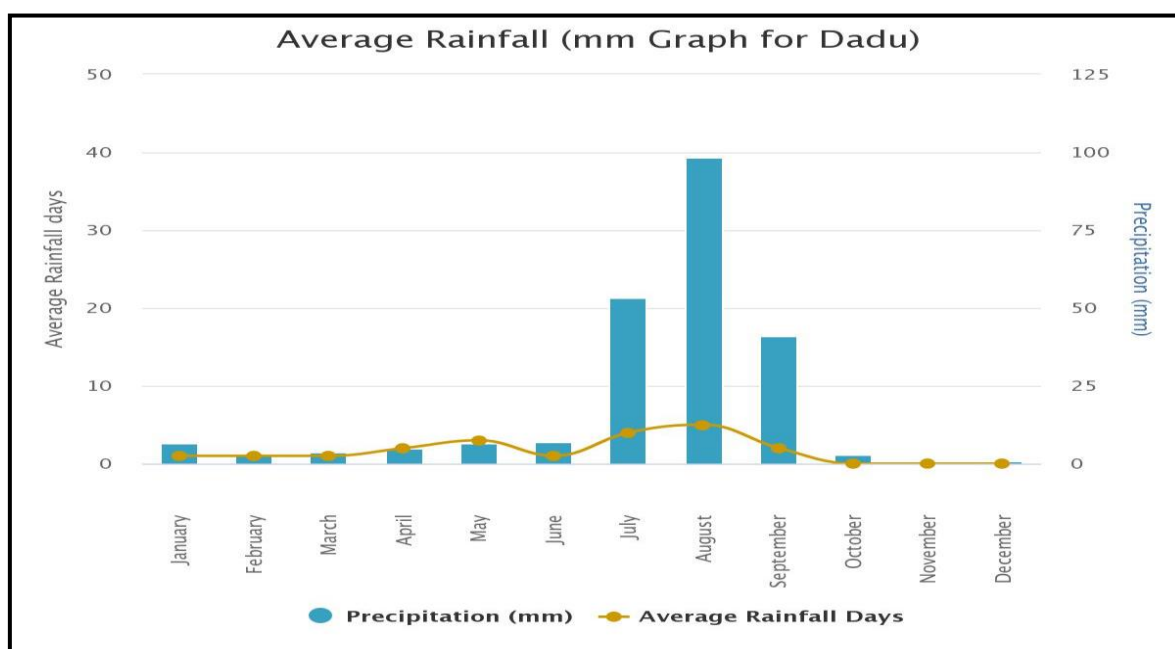


Figure 21: Average Monthly Rainfall of Dadu

4.2.3.2 Qamber Shahdadt

In Qamber, the summers are sweltering, the winters are short and cool, and it is dry and mostly clear year-round. Over the course of the year, the temperature typically varies from 8°C to 45°C and is rarely below 5°C or above 48°C. The hot season lasts for 3.0 months, from April 24 to July 24, with an average daily high temperature above 40°C. The hottest month of the year in Qamber is June, with an average high of 44°C and low of 30°C. The cool season lasts for 2.7 months, from December 1 to February 22, with an average daily high temperature below 27°C. The coldest month of the year in Qamber is January, with an average low of 9°C and high of 23°C.

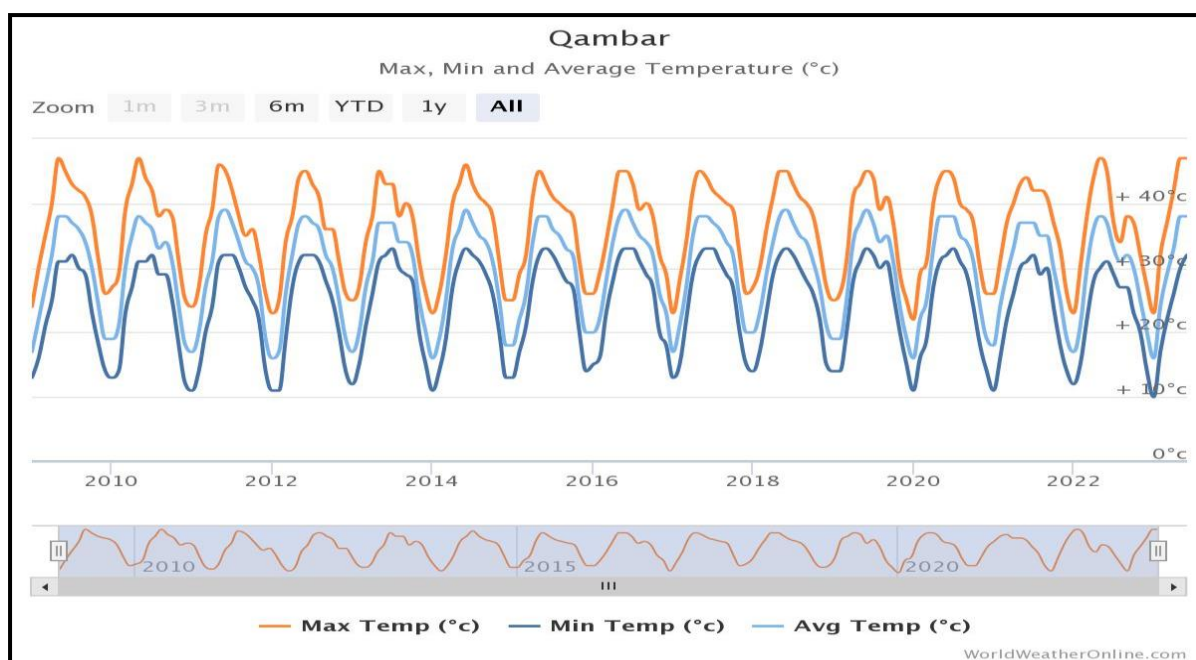


Figure 22: Average Monthly Temperature of Qamber

The rainy period of the year lasts for 1.9 months, from July 9 to September 4, with a sliding 31-day rainfall of at least 13 millimeters. The month with the most rain in Qambar is August, with an average rainfall of 18 millimeters. The rainless period of the year lasts for 10 months, from September 4 to July 9. The month with the least rain in Qambar is October, with an average rainfall of 1 millimeter.

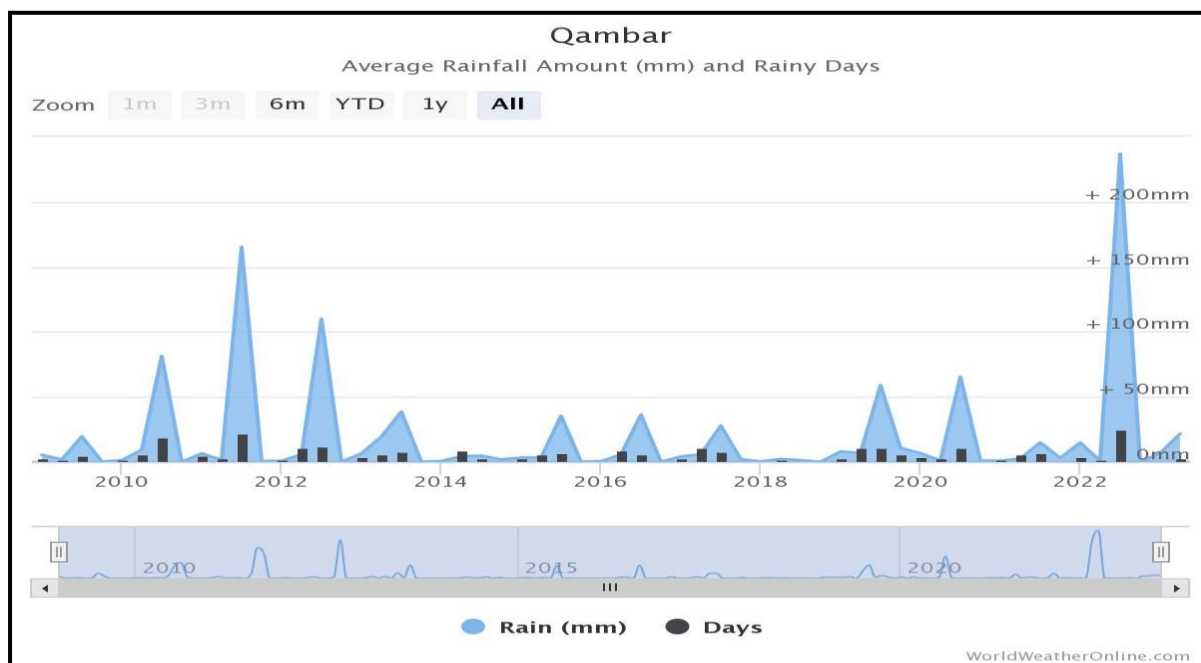


Figure 23: Average Monthly Rainfall of Qambar

Qambar experiences extreme seasonal variation in the perceived humidity. The muggier period of the year lasts for 3.2 months, from June 9 to September 16, during which time the comfort level is muggy, oppressive, or miserable at least 18% of the time. The month with the muggiest days in Qambar is July, with 20.4 days that are muggy or worse. The least muggy day of the year is February 5, when muggy conditions are essentially unheard of.

The predominant average hourly wind direction in Qambar varies throughout the year. The wind is most often from the south for 5.3 months, from May 1 to October 9, with a peak percentage of 66% on July 5. The wind is most often from the north for 6.7 months, from October 9 to May 1, with a peak percentage of 50% on January 1.

4.2.3.3 Ghotki

In Ghotki, the summers are sweltering and humid, the winters are short and cool, and it is dry and mostly clear year-round. Over the course of the year, the temperature typically varies from 8°C to 44°C and is rarely below 5°C or above 47°C. The hot season lasts for 3.0 months, from April 22 to July 22, with an average daily high temperature above 39°C. The hottest month of the year in Ghotki is June, with an average high of 43°C and low of 30°C. The cool season lasts for 2.7 months, from December 2 to February 22, with an average daily high temperature below 26°C. The coldest month of the year in Ghotki is January, with an average low of 8°C and high of 22°C.

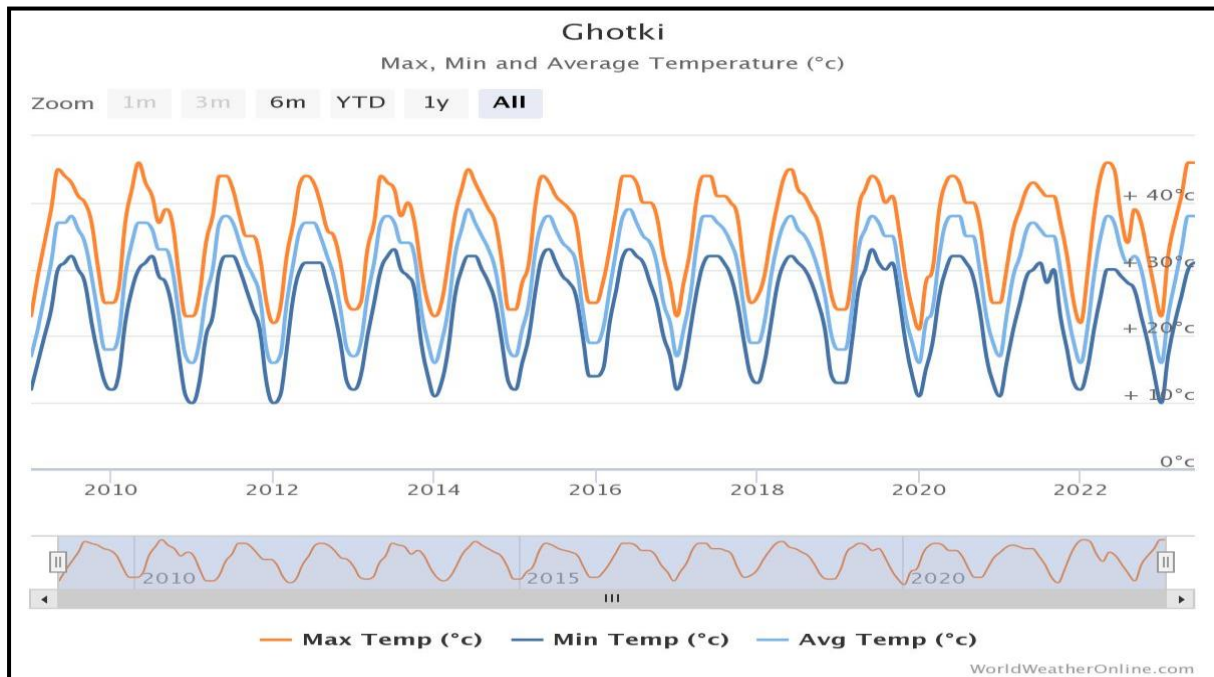


Figure 24: Average Monthly Temperature of Ghotki

Ghotki does not experience significant seasonal variation in the frequency of wet days (i.e., those with greater than 1.00 millimeters of liquid or liquid-equivalent precipitation). The frequency ranges from 1% to 11%, with an average value of 4%. The rainy period of the year lasts for 1.8 months, from July 8 to September 2, with a sliding 31-day rainfall of at least 13 millimeters. The month with the most rain in Ghotki is July, with an average rainfall of 17 millimeters. The rainless period of the year lasts for 10 months, from September 2 to July 8. The month with the least rain in Ghotki is October, with an average rainfall of 1 millimeter.

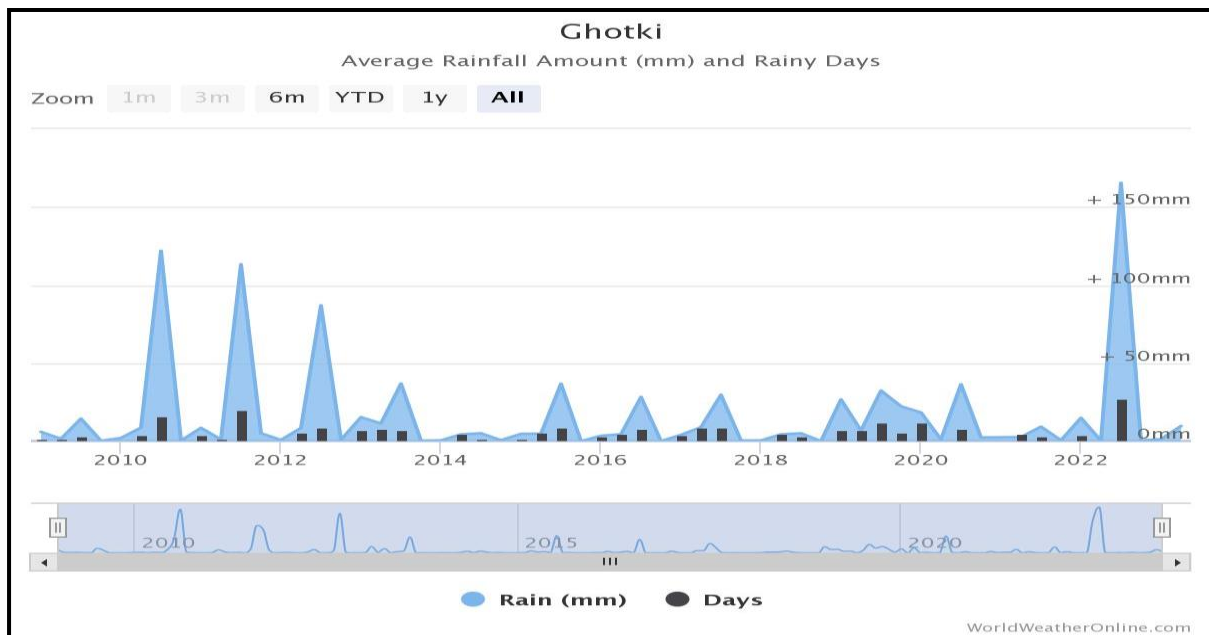


Figure 25: Average Monthly Rainfall of Ghotki

The wind is most often from the south for 6.7 months, from April 3 to October 24, with a peak percentage of 84% on July 5. The wind is most often from the east for 5.3 months, from October 24 to April 3, with a peak percentage of 48% on January 1.

4.2.3.4 Badin

In Badin, the summers are short, sweltering, muggy, arid, and windy; the winters are short, comfortable, and dry; and it is mostly clear year-round. Over the course of the year, the temperature typically varies from 12°C to 41°C and is rarely below 9°C or above 44°C. The hot season lasts for 2.9 months, from April 7 to July 2, with an average daily high temperature above 38°C. The hottest month of the year in Badin is June, with an average high of 39°C and low of 28°C. The cool season lasts for 2.1 months, from December 7 to February 11, with an average daily high temperature below 28°C. The coldest month of the year in Badin is January, with an average low of 13°C and high of 26°C.

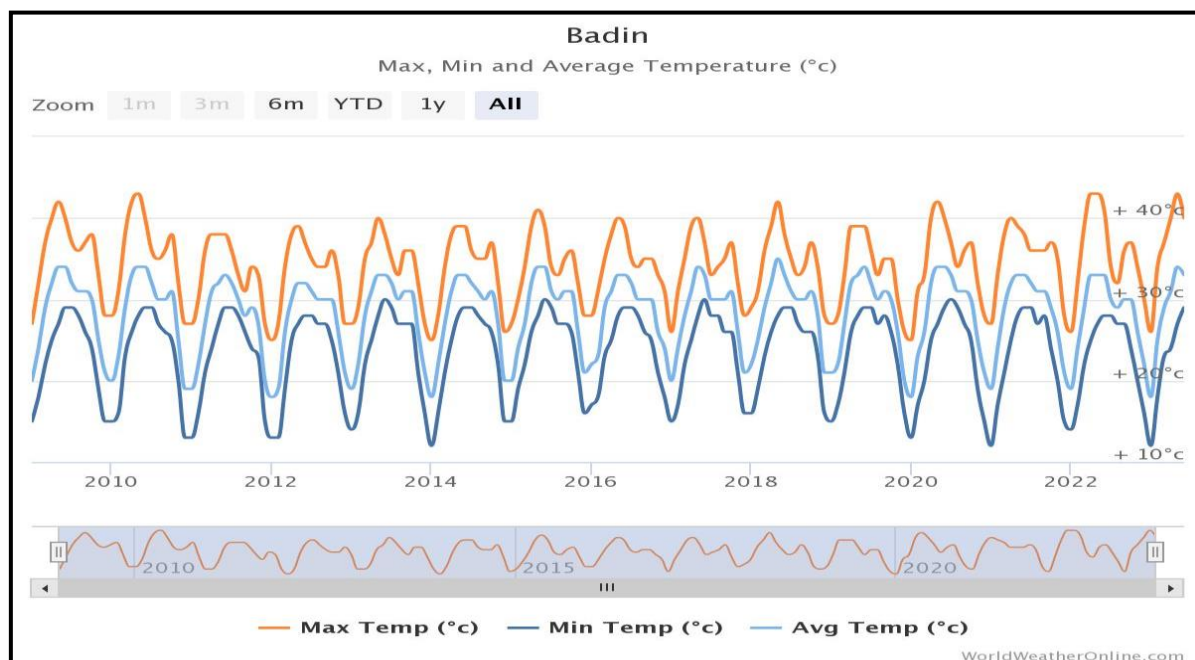


Figure 26: Average Monthly Temperature of Badin

The rainy period of the year lasts for 3.2 months, from June 21 to September 26, with a sliding 31-day rainfall of at least 13 millimeters. The month with the most rain in Badin is August, with an average rainfall of 49 millimeters. The rainless period of the year lasts for 8.8 months, from September 26 to June 21. The month with the least rain in Badin is February, with an average rainfall of 2 millimeters.

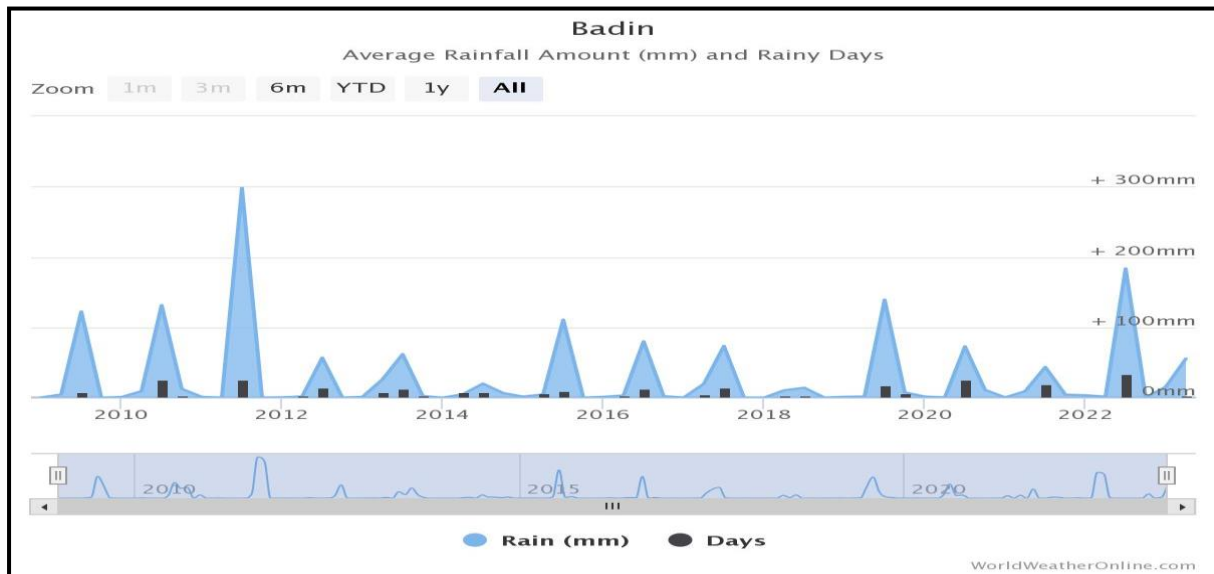


Figure 27: Average Monthly Rainfall of Badin

The wind is most often from the west for 8.6 months, from February 16 to November 4, with a peak percentage of 87% on May 3. The wind is most often from the north for 3.4 months, from November 4 to February 16, with a peak percentage of 65% on January 1.

4.2.3.5 Jacobabad

In Jacobābād, the summers are short, sweltering, arid, and clear and the winters are short, cool, dry, and mostly clear. Over the course of the year, the temperature typically varies from 9°C to 44°C and is rarely below 6°C or above 47°C. The hot season lasts for 2.8 months, from April 24 to July 16, with an average daily high temperature above 40°C. The hottest month of the year in Jacobābād is June, with an average high of 43°C and low of 30°C. The cool season lasts for 2.8 months, from November 30 to February 22, with an average daily high temperature below 26°C. The coldest month of the year in Jacobābād is January, with an average low of 9°C and high of 22°C.

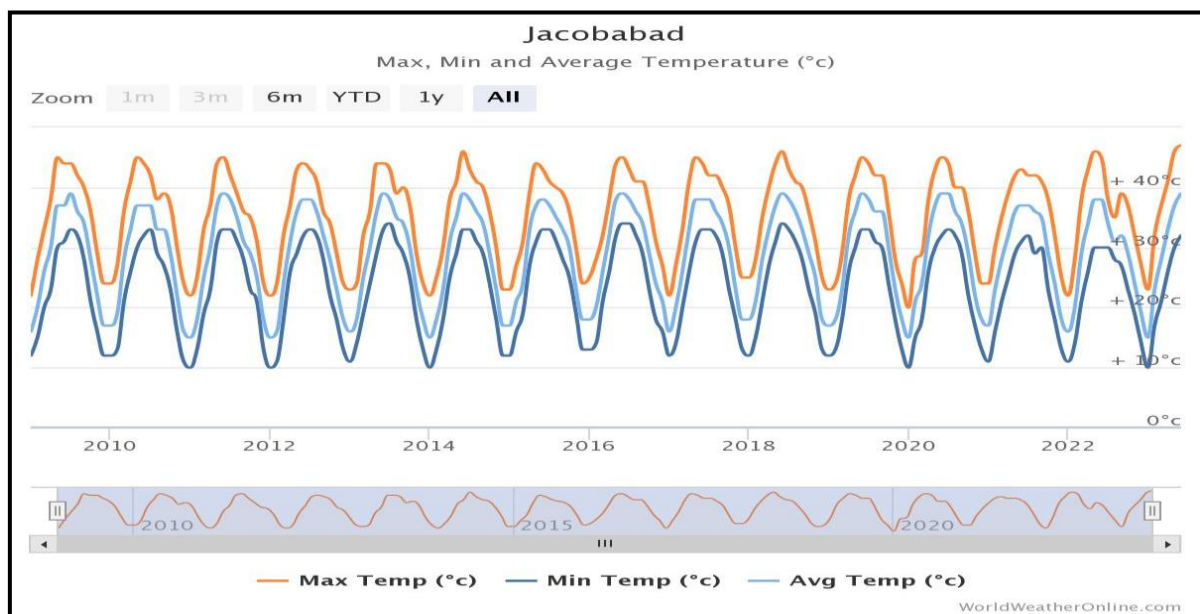


Figure 28: Average Monthly Temperature of Jacobabad

The rainy period of the year lasts for 1.9 months, from July 7 to September 5, with a sliding 31-day rainfall of at least 13 millimeters. The month with the most rain in Jacobābād is July, with an average rainfall of 17 millimeters. The rainless period of the year lasts for 10 months, from September 5 to July 7. The month with the least rain in Jacobābād is October, with an average rainfall of 1 millimeter.

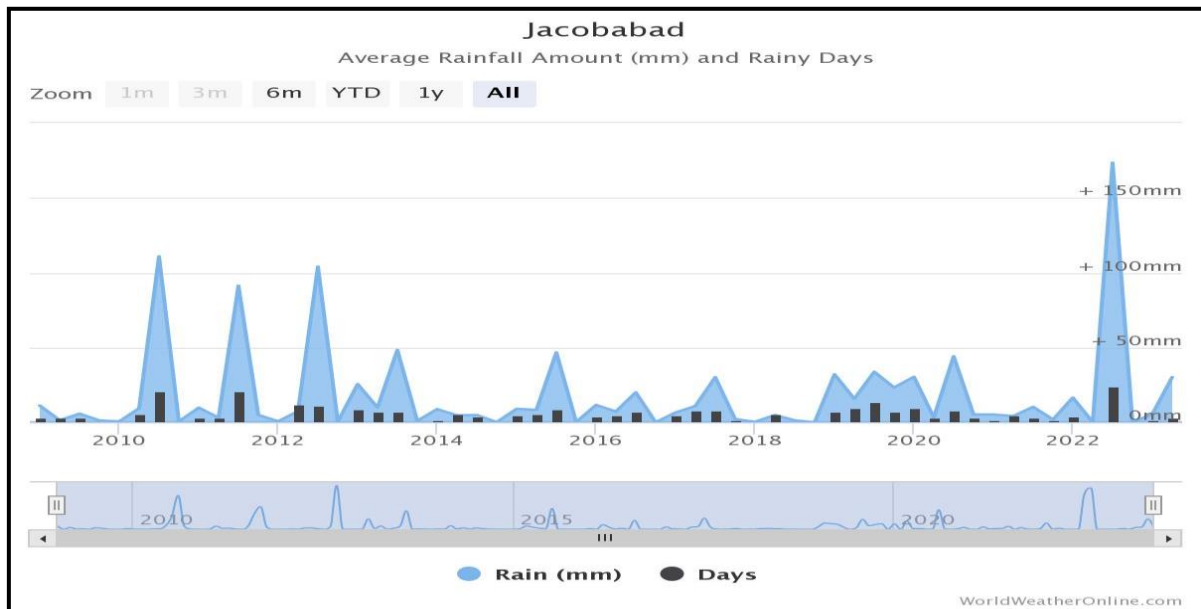


Figure 29: Average Monthly Rainfall of Jacobabad

The wind is most often from the south for 5.5 months, from April 29 to October 13, with a peak percentage of 73% on August 23. The wind is most often from the north for 6.5 months, from October 13 to April 29, with a peak percentage of 37% on January 1.

4.2.3.6 Jamshoro

In Jamshoro, the summers are sweltering, muggy, arid, and windy; the winters are short, comfortable, and dry; and it is mostly clear year-round. Over the course of the year, the temperature typically varies from 12°C to 41°C and is rarely below 9°C or above 44°C. The hot season lasts for 3.0 months, from April 9 to July 9, with an average daily high temperature above 37°C. The hottest month of the year is June, with an average high of 39°C and low of 28°C. The cool season lasts for 2.2 months, from December 6 to February 12, with an average daily high temperature below 27°C. The coldest month of the year is January, with an average low of 12°C and high of 24°C.

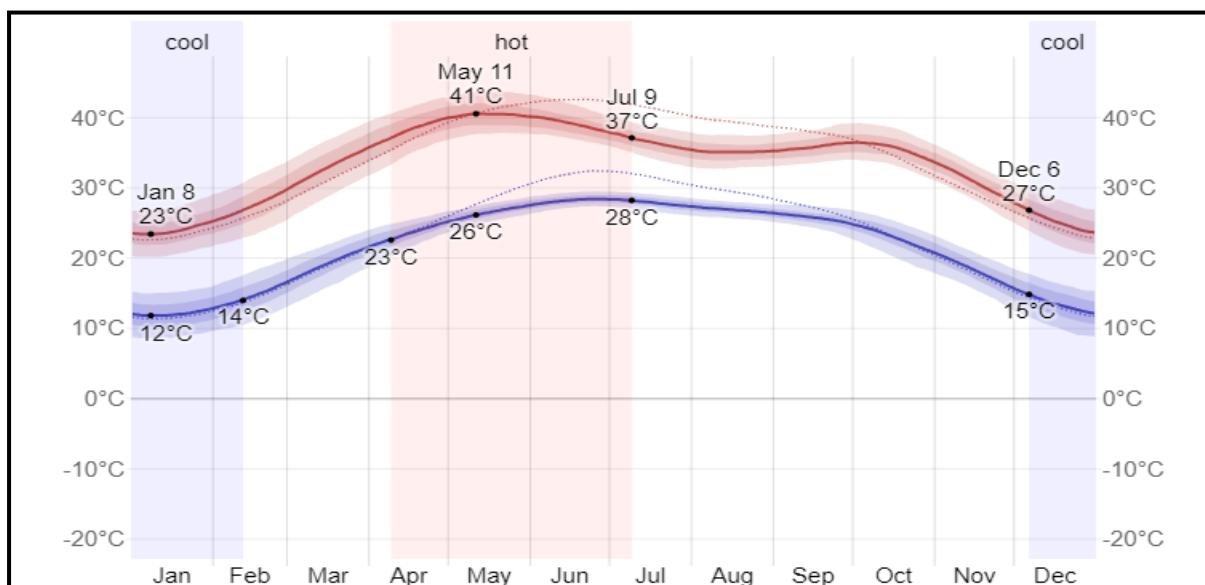


Figure 30: Average Monthly Temperature of Jamshoro

The rainy period of the year lasts for 2.8 months, from June 29 to September 21, with a sliding 31-day rainfall of at least 13 millimeters. The month with the most rain in Jāmshoro is August, with an average rainfall of 38 millimeters. The rainless period of the year lasts for 9.2 months, from September 21 to June 29. The month with the least rain in Jamshoro is November, with an average rainfall of 2 millimeters.

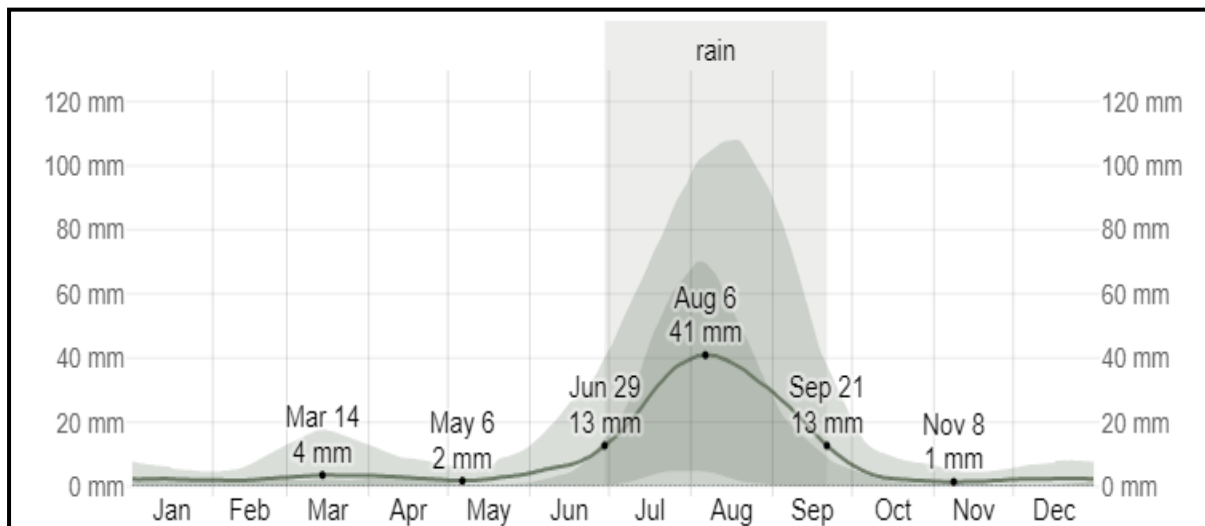


Figure 31: Average Monthly Rainfall of Jamshoro

The wind is most often from the west for 8.4 months, from February 21 to November 2, with a peak percentage of 84% on May 14. The wind is most often from the north for 3.7 months, from November 2 to February 21, with a peak percentage of 68% on January 1.

4.2.3.7 Tharparkar (Mithi)

In Mithi, the summers are short, sweltering, muggy, and windy; the winters are short and comfortable; and it is dry and mostly clear year-round. Over the course of the year, the temperature typically varies

from 12°C to 41°C and is rarely below 9°C or above 44°C. The hot season lasts for 2.9 months, from April 9 to July 5, with an average daily high temperature above 38°C. The hottest month of the year in Mithi is June, with an average high of 40°C and low of 28°C. The cool season lasts for 2.2 months, from December 6 to February 12, with an average daily high temperature below 28°C. The coldest month of the year in Mithi is January, with an average low of 12°C and high of 25°C.

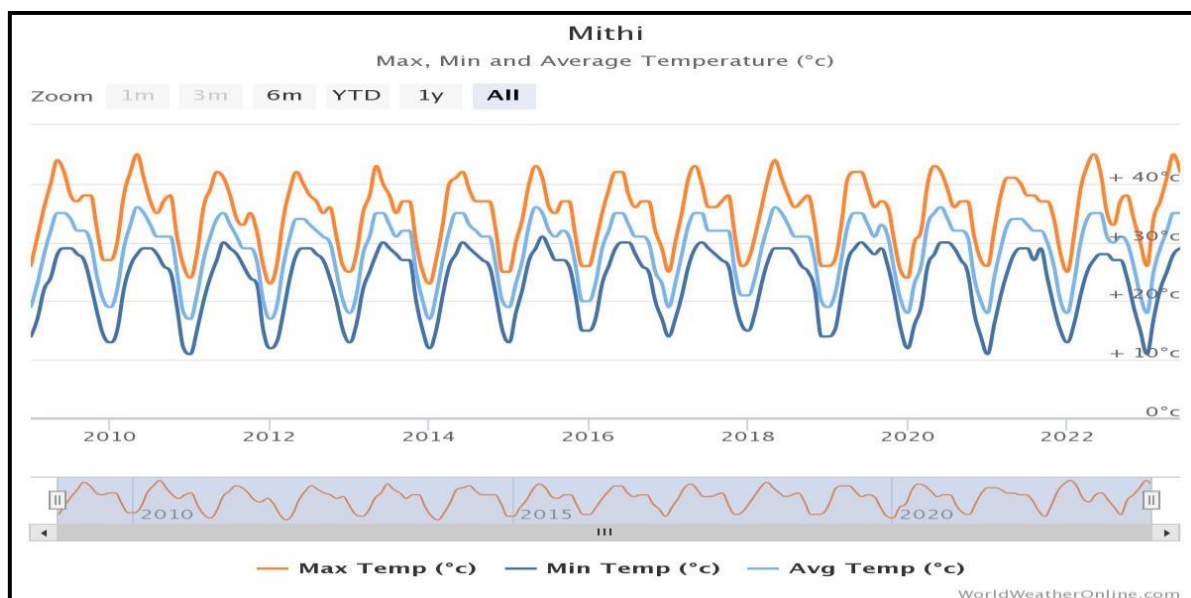


Figure 32: Average Monthly Temperature of Mithi

The rainy period of the year lasts for 3.6 months, from June 16 to October 3, with a sliding 31-day rainfall of at least 13 millimeters. The month with the most rain in Mithi is August, with an average rainfall of 55 millimeters. The rainless period of the year lasts for 8.4 months, from October 3 to June 16. The month with the least rain in Mithi is February, with an average rainfall of 2 millimeters.

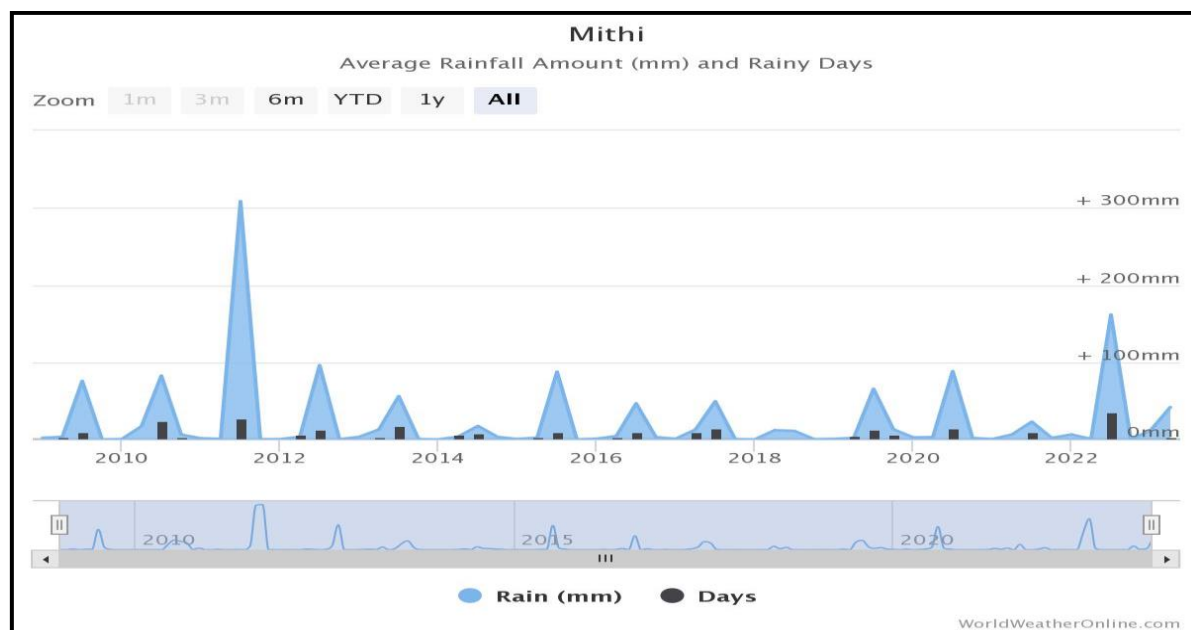


Figure 33: Average Monthly Rainfall of Mithi

The wind is most often from the west for 8.3 months, from February 21 to October 31, with a peak percentage of 83% on May 13. The wind is most often from the north for 3.7 months, from October 31 to February 21, with a peak percentage of 57% on January 1.

4.2.3.8 Thatta

In Thatta, the summers are sweltering, muggy, arid, and windy; the winters are short, comfortable, and dry; and it is mostly clear year-round. Over the course of the year, the temperature typically varies from 11°C to 39°C and is rarely below 8°C or above 42°C. The hot season lasts for 3.0 months, from April 3 to July 5, with an average daily high temperature above 36°C. The hottest month of the year in Thatta is June, with an average high of 37°C and low of 29°C. The cool season lasts for 2.0 months, from December 10 to February 10, with an average daily high temperature below 28°C. The coldest month of the year in Thatta is January, with an average low of 12°C and high of 26°C.

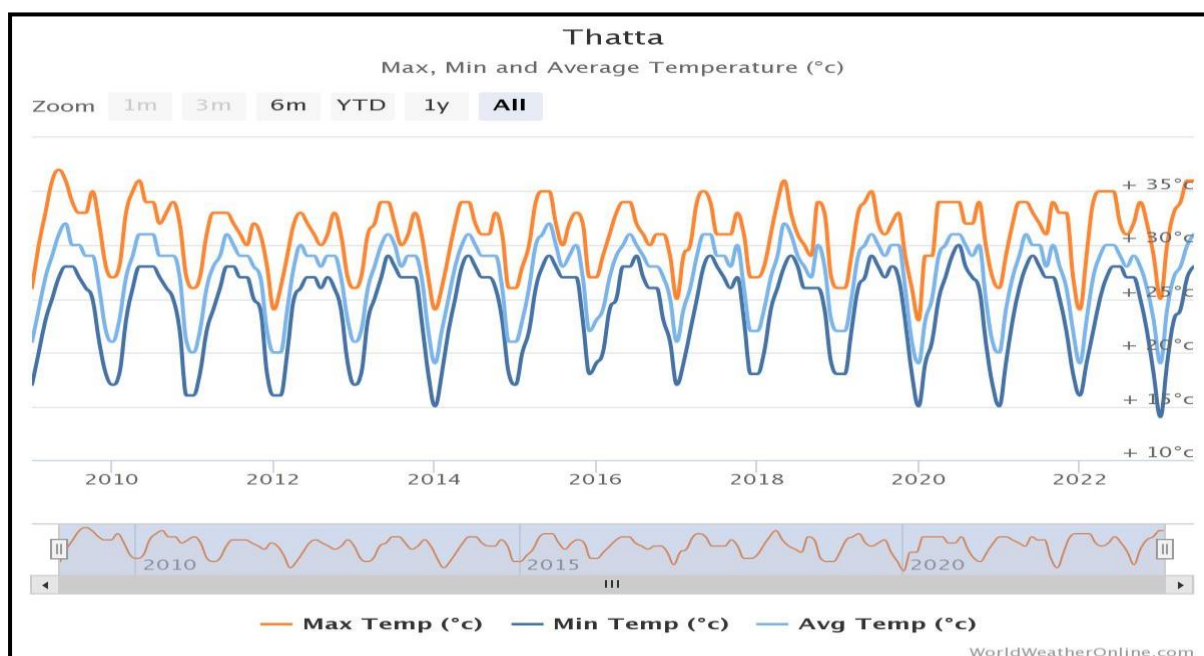


Figure 34: Average Monthly Temperature of Thatta

The rainy period of the year lasts for 2.9 months, from June 24 to September 20, with a sliding 31-day rainfall of at least 13 millimeters. The month with the most rain in Thatta is August, with an average rainfall of 42 millimeters. The rainless period of the year lasts for 9.1 months, from September 20 to June 24. The month with the least rain in Thatta is November, with an average rainfall of 1 millimeter.

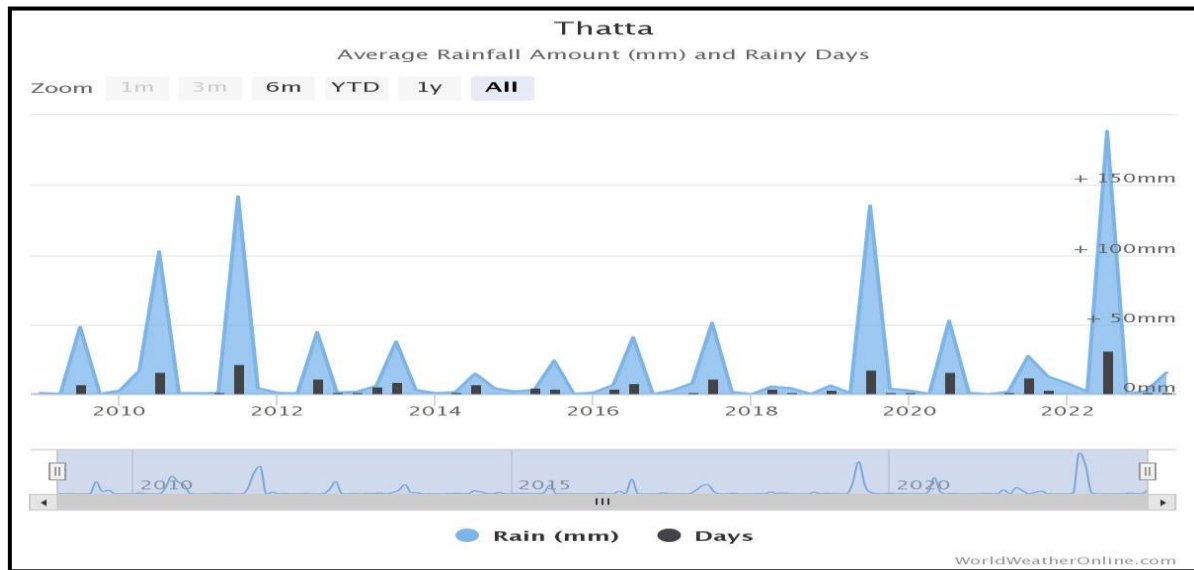


Figure 35: Average Monthly Rainfall of Thatta

The wind is most often from the west for 8.9 months, from February 10 to November 8, with a peak percentage of 93% on May 8. The wind is most often from the north for 3.1 months, from November 8 to February 10, with a peak percentage of 65% on January 1.

4.2.3.9 Sujawal

This district has a moderate climate, hot in summer and cold in winter. During the peak of summer, the temperature may rise to 106 °Fahrenheit during the day, but in the winter months the minimum temperature may fall below 19 °Fahrenheit. The average rainfall in the district is 48 mm.

Sujawal has a Subtropical desert climate (Classification: BWh). The district's yearly temperature is 31.72°C (89.1°F) and it is 10.83% higher than Pakistan's averages. Sujawal typically receives about 15.58 millimeters (0.61 inches) of precipitation and has 19.49 rainy days (5.34% of the time) annually.

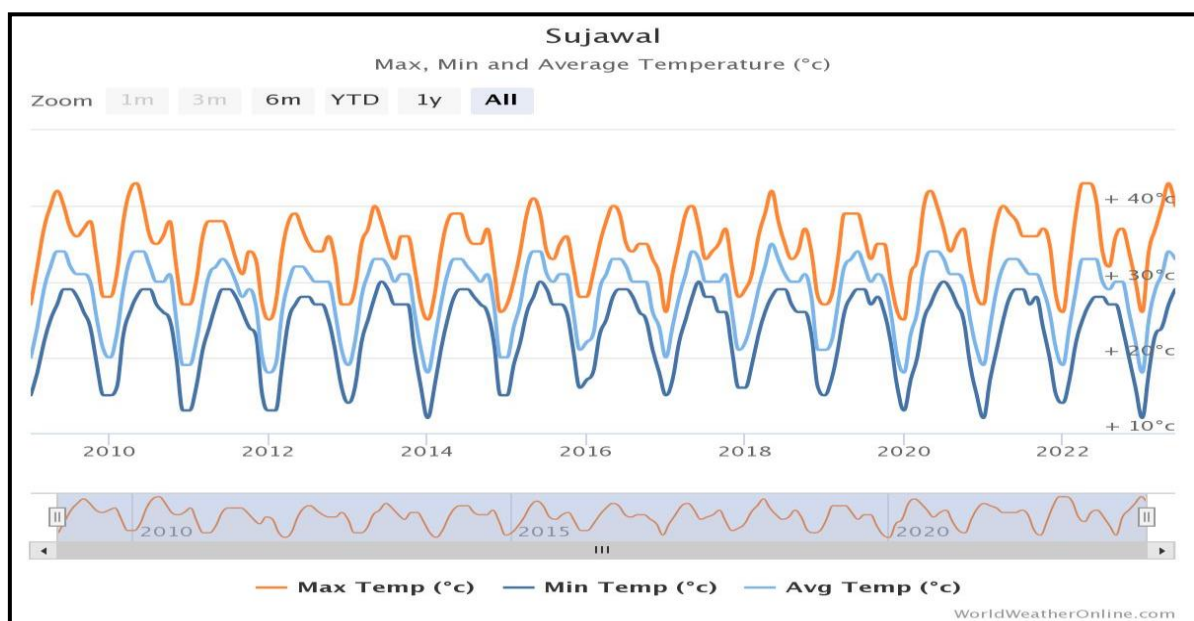


Figure 36: Average Monthly Temperature of Sujawal

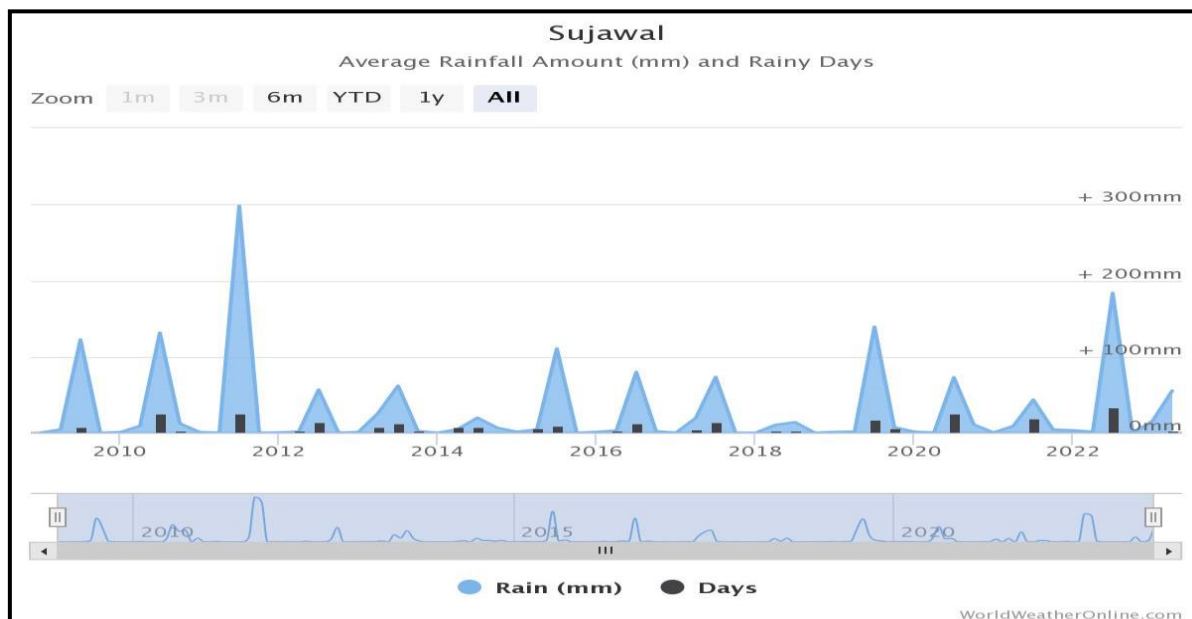


Figure 37: Average Monthly Rainfall of Sujawal

4.3 Natural Hazards

Most of the disasters occurring in Sindh are categorized as natural disasters. The most common disasters are floods, cyclone, drought, earthquake and heatwaves. Flood is the most frequent disaster and causes damage to crops, houses, livelihoods, threat to human lives and destruction to civic infrastructure. Monsoon has been assumed to be the common cause of floods. Since 1926, significant floods have been occurred approximately 50 times. The frequency of cyclones is every 3rd or 5th year. Similarly, the earthquake of 2001 inflicted 12 life losses, 45000 houses fully / partially damaged. Earthquake in April 2013 jolted the entire province at 5.5 Richter scale. The province has also experienced severe drought for almost 5 years from 1999-2003. Based on the literature available for natural hazards in Sindh, cross verification has been done during consultations about the damages and loss during flood or drought seasons. It was informed by the respondents during consultation that the sub-project sites are mostly affected by urban flooding, droughts and heat waves during summers and monsoon seasons. Whereas, those areas which are near to surface water bodies or rivers face high level of floods and they have to migrate to safer areas. Table 5 shows the relative severity of various disasters occurred in the past in the sub-project areas.

Table 6: Relative Severity of Various Disasters Occurred in the Past

Sr. No.	District	Hazard	Frequency	Severity	Years
1	Badin	Floods /Rain	Monsoon	High	1970,1975, 1979,1994, 2003,2006, 2011,2012, 2022
		Droughts	Rare	Medium	1998 to 2012
		Earthquake	Rare	Low	20,112,013



Sr. No.	District	Hazard	Frequency	Severity	Years
		Cyclone	Rare	High	1964, 1999, 2007
2	Dadu	Floods /Rain	Monsoon	High	2010, 2022
		Flood /Rain	Monsoon	High	2011, 2022
		Droughts	Rare	Low	1997-2002
3	Jamshoro	Riverine Floods	Monsoon	High	2010, 2011, 2022
		Heavy Rainfall	Monsoon	Low	2011, 2012, 2013, 2014, 2022
		Droughts	Rare	High	1999-2002
		Earthquake	Rare	Low	2013
4	Sujawal	Floods/Rain	Monsoon	Medium	2012, 2022
		Droughts	Rare	Medium	1998 to 2012
		Earthquake	Rare	Low	20,112,013
5	Thatta	Flood	Monsoon	High	1840,1856, 1874,1942,
					1946,1948, 1956,1973,
					1974,1976, 1978,1978,
					1988,1989, 1992,1994,
					1995,1996, 1999,2003,
					2006,2007, 2010, 2011 and 2022
		Cyclones	Seasonal	High	1964,1993, 1999,2003,
		Monsoon rains	Seasonal	Medium	Every year
		Tsunami	Rare	High	1945, 2005
		Earthquake	Rare	Low	2001, 2013



Sr. No.	District	Hazard	Frequency	Severity	Years
6	Jacobabad	Floods	Monsoon	Medium	1942, 2010, 2022
		Drought	Rare	Low	1999
		Earthquake	Rare	Low	Nil
7	Qamber Shahdadkot	Flash Flood	Monsoon	Medium	2007, 2010, 2011, 2022
		Drought	Infrequent	Low	1999-2002
		Earthquake	Infrequent	Low	1935
8	Tharparkar	Drought	Frequently	High	1987-88, 1991-92, 1999,2000, 2002-03,2005
		Earthquake	Rare	Low	1982,2001, 2005,2009
9	Ghotki	Riverine Flood	Monsoon	High	2010,2011, 2012, 2022
		Drought	Rare	Low	2002
		Earthquake	Rare	Low	-

Source: PDMA, Government of Sindh (2022)

4.3.1 Water and Wastewater Quality and Resources

4.3.1.1 Surface Hydrology

The Indus River and its tributaries are the primary sources of surface water. An estimated 122 km³ of surface water is diverted annually through an extensive canal system to irrigate this land.⁴ Indus basin is the major source of water provision in the Sindh. The Indus drains an area of about 950,000 km² and generates a mean annual discharge of 6,682 m³/s. The hydrograph of the river at Sukkur is strongly seasonal with a long low-water season known as Rabi between October and March (low flow season) and a high-water season known as Kharif between April and September (high flow season), driven primarily by summer snowmelt in the upper catchment and monsoon rainfall. The river usually peaks in mid-August or early September. River flow upstream of Sukkur barrage varies from a monthly average flow of approximately 22.83 MAF (28.16 BCM) in August to approximately 1.44 MAF (1.78 BCM) in January⁵.

⁴ Qureshi AS, Perry C. Managing Water and Salt for Sustainable Agriculture in the Indus Basin of Pakistan. *Sustainability*. 2021; 13(9):5303. <https://doi.org/10.3390/su13095303>

⁵ <https://openjicareport.jica.go.jp/pdf/12368841.pdf>



In Sindh Province, only 10 % of land area had availability of fresh groundwater and occurs in shallow aquifers. Sindh is facing significant water scarcity problems, particularly during the summer months before the monsoon. Agricultural water use, which already accounts for 90% of water withdrawals, is projected to significantly increase if current irrigation and cropping practices are not changed. Soil salinity problems are particularly serious in Sindh province where some 70 to 80% of the soil is classified as moderately or severely saline⁶.

4.3.1.2 Groundwater

Another important and increasingly used source of water both in the dryland and the canal area is groundwater. Groundwater resources complement available water resources in Sindh, and its safe yield has been estimated to range between 4.4 and 8.1 MAF. However, groundwater use is comparatively less (4.3 BCM) for two primary reasons. Firstly, most of the area lies on saline or brackish water, and secondly, canal command areas are being provided with surface irrigation supplies. More than 80% of the irrigated land in Sindh is underlain by brackish water unfit for agriculture⁷. The shortage of irrigation water coupled with drought conditions in Sindh has increased the importance of groundwater exploitation wherever fresh water is available.

In the sub-project area, precipitation is the main source of the natural recharge of groundwater. These streams are mostly non-perennial and water passes through them in the form of flash floods after rainfall. Depending on local conditions, the duration of such floods varies from a few hours to a few days.

Groundwater is found to be marginally fresh and is available in ample quantity in areas along the Canal. The water table also varies with the discharge in the canal and the amount of precipitation in the area. In periods of high discharge in the Canal, the water level in areas adjacent to the canal rises so does the water level along the canal. Precipitation being low in the area does not significantly affect the water table. Water quality in areas along and recharged by the Canal is generally sweet. Water is extracted through hand pumps; the water table in the area varies from 0.66 ft. to 150 ft. depending upon the location and elevation of the settlement.

4.3.1.3 Surface Water Drainage System

Sindh is the furthest downstream in the Indus basin, bordering the Arabian Sea and located at the delta of the Indus River. The delta is in an essentially flat terrain in which the river in some places is higher than the surrounding lands. For this reason, the river cannot drain areas throughout much of Sindh, and the province is subject to drainage deposits from both upstream and semidiurnal oceanic tides. The average groundwater table is also very shallow, around 2.5 m beneath the surface. In 25% of the province, the groundwater table is even shallower and the land is waterlogged. Surface and sub-surface drainage systems are inadequate, resulting in much of the drainage effluent being either retained in the basin or discharged into rivers and canals⁸.

⁶ <https://lupinepublishers.com/environmental-soil-science-journal/fulltext/water-quality-assessment-in-sindh-pakistan-a-review.ID.000156.php>

⁷ Data Collection Survey on Agricultural Sector in Sindh Province in the Islamic Republic of Pakistan-A report by JICA (2021)

⁸ Data Collection Survey on Agricultural Sector in Sindh Province in the Islamic Republic of Pakistan-A report by JICA (2021)

4.4 Environmental Analysis

Environmental analysis is a tool that helps us to evaluate the external and internal elements which are responsible to pollute the atmosphere, water body and other environmental settings. For environmental analysis, nine ambient air, noise levels and water samples were collected from sub-project area. The monitoring and analysis have been performed by Imperial Research Laboratory (IRL) team who monitored and collected samples around sub-project sites and recorded its GPS coordinates (Table 8). Detailed results, sampling and monitoring Locations can be seen in Annex-VII.

All the parameters of ambient air quality and noise levels are within the limits of SEQS except CO which is slightly high at Ghotki. The sub-project areas are located in a sparsely populated rural area with no industrial or commercial activity which provide adequate wind corridor to dilute air pollution. Vehicular traffic on dirt roads causes some dust emissions whose effect is fairly localized. However, traffic on the roads in the sub-project area is low compared to the national highways or other major roads.

Water samples were collected from hand pump, tap water and water cooler available nearby and the source of all these sampling points were bore water/underground water in the area. The Physio-chemical analysis of water samples at nine locations (Qamber Shahdadt, Ghotki, Badin, Jacobabad, Jamshoro, Thatta, Sujawal, and Tharparkar) shows that some parameters are exceeding from the permissible limits of WHO and SSDWQ such as TDS, Turbidity, Nitrate, Nitrite, manganese. However, the remaining parameters are within safe limits. Microbiological quality of water samples at all locations shows contamination of Total Coliform and *E.coli* and does not qualify the limits set by WHO and NSDWQ. The high levels of above-mentioned parameters are the reason of industrial and municipal waste discharges as well as usage of animal manure and fertilizers in the area. When water passes through layers of the earth, it may enter to groundwater resources because of pollution of water with organic materials, decomposition of urban and industrial waste in the soil, washing of animal and chemical manures caused by agricultural activities as well as leakage of sewage⁹. It is recommended in section 6.1.3 of this report that proper filtration and treatment of ground water must be done before consumption for drinking purpose to avoid health issues.

Table 7: Monitoring and Sampling Locations for Environmental Analysis of Proposed DHQ Rescue Stations

Ambient Air Quality, Noise Level and Drinking Water Sampling and Monitoring		
DHQ Rescue Station Site	Monitoring Location	Coordinates
DHQ Qambar Shahdadt Rescue 1122	Taluka Hospital Miro Khan	27°50'45.9"N 67°53'58.6"E
DHQ Ghotki Rescue 1122	DC Office Mirpur Mathelo	28°15'06.7"N 69°34'52.8"E
DHQ Badin Rescue 1122	Near PPHI District Office Civil Hospital Road	24°38'48.3"N 68°49'50.9"E

⁹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5632330/>



Ambient Air Quality, Noise Level and Drinking Water Sampling and Monitoring		
DHQ Rescue Station Site	Monitoring Location	Coordinates
DHQ Jacobabad Rescue 1122	Near Poly Technical Institute	28°16'24.5"N 68°27'04.6"E
DHQ Jamshoro Rescue 1122	DHQ, N55, Near Pak-Turk Maarif School, Jamshoro	25°95'5.9"N 67°46'49.8"E
DHQ Thatta Rescue 1122	Civil hospital Residency Near Rescue 1122, Thatta Station	24°44'52.8"N 67°53'34.0"E
DHQ Sujawal Rescue 1122	Near DHO Office at Sujawal Bypass	24°36'27.5"N 68°04'53.6"E
DHQ Tharparkar Rescue 1122	DHQ Centre 09, Tharparkar Near DPO House Mithi	24°44'52.08"N 69°53'34.0"E
DHQ Dadu Rescue 1122	DHQ Hospital Area Dadu	26°42'34.2"N 67°46'51.4"E

4.5 Biological Environment

The sub-project area falls in a rural locality and has a limited diverse habitat, which supports a few varieties of faunal and floral species. The sub-project areas are absolutely flat, and the surroundings of the project site are also relatively leveled. Topographically, the sub-project areas are built-up, agricultural and barren lands. The vegetation is characteristic of edaphic conditions of the region viz. arid climate and sandy and calcareous soil, largely impregnated with salts. The area is predominantly arid and faces prolonged droughts most often.

4.5.1 Fauna of the Sub-Project Area

The Limited number of species were recorded during the survey due to human interventions and species identified in the proposed sub-project areas are of less ecological importance. Most of the fauna observed are of domesticated nature. The animal species has been disturbed due to increase in population of the subproject areas. Mammal species are found in the area are Hog Deer (*Axis porcinus*), Wild Boar (*Sus scrofa*), Jackal (*Canis aureus*), Wolves (*Canis lupus-chanco*), Fox (*Vulpes vulpes*) and Porcupine (*Hystrix indica*).

Among birds, Partridges (*Ammoperdix griseogularis*), and the Sandgrouse (*Namaqua sandgrouse*) are common in the forest plantations. Many varieties of Waterfowl (*Anseriformes*) like Cattle egret (*Bubulcus ibis*), Indian Reef Heron (*Egretta gularis*), and Mongolian sand plover (*Charadrius mongolus*) are also found. Other birds found in the district are Little Brown Dove (*Phapitreron*), koel or cuckoo (*Eudynamys*) Out of recorded birds, none of the species are protected under the Sindh Wildlife Protection Ordinance (SWPO) and IUCN Red List 2006 as Near Threatened (NT).



4.5.2 Flora of Sub-Project Area

The dominant plant species found in the areas are wild Sugarcane (*Saccharum officinarum*), Poplar (*Populus ciliata*) and Babul (*Acacia nilotica*). Other flora includes Jand (*Prosopis cineraria*), Khejri (*Prosopis specigara*), Bahan (*Populus euphratica*), Berry (*Zizyphus numularia*), and Jhao (*Tamarisk dioca*). On the roadside and in orchards, Indian Fig (*Ficus indica*), Pipal (*Ficus religiosa*), Siras (*Mumosa sirissa*), Neem (*Azadirachta indica*) and Tamarind (*Tamarandus indica*) are also found in the area. Agricultural fields are mostly plain, and used to grow crops such as wheat (*Triticum aestivum*), maize (*Zea mays*) and Mustard (*Brassica nigra*). Fruit trees are also common mostly found in and around the built-up property. Land use pattern is largely scrub forest in the sub-project areas.

As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from sub-project sites. No protected forests were observed near the proposed sub-project area.

4.6 Socio-Economic Environment

4.6.1 Demography

The sub-project areas are situated in nine districts within the province of Sindh. The majority of the population in these areas consists of Muslims. There is a strong sense of social harmony as people actively maintain their social connections and actively participate in each other's social gatherings. Although the area faces challenges such as poverty and low literacy rates, the primary means of livelihood for the residents is rain-fed and irrigated agriculture and livestock rearing. Additionally, there are individuals who work as daily wage labourers. Production of local handicraft is also one of the major sources of livelihood for skilled women.

4.6.1.1 Population Distribution

Sindh, the second-largest province in Pakistan with a population of 47.9 million and an area of 140,914 square kilometres, is known for its high level of urbanization and industrialization. Since the 1998 census, the population of Sindh has been growing at an annual rate of 2.41%. In 1951, Sindh accounted for 18% of Pakistan's total population, which increased to 23% by 1998. This upward trend continues due to both internal migrations from other parts of the country and international migration. Moreover, the population density of Sindh has also significantly increased over the years, from 43 people per square kilometre in 1951 to 340 people per square kilometre in 2017. In the table below, the population data for each of the nine districts has been given.

Table 8: Population distribution and density of the Sub-Project Areas (Census-2017)¹⁰

Sr. No.	District	Population
1	Dadu	Dadu district had a population of 1,550,390, of which 795,700 were males and 754,480 were females. The rural population was 1,166,984 (75.27%) and urban 383,406 (24.72%). Density is 200/Km ² (510/sq mi) ¹¹
2	Qambar Shahdadkot	Qambar Shahdadkot district had a population of 1,338,035, of which 680,567 were males and 657,290 females. The rural population was 941,232 (70.34%) and urban 396,803 (29.66%). Density is 240/km ² (630/sq mi)
3	Ghotki	Ghotki district had a population of 1,648,708, of which 360,821 (21.89%) lived in urban areas. Ghotki had a sex ratio of 939 females per 1000 males. Density is 270/km ² (700/sq mi)
4	Badin	Badin district had a population of 1,804,958, of which 931,177 were males and 873,589 females. The rural population was 1,414,614 (78.37%) and urban 390,344 (21.63%). Density is 260/km ² (680/sq mi).
5	Jacobabad	Jacobabad district had a population of 1,007,009, of which 297,218 (29.51%) lived in urban areas. Jacobabad had a sex ratio of 956 females per 1000 males. Density is 370/km ² (970/sq mi)
6	Jamshoro	Jamshoro district had a population of 993,908, of which 523,069 were males and 470,702 females. The rural population was

¹⁰ <https://www.pbs.gov.pk/dag-sindh>

¹¹ <https://pnd.sindh.gov.pk/storage/resourcePage/62u7SvClgi5XnYvm2a5n3vvTesu4DcqKnhbxeyJP.pdf>

Sr. No.	District	Population
		561,287 (56.47%) and urban 432,621 (43.53%). Density is 88/km ² (230/sq mi)
7	Mithi	Mithi has a population of 219,901, of which 115,084 males and 104,787 females. Mithi has a sex ration of 109.83 females per 1000 males. The annual growth is 4.6912. Density is 74.44/km ² 13.
8	Thatta	Thatta district had a population of 982,138, of which 510,143 were males and 471,958 females. The rural population was 805,662 (82.03%) and urban 176,476 (17.97%). Density is 110/km ² (300/sq mi).
9	Sujawal	Sujawal district had a population of 779,062, of which 404,810 were males and 374,142 females. The rural population was 693,566 (89.03%) and urban 85,496 (10.97%). Density is 89/km ² (230/sq mi).

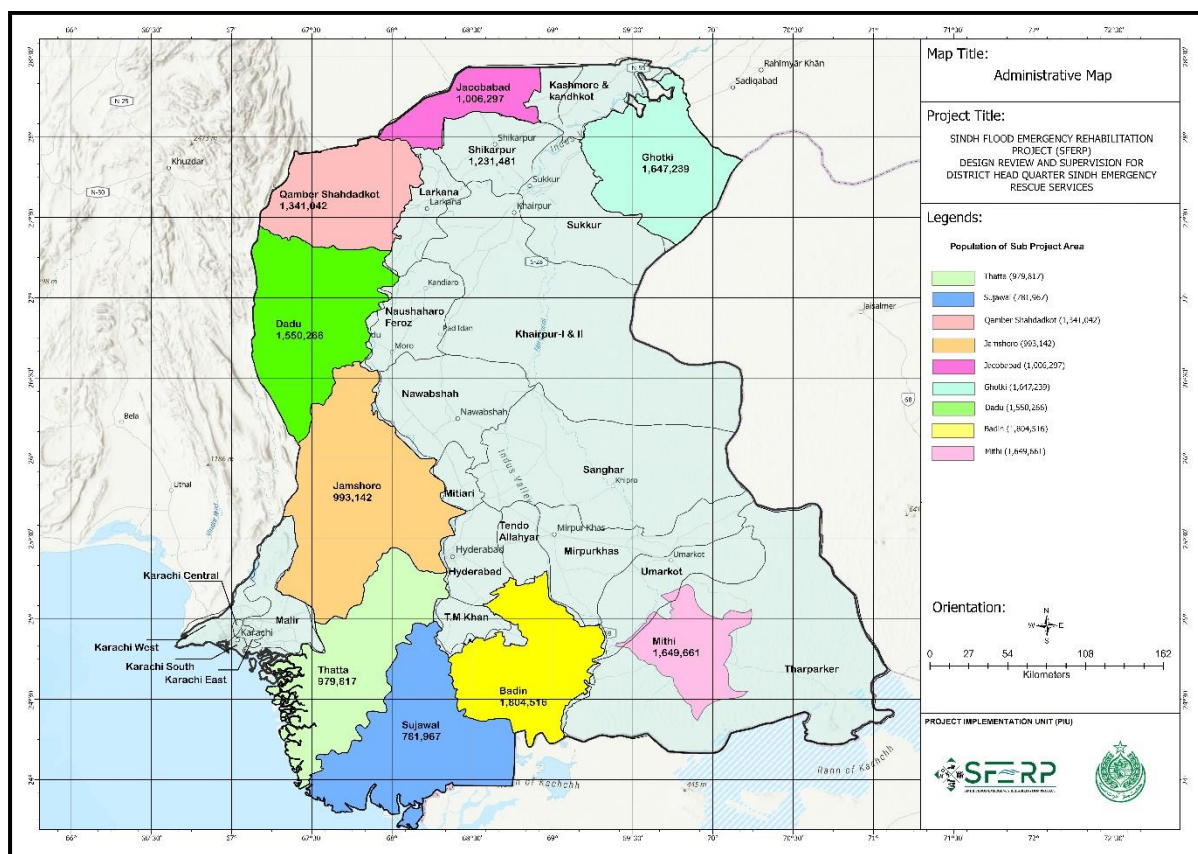


Figure 38: Population Density in the Sub-Project Areas

¹² <https://www.pbs.gov.pk/sites/default/files/population/2017/results/09902.pdf>

¹³ <https://www.shrc.org.pk/info-districts.php>

4.6.1.2 Languages

In the sub-project areas, the predominant language spoken is Sindhi, with 100 percent of the population being fluent in it. Additionally, other languages spoken in the region include Urdu, Balochi, Seraiki, and Pashto. The national language, Urdu, is widely spoken and understood by the majority of the people residing in the sub-project area.¹⁴ Below details for every district has been given as per the 2017 census:

- **Dadu** district is known for its rich cultural heritage, historical sites, and beautiful landscapes. The main languages spoken in Dadu are Sindhi, Balochi and Urdu.
- **Qambar Shahdadkot**, At the time of the 2017 census, 90.00% of the population spoke Sindhi and 8.00% Brahui as their first language.
- **Ghotki**-At the time of the 2017 census, 93.37% of the population spoke Sindhi, 2.49% Urdu, 1.64% Punjabi and 1.05% Saraiki as their first language. The historic Hindu temple Shadani Darbar is located in this district.
- **Badin** -At the time of the 2017 census, 94.12% of the population spoke Sindhi and 3.45% Punjabi as their first language.
- **Jamshoro**- At the time of the 2017 census, 84.76% of the population spoke Sindhi, 4.13% Urdu, 4.02% Punjabi, 2.76% Pashto, 1.93% Balochi and 1.38% Saraiki as their first language.
- **Sujawal** -Sindhi is the dominant language, spoken by 97.95% of the population.
- **Mithi, Tharparkar**- At the time of the 2017 census, 99.2% of the population spoke Sindhi, 0.7% spoke Punjabi, and remaining 0.1% spoke Pushto, Balochi, Siraiki as their first language.¹⁵

4.6.1.3

4.6.1.4 Housing

The project areas are inhabited by a rural population that resides in relatively isolated conditions. Most of the population lives in small settlements consisting of 30 to 250 houses. In some cases, these houses are accompanied by boundary walls that enclose sufficient space for cattle and storage purposes. The study areas exhibit diverse housing patterns, including cemented (Paka), partially cemented (Semi-Paka), and mud-plastered roofs made of grass (Kacha). It was noted that all individuals were residing in houses they owned themselves.

Katchi abadis, are the major housing settlement in the project regions. Over the years, people have migrated from rural areas to cities in search of improved economic prospects, resulting in an informal system of land acquisition. Consequently, the population of katchi abadis continues to grow, with new settlements being established in various districts across Pakistan. The government of Pakistan started to allot 80square yards to families and construction facilities under the Human Settlement Authority. This gives the people to have opportunity to live in a Low income settled areas rather raising their standards of living to some extent. In Thatta 1-acre land and in Jamshoro 14-acres land have been allotted for the low-income housing settlement.¹⁶

¹⁴ https://www.pbs.gov.pk/sites/default/files/population/census_reports/pcr_sindh.pdf

¹⁵ https://www.citypopulation.de/en/pakistan/distr/admin/tharparkar/81906_mithi/

¹⁶ <https://skaa.sindh.gov.pk/low-cost-housing-scheme>

- In **Ghotki** 92.1% of the population has their own houses, and 7.9% are those who live on rent. The average number of people residing in a room is 5.1 with a household size of 7.9 persons. 76.3% of the households have Pacca roofing.¹⁷
- In **Jacobabad** there are 64980 households, out of which, 49% lives in the rural areas and other half in the urban areas. 75.9% of the population has ownership of their houses while the remaining live in rented houses. The average person per room is 5.8, and the mean household size is 6.9%. 33.6% of the population has pacca roofing of their houses.
- In **Mithi**, as per the census 2017, there were 45,214 households out of which 73% live in rural areas and 27% in the urban area. The average household size is 6.6 persons.
- The district of **Shahdadkot** consists of 33,435 households, out of which 41% of these are located in rural area and other 59% of the households are situated in the urban areas. 91.2% of the population in this region own their houses, with 6.1 mean persons per room, and 8.2 persons is the average household size. 36.2% of these households have Pacca roofing.¹⁸
- In the region **Dadu**, there are 85,088 households with 61% of the households located in the urban areas and the rest of 39% in the rural areas. 92.3% of the population have their own houses, 52.5% of the houses have Pacca roofing. The number of persons per room is 4.6 and the mean household size is 5.8 persons.
- In the district of **Jamshoro**, there are 359,376 households. The average household size is 5.49 persons. 56% of the population resides in the rural areas and the 44% lives in the urban areas. 88.4% of the population owns their houses. 61% of the households have pacca roofing.

4.6.1.5 Telecommunication

During the survey, the community reported that there are utilities and landline facility available in the sub-project areas. Mobile phone coverage is better in the sub-project areas. There was a major development in the year 2022 when the government of Pakistan announced 5 billion¹⁹ projects for the districts of Dadu, Jamshoro, Larkana, Qamber-Shahdadkot, Hyderabad and Badin. This has connected 207 towns of the regions benefitting 4.2 million residents in these areas.²⁰

4.6.1.6 Health Facilities

In the district of Sindh, the Sindh Department of Health currently looks after the health facilities and institutions in the region. It employs more than 14,000 doctors, 2,000 nurses, and over 12,000 paramedics who serve across the entire province. Sindh has two medical universities, one each in Karachi and Jamshoro, along with three medical colleges located in Sukkur, Nawabshah, and Larkana. The province also boasts an extensive educational network, including 12 Nursing Schools, 10 Midwifery Schools, and 5 Public Health Schools catering to lady health visitors.²¹

Within this vast healthcare infrastructure, there are 6 teaching hospitals, 5 specialized institutions focusing on chest, dermatological, and mental health, 11 district headquarters hospitals, and 27 major hospitals situated in key cities. Additionally, there are 44 Taluka hospitals, 99 Rural Health Centers in smaller towns, 738 basic health units in Union Councils, and 305 dispensaries in larger Union Councils.

¹⁷ <https://pnd.sindh.gov.pk/storage/resourcePage/62u7SvClgi5XnYvm2a5n3vvTesu4DcqKnhbxyJP.pdf> (2021)

¹⁸ <https://pnd.sindh.gov.pk/storage/resourcePage/62u7SvClgi5XnYvm2a5n3vvTesu4DcqKnhbxyJP.pdf>

¹⁹ <https://www.usf.org.pk/news/federal-it-ministry-launched-3-more-projects-of-ofc-worth-pkr-5-billion-for-6-districts-of-sindh>

²⁰ <https://www.dawn.com/news/1692785>

²¹ <https://sindhhealth.gov.pk/Introduction>

Furthermore, the province has 36 MCH (Maternal and Child Health) Centers, 12 maternity homes, and 39 centers for traditional medicine.

The rural health centers offer specialized care during morning hours, along with minor emergency services, and have indoor facilities, though they are seldom utilized. On the other hand, the BHUs and dispensaries focus on outdoor medication and preventive care until 2 pm.

Nonetheless, the Department of Health needs to be upgraded as the population increase and seasonal diseases hit with greater magnitude owing to various factors. In this time of concern, a recent positive development has come across. Sindh's governor has announced to provide free health cards to the low-income individuals making the health-care facilities drastically accessible to the common people.²²

Meanwhile, the current number of hospitals, dispensaries and laboratories in the following regions are given in the table 10 below:

Table 9: Number of Healthcare Facilities in the sub-regions of the project²³

Sr. No.	District	Healthcare Facilities
1	Dadu	104
2	Qamber Shahadadkot	78
3	Ghotki	62
4	Badin	167
5	Jacobabad	54
6	Jamshoro	69
7	Mithi (Tharparkar)	381
8	Thatta	56
9	Sujawal	61

4.6.1.7 Educational Facilities

Literacy rate plays an important role in community development and more importantly it eradicates social issues due to lack of awareness. An academia is a primary hub for nurturing young minds and creating awareness to tackle daily life problems, health threats and emergency situation. Whenever, there is a need to train community, training/management sessions are conducted in educational institutes to educate them about the first aid and emergency preparedness for any natural hazard, health problem

²² <https://www.nation.com.pk/02-Jul-2023/sindh-healthcare>

²³ <https://sindhhealth.gov.pk/> Retrieved on 17 July 2023

and social issue. In the current scenario, there is a serious need to educate community so that they can be aware of emergency situations and manage it easily.

The government struggles to amplify the educational facilities, but the consecutive floods and natural disasters make the survivability of these facilities, in the long term, pragmatically difficult. Yet again the government thrives now and then for the youth's education and for the upliftment of the society's SES (socioeconomic status). Very recently, the Sindh government has called a plan to upgrade 57 primary schools, 15 middle schools, and has allocated 26.7 million rupees for the development of the colleges across the province of Sindh.²⁴ The list of educational facilities present in each sub-project area is given in table 11.

Table 10: Number of Educational institutions in the sub-regions of the project

Sr. No.	District	Educational Institutes
1	Dadu	There are 2,229 schools in Dadu ²⁵ . There are 9 governmental colleges in the district. ²⁶ The Sindh university has its Mohtarma Benazir Bhutto campus in Dadu. There is IBA campus as well.
2	Qambar Shahdadkot	1717 govt schools, 6 govt colleges ²⁷
3	Ghotki	2231 govt schools, 8 govt colleges
4	Badin	3127 govt schools ²⁸ , 6 govt colleges.
5	Jacobabad	1555 govt schools, 4 govt colleges
6	Jamshoro	842 govt schools, 6 govt colleges, Liaquat University of Medical and Health Sciences, Jamshoro Sindh, Mehran University of Engineering & Technology, Jamshoro, University of Sindh, Jamshoro, Shaheed Allah Buksh University of Art, Design and Heritages, Jamshoro ²⁹
7	Tharparkar (Mithi)	308 govt schools ³⁰ , 5 govt colleges, ³¹
8	Thatta	1607 govt schools, 3 govt colleges
9	Sujawal	1829 govt schools There are 2 govt colleges in Sujawal.

²⁴ <https://tribune.com.pk/story/2421152/sindh-budget-focuses-on-education>

²⁵ <https://tribune.com.pk/story/2278570/198-govt-schools-in-dadu-exist-only-on-paper> Retrieved on 14 July 2023

²⁶ <https://college.sindh.gov.pk/government-colleges> Retrieved on 14 July 2023

²⁷ <https://college.sindh.gov.pk/government-colleges> retrieved on 14 July 2023

²⁸ <https://sbos.sindh.gov.pk/files/SBOS/Education/School%20Education/School%20Education%20Statistics%20-%202018-19.pdf> retrieved on 14th July 2023

²⁹ <https://universitiesboards.sindh.gov.pk/universitiesinstitutes> retrieved on 14 July 2023

³⁰ <http://www.rsu-sindh.gov.pk/contents/FMIS/distbudget201516/Tharparkar.pdf>

³¹ <https://www.pbs.gov.pk/sites/default/files/population/2017/results/09901.pdf>

5. STAKEHOLDER CONSULTATION AND INFORMATION DISCLOSURE

In this section, an overview of the consultations that took place with stakeholders residing in the sub-project areas has been outlined. The main purpose of these consultations was to engage with the stakeholders, inform them about the different components and activities of the project, and gather their perspectives and opinions regarding the sub-project.

The consultations primarily targeted the communities and households located in the sub-project intervention areas. These groups are the intended beneficiaries of the project, and it was crucial to involve them in the decision-making process. The consultations aimed to provide them with information about the project, its goals, and the potential impacts it may have on their lives. By engaging with these stakeholders, sought to ensure that their voices were heard, and their concerns, needs, and expectations were taken into account. Additionally, primary consultations were not limited to individual households alone; they also included owners of commercial entities within the sub-project areas. This recognizes that commercial entities can be affected by the sub-project, either positively or negatively.

Moreover, under the project secondary or institutional consultations took place with relevant government agencies. These consultations were focused on disclosing information related to environmental and social safeguards measures. This indicates the importance of complying with regulations and ensuring that potential environmental and social risks were adequately addressed. By engaging with government agencies, they sought to share information, gather input, and establish a collaborative approach towards mitigating any adverse impacts and promoting responsible project implementation.

5.1 Need of Consultation

The World Bank's Environmental and Social Framework (ESF), specifically Environmental and Social Standard (ESS)-10, emphasizes the importance of stakeholder engagement and information disclosure in the project. ESS-10 places significant emphasis on identifying and involving stakeholders, particularly those directly affected by the project activities. It encourages the establishment and maintenance of constructive relationships with stakeholders to enhance their interest and support for the project. It also emphasizes providing stakeholders with ample opportunities to voice their concerns, ensuring that their apprehensions are adequately addressed.

According to the ESF, it is necessary to develop an Environmental and Social Management Plan (ESMP) through a consultative process involving all relevant stakeholders. The ESMP should also be publicly disclosed. This process helps minimize adverse environmental and social impacts, reduces potential conflicts during the design and implementation stages, mitigates the risk of sub-project delays during construction, and promotes economic and social acceptance of the sub-project. Furthermore, public consultations foster a sense of ownership among stakeholders regarding the sub-project, while disclosure ensures transparency in sub-project activities.

5.2 Identification of Stakeholders

Stakeholders that were identified during reconnaissance were of two types; one was project affected parties and other was interested parties with whom consultations had been performed. However, there were no vulnerable or disadvantaged individuals or groups identified and thus, no consultation was required there by. Project affected parties are groups of individuals who are affected or likely to be affected by the project. The Other Interested Parties for the sub-project are the representatives of Government Departments/agencies involved in the planning, design, implementation and operation of

the sub-project, including various provincial government departments such as Public Health Care Department, Public Health and Engineering Department, Public Works Department, Revenue Department, Sindh Environment Protection Agency (SEPA), and Health Department, etc.

5.3 Engagement approach

To facilitate community-level consultations, representatives from all segments of the community were contacted three days prior to the scheduled sessions. The purpose of the consultations, along with the date and time, were communicated to the stakeholders, ensuring their active participation in the consultation process.

5.4 Stakeholder Consultation

In the month of May 2023, the social and environmental team of the consultant organized consultation meetings with the local community residents in the sub-project area. The field team, visited nearby communities to gather the perspectives of the people who would be affected by and benefit from the sub-projects. The residences are at least 20 meters to maximum 200 meters away from the construction site. Moreover, the communities are not affected directly, as the construction takes place in a confined government owned land. The community expressed appreciation for taking the initiative to construct Rescue Stations. They believed that these efforts would serve as a centralized location equipped with resources and trained personnel to quickly respond to emergency situations. This allows for a swift and coordinated response, reducing response time and potentially saving lives. The settlements/Goths that were consulted are mentioned in table 12 and their recorded concerns are summarized in table 13.

During the consultation, the social and environmental team briefed households and local residents on the key features of the Environmental and Social Management Plan (ESMP) developed for the sub-projects. The team assured the participants that all concerns raised by them would be addressed. The ESMP includes measures to minimize impacts during the construction phase, such as mitigating noise and air pollution. The participants were informed that their concerns and suggestions had been incorporated into the ESMP. In the event of any complaints or grievances from households, a clearly defined Grievance Redress Mechanism (GRM) has been established within the ESMP. The participants were also provided with information about the GRM.

Table 11: List of Project Affected Parties/ Goth

Name of the District	Name of the settlement/Goth	Date of Consultation	No. of participants
Ghotki	Bholo Goth	14 th May 2023	6
Badin	Daleji	20 th May 2023	10
Jamshoro	Karankhan Shoro	15 th May 2023	13
Jacobabad	Gul Jatoi	16 th May 2023	7
Dadu	Goth Abad	17 th May 2023	14
Thatta	Chahto chand	19 th May 2023	11
Shikarpur	Thul	18 th May 2023	10
Qamber Shahdadkot	Jumma Khan Mohala	13 th May 2023	7
Sujawal	Deh Khalifa	21 th May 2023	12

During the survey, consultations with women were also conducted by female resource persons in 3 sub-project areas because women and girls are more severely impacted by disasters and climate change. During the meetings, the women were encouraged to ask questions and share their views and concerns related to the project, which were noted accordingly.

They were informed that the successful completion of the sub-projects, will aid them in acquiring emergency services like long-distance medical transfers, accident response, firefighting, water rescue, urban search and rescue etc. They were happy to hear these Rescue Stations will help them during emergency situations especially rainy seasons and heat waves periods.

Table 12: Summary of concerns raised by the community during consultations

Comments /Observations	Action /Response
Participants from the sub-project areas, strongly demanded that unskilled labor should be hired from nearby area, as there is an availability of unemployed individuals.	Participants were told that local community would be preferred for the labor work and it is strongly suggested in the ESMP that unskilled labor provision should be given to locals of the area first.
Residents raised a concern towards the mobility and accessibility of roads during construction period. If the same transportation network would be utilized then mobility timings of construction vehicles, diversion routes and schedule of work should be communicated to the communities earlier.	It was briefed and ensured that the contractor will be responsible to communicate schedule of work, access routes, safety signs/warnings around the construction area to inform public. There would be no construction activities outside the proposed DHQ sites of sub-project areas but mobility of construction vehicles might disrupt traffic on shorter period. Participants were also briefed on GRM regarding the enumeration of any concerns.
Local communities expressed concerns about the potential environmental impact of the construction activities like dust dispersion, noise, and air pollution.	The locals were assured that compliance upon ESMP would be ensured with true spirit during construction work of the proposed sub-projects. All vehicles, equipment and machinery used for construction will be regularly monitored to the emission levels that conform with SEQS.
The Participants informed that whenever any development work goes on it causes noise disturbance to the nearby community and become a big issue, that alters the social behavior of the local communities.	Vehicles and equipment used will be fitted as applicable, with silencers and properly maintained. In rural settlements, construction activities will be restricted to being carried out between 9 a.m.-5 p.m. as well as a buffer of indigenous plant species around sub-project sites are also recommended which reduces the noise levels.
Participants were concerned how the rescue stations will work and how they can approach them during emergencies.	Participants were informed about the mechanism, services, management and deployment of equipment during emergency by a DHQ rescue station. They were told that anyone may obtain emergency assistance by simply dialing the toll-free "1122" helpline number.



Comments /Observations	Action /Response
The availability of female doctors was another question that the public raised because during the floods, girls' and women's mental health and hygiene issues grew significantly. They were worried about the difficulties women encounter throughout pregnancies and deliveries. At some places healthcare facilities are not present near so they have to travel far away which cause mortality and complexities.	It was ensured that the female doctors will be available at proposed DHQ rescue stations to cater the demands of women and girls during emergency situation and in normal days. There will be a provision of female rescuers also to assist women in their psychological and rescue needs.
The concerns related to sensitivity of local customs and culture were also pointed out during consultation. Participants asked for assurance that their privacy and local customs would not be invaded especially during construction phase.	<p>It was assured that the all the construction activities and camps will be built within the premises of DHQ rescue station (Govt. owned land currently vacant and barren) boundary so it will not affect their customs, traditions and privacies. It will be the contractor's responsibility to prevent workers from going outdoors without authorization.</p> <p>Moreover, as part of the induction program for new employees, cultural immersion and sensitization training will be conducted. This training aims to create awareness and understanding of the local culture and customs.</p> <p>Additionally, a specific clause will be included in the contract or bidding document stating that there should be no interaction between the laborers and women and children. The contractor will be required to adhere to the Labor Code of Conduct and follow the mitigation measures outlined in the Environmental Management Plan (EMP) related to Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA).</p>



Community consultation at Goth Bholo in District Ghotki



Community consultation at Jumma Khan Mohalla in Qamber Shahdadkot



Community consultation at Karan Khan Shoro, Jamshoro District



Community consultation at Goth Abad in Dadu District



Community consultation at Gul Jatoti Goth, Jacobabad District



Community consultation at Thul town in Shikarpur District



Community consultation at Goth Chahto Chand, Thatta District



Community consultation at Deh Khalifa, Sujawal District

Figure 39: Pictorial view of the Community Consultations

5.5 Institutional Consultation

The consultant team also held consultations with relevant Government Departments. During these consultations, the team provided detailed information to the government officers regarding the key aspects of the sub-project. They informed them that the sub-projects "Expansion of the Rescue Stations in Nine Districts of Sindh," are being constructed under the SFERP, with funding from the World Bank. The main objective of the project is to construct Rescue Stations in nine districts of Sindh, enabling effective response to any unforeseen circumstances.

The team emphasized that the project aims to address both the current and future needs of the region. They also highlighted that the project will have positive impacts on the lives of the local population, bringing a sense of relief to the community.

Generally, the officials were of the view, that the construction of the proposed project will have a positive impact on the people living in the sub-project areas. During the meeting, the officials extended their full cooperation for the proposed project and their views were in favor of the project.

Table 13: List of Consultant institutional stakeholders

Sr. No.	Department	Area/sub-region	Designation	Representatives of Department
1	Revenue Department	Sujawal	Patwari	Mr. Shafique Ahmed Mahesar
2	Health Department	Dadu	AEN	Mr. Sikhandar Panhwar
3	Public Health Engineering Department	Thatta	XEN	Mr. Sajid Mallah
4	Rescue 1122 Department	Dadu	Deputy Commissioner	Mr. Syed Murtaza Shah
5	Public Works Department	Thatta	Deputy Commissioner	Mr. Muhammad Nawaz Soho
6	Public Health Care Department	Makli, Thatta	SDO	Mr. Shakeel Siddiqui
7	Public Health Engineering Department	Qamber Shahdadkot	AEN	Mr. Warrah
8	Sindh Environmental Protection Agency (SEPA)	Karachi	Director	Mr. Imran Sabir

Table 14: Summary of Concerns Raised by Institutional Stakeholders

Comments/Observations	Actions Responses
Government Departments expressed concerns about ensuring compliance with relevant regulations and building codes during the construction of rescue stations. They wanted to ensure that the construction activities adhere to safety standards.	The officials were briefed that the construction work will be in accordance with building codes.
In rescue stations, there must be ambulances with female doctors and guards which provide proper medication and do necessary checkups of females in	The officials were informed that there is separate provision of female rescuers and doctors who will assist women of the area.



Comments/Observations	Actions Responses
the surrounding areas as their customs/traditions do not allow their women to go outside and discuss health issues with male doctors.	
The majority of the stakeholders expressed their positive views regarding the construction of Rescue Stations.	In general, the welcomed the project and believed that there is a dire need for this kind of project as the recent floods had created uncertainty among the community. Due to these sub-project, emergency situation will be dealt easily.
Government Departments had concerns about the quality of construction and the adherence to established construction standards. They emphasized the need for quality assurance measures to be implemented to ensure that the rescue stations are built to the required specifications.	They were assured that quality will be maintained by strict vigilance of the construction work as the consultant will depute its site supervising engineer at site throughout the construction period.
One of the official said to ensure the availability of well maintained dewatering machines and boats during flash floods, fire brigades, ambulances with dispensaries for emergency situation.	It was informed that Rescue stations will be equipped with all emergency kits, tools, and machineries.
Departments expressed concerns about the timely completion of the construction project . They wanted to ensure that the project stays on schedule to avoid any delays.	The sub-projects will be completed within stipulated time period of 12 months, the officials were assured.
The stakeholders suggested that the construction camp must be atleast 500m away from the nearby settlements to avoid social issues.	Construction camp will be established within the premises of proposed DHQ rescue station sites in order to keep the activities confined and avoid social issues. It will also be ensured by the contractor that the activities will not be allowed during Juma prayer and other festive times/days.
The stakeholders suggested that protection of fauna and flora during the construction phase must be ensured.	It is also suggested in the ESMP to protect the biodiversity and there is a provision of plantation in the design also with the preference of local species. No exotic species will be promoted.
Training and mock drills sessions should be given to the staff and workers to cope up emergencies.	The training sessions are part of development and program will span a duration of three days and will be provided to laborers and staff members at no cost. The training will focus on equipping participants with the necessary knowledge and skills for emergency preparedness and response specifically tailored to construction sites.



Comments/Observations	Actions Responses
There must be a mechanism through which people seek direct help during emergency because normal procedure via DC/UC office is time consuming and not entertaining.	It was informed that through dialing a toll free number of Sindh Emergency Rescue Services 1122 they can seek direct help during emergency situation without DC/UC.
The Stakeholder shows their concern regarding the impacts during the construction stage on waste management and land acquisition	<p>Social and environmental teams briefed about the mitigation measures that will be adopted to control dust, noise, health and safety issues. There are no issues regarding land acquisition. If the issues occur, then these matters will be dealt with Revenue Department.</p> <p>The contractor shall dispose of the hazardous waste at the approved designated sites .</p>







5.6 Information Disclosure

To ensure transparency and disclosure, the Environmental and Social Management Framework (ESMF) has been uploaded on the website of the SFERP³² as per the requirements. Furthermore, an executive summary of the Environmental and Social Management Plan (ESMP) for the relevant sub-projects will be translated into Urdu & Sindhi and uploaded on the website after receiving approval from the World Bank. Additionally, physical copies of the ESMP document will be made available at the sub-project site(s) for easy access and reference.

5.7 Future Consultation Plan

Stakeholder consultation is an ongoing process that should be conducted throughout the entire duration of the sub-project. The consultations conducted during the current stage of the Environmental and Social Management Plan (ESMP) and reported are just the initial steps in this process. It is important to ensure the participation of project stakeholders in the subsequent phases of the project as well, in accordance with the Stakeholder Engagement Plan (SEP) of SFERP. The Supervision Consultants, in collaboration with the PIU staff, will regularly engage with the local community to gather their feedback on project activities and address any related concerns or complaints.

³² https://sferp.gos.pk/wp-content/uploads/2023/04/ESMF_SFERP-PDD.pdf

6. ENVIRONMENTAL & SOCIAL IMPACTS AND MITIGATIONS

This section analyses the environmental and social risks and impacts and provides measures for subsequent systematic planning to identify, avoid, minimize, reduce and/or mitigate them. A number of field visits were conducted to evaluate the social and environmental impacts of the activities planned for the expansion works of Rescue Stations (1122) during design, construction and operations phases. A screening checklist was utilized to rapidly assess potential environmental and social impacts, along with mitigation measures and residual impacts after mitigation. The findings indicate that the project activities will not significantly disrupt or inconvenience the local community and natural environment in the area.

All the identified impacts during the reconnaissance survey are associated mostly with the construction stage and range from minor to moderate in severity. However, they can be effectively mitigated through careful planning and the implementation of appropriate management measures. Minor impacts can be addressed by employing best management practices. Social impacts, such as the acquisition of borrow pit areas, labor recruitment, and the establishment of labor camps, will be managed in accordance with relevant policies and procedures. It is anticipated that laborers will be recruited exclusively from the local areas, which will enhance employment opportunities for the nearby communities.

6.1 Major Social & Environmental Impacts and Mitigations

The screening checklist clearly indicates that the sub-project will bring significant benefits to the surrounding area. The local community in the adjoining area will be the primary recipients of these benefits. The subsequent sections provide detailed information about the potential environmental impacts and the corresponding mitigation measures.

Throughout the construction phase of the proposed sub-project, the surrounding area may experience certain localized undesirable effects. It is important to note that many of these impacts are temporary in nature and are expected to occur specifically during the construction period. The following section outlines some of these impacts in more detail.

6.1.1 Topsoil Erosion

Physical and chemical degradation of soils may result from unsuitable management techniques, such as the use of inappropriate machinery or earthworks associated with plantation preparation and infrastructure development. Excavation works exposes bare soils that may cause erosion if not properly mitigated.

6.1.1.1 Mitigation Measures for Erosion

Excavation of earth fill will be limited to an appropriate depth of 20cm. Priority will be given to getting the earth fill material from the licensed contractors, where the use of agricultural land is unavoidable private land will not be taken until a prior written agreement (with local tradition) and documentation of relevant details of compensation (on prevailing market rates) are signed between the owner/s and relevant authorities.

- The top 15cm of topsoil will be stripped and stored and then replaced after the removal of borrowed material. Where deep ditching is carried out, the top half-meter layer will be stripped and stockpiled. The ditch will be filled initially with debris/scrap material from old construction and leveled with stockpiled topsoil later.
- Implement earthworks when weather conditions pose the lowest risk of causing environmental damage.
- Employ erosion control management practices (e.g., contour and strip planting, terracing, discontinuous trenching, intercropping with trees, and grass barriers) in sloping areas.

- Use flow control weirs and diversion canals to reduce erosion in areas with field drainage.
- Restrict the width of roads to the minimum that will provide the means for efficient and safe transport.
- Conduct regular surveys to monitor soil structure and chemistry in order to identify areas where remedial action is required.

6.1.2 Air Pollution

6.1.2.1 Impacts of Air Pollution

During the construction of rescue stations, air pollution can occur as a result of various activities and processes. Here are some potential impacts of air pollution that may arise during the construction phase:

Construction activities such as excavation, earthmoving, and material handling can generate significant amounts of dust. Fine particles and airborne dust can be carried by wind, leading to increased levels of particulate matter in the air. This can have adverse effects on air quality and potentially impact the health of workers and nearby communities.

Construction equipment and machinery, such as generators, vehicles, and construction vehicles, can emit pollutants into the air. These emissions may include particulate matter, nitrogen oxides (NO_x), sulfur oxides (SO_x), carbon monoxide (CO), and volatile organic compounds (VOCs). The exhaust emissions from diesel-powered machinery, in particular, can contribute to air pollution.

The manufacturing and processing of construction materials, such as concrete, asphalt, and aggregates, can release dust and emissions into the air. The extraction of raw materials and the operation of material processing plants may contribute to air pollution if proper controls are not in place.

In some cases, open burning of waste materials or debris may be used as a means of disposal during construction. This can release harmful pollutants, including smoke, gases, and particulate matter, into the air, leading to poor air quality and potential health risks.

Construction sites often require temporary power generation, which may involve the use of diesel generators. These generators can emit pollutants into the air, including particulate matter, NO_x, and CO₂, contributing to air pollution.

The impacts of air pollution during the construction of rescue stations can have health implications for workers and nearby communities, especially if they are exposed to high levels of pollutants for prolonged periods. It is crucial to implement mitigation measures to minimize these impacts, such as:

Regularly maintaining and servicing construction machinery and vehicles to ensure they are operating efficiently and emitting lower levels of pollutants. Encouraging the use of cleaner fuel options or alternative energy sources for temporary power generation.

6.1.2.2 Air Pollution Mitigation Measures

During the construction of Rescue Stations, implementing air pollution mitigation measures is crucial to minimize the potential impacts on air quality and protect the health of workers and nearby communities.

The air-related mitigation is discussed as follows, during the construction phase of the proposed sub-projects; some adverse impacts on the environment by suspended dust and noise are foreseen.

Here are some commonly employed mitigation measures:

- Regular spraying of water should be undertaken to minimize dust pollution. The water would be obtained from tankers or maybe grey water from the camp areas and reuse of wastewater from batching plant.
- All vehicles, machinery, equipment, and generators used during construction activities will be kept in good working condition to minimize exhaust emissions & limit the idling time of construction vehicles to 2 minutes to minimize local air pollution.
- Properly managing and disposing of construction waste to minimize the need for open burning.
- Monitoring and complying with relevant air quality standards and regulations.
- Providing appropriate Personal Protective Equipment (PPE) to workers to minimize their exposure to pollutants.
- By implementing these mitigation measures, the potential impacts of air pollution during the construction of rescue stations can be minimized, safeguarding the health and well-being of workers and surrounding communities.
- Enforce the maximum speed limit to 10km/h for vehicles to reduce dust emissions.
- Native species of trees should be promoted and planted around the boundary wall of sub-project area so that it can reduce dust issues.
- Ensure construction waste, including debris and hazardous materials, is appropriately segregated, stored, and disposed of in compliance with relevant regulations.
- Encourage the recycling and reuse of construction materials to minimize waste generation and reduce the need for new materials.
- Implementing dust control measures, such as water spraying, covering piles of construction materials, and using windbreaks, to reduce dust generation.
- Conduct ambient air quality monitoring as per SEQS periodically as per Environmental Management Plan (EMP).

6.1.3 Water Pollution

6.1.3.1 Water Related Impacts

During the construction of Rescue Stations, various activities and processes can potentially lead to water pollution if proper measures are not in place. Here are some potential impacts of water pollution that may occur during the construction phase:

Sediment Runoff: Construction activities such as excavation, grading, and earthmoving can result in the erosion of soil and sediment runoff. This sediment-laden runoff can enter nearby water bodies, leading to increased turbidity and sedimentation, which can adversely affect aquatic ecosystems.

Chemical Contamination: Construction sites may involve the use of chemicals such as fuels, lubricants, paints, adhesives, and solvents. Improper storage, handling, or disposal of these chemicals can result in their release into the surrounding soil and water, causing contamination and potentially harming aquatic organisms and water quality.

Storm water Pollution: During construction, storm water runoff can pick up various pollutants from the site, including sediment, debris, construction materials, and chemicals. If not properly managed, this polluted storm water can enter storm drains or nearby water bodies, leading to water pollution.

Discharge of Construction Wastes: Improper disposal of construction wastes, such as concrete washout, excess materials, and debris, can result in their discharge into nearby water bodies. This can contribute to water pollution, affecting water quality and aquatic life.

Soil Erosion: Construction activities can disrupt the natural vegetation cover, leaving the soil exposed. Without proper erosion control measures, rainfall can cause soil erosion, leading to sediment runoff and degradation of water quality.

6.1.3.2 Water Related Mitigations

Mitigation measures should be implemented to minimize the impacts of water pollution during the construction of rescue stations. By implementing these mitigation measures, the potential impacts of water pollution during the construction of rescue stations can be minimized, helping to protect water resources and aquatic ecosystems in the surrounding area. Moreover, the Contractor must provide the following facilities at each campsite: Latrines; lined washing areas; septic tanks, and soaking pits for toilet waste. Key mitigation measures are listed below.

- There should be proper septic tanks and soaking pits for sewage treatment and disposal, sewage/sanitation at campsite and proper wastewater collection facilities. Wastewater effluent should be passed through an oil skimmer and to gravel/sand beds to remove oil/grease contaminants before discharging it into the water body. The Septic tank and soak pit shall be covered properly to avoid any obnoxious smell in the surrounding areas. The soak pit will be built in absorbent soil and located 300m away from a water well. Soak pits will be designed to accommodate wastewater generated during the total operation. Soak pit will be constructed such that surface runoff cannot enter the pits. At the time of restoration, septic tanks will be dismantled in place and backfilled with at least a 1m soil cover keeping in view the landscape of the surrounding natural surface.
- To overcome the drinking water contamination issue, at the construction camp/s, the contractor shall install a solar-operated domestic water filter/150GDP with Ultraviolet (UV) to ensure safe and healthy drinking water for the workforce.
- The contractor shall prepare, and implement a spoils management plan under the supervision of PIU.
- The E & S team of Consultant/Client shall carry out regular monitoring of water quality.
- Wastewater from laundry, kitchen washings and showers will be disposed of in separate soak pits.
- Soak pits will be built in absorbent soil and located 250 m away from a surface water source or groundwater well.
- In case the soak pits are filled, greywater will be sprinkled over access land. A sprinkling of greywater will be done in a manner such that ponding of water is avoided.
- Water consumption will be monitored during the construction stage and records will be maintained to avoid any wastage.
- Diesel, oil, and lubricants should be properly stored following petroleum regulations. This will be the responsibility of the contractor.
- It has been further, proposed that before the start of the construction, the contractor will establish updated baseline environmental monitoring of air, water & noise including the soil analysis (trace metals such as Cd, Zn, Cu, Cr, Pb and Ni as per WHO standards) for comparison during the construction phase. Permissible limits/standards according to the World Health Organization and the Food, and Agriculture Organization of the United Nations (FAO) indicated for soil, and limits set by SEQS for Air, Water & Noise will be followed as standards for the comparison.
- Appropriate arrangements will be made to stop stones and soil to slip into the river water.
- Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets;

- Dispose of any wastes generated by construction activities in designated sites;
- Conduct surface quality inspection according to the Environmental and Social Management Plan (ESMP) while adhering to SEQS 2016 and WHO standards.

6.1.4 Noise Pollution

6.1.4.1 Impacts of Noise Pollution

During the construction of Rescue Stations, various activities and equipment can generate significant noise levels, potentially leading to noise pollution. Here are some potential impacts of noise pollution that may occur during the construction phase:

Disturbance to Surrounding Areas: Construction activities involving heavy machinery, equipment, and construction vehicles can generate high levels of noise, causing disturbance to nearby residential areas, businesses, and sensitive receptors such as schools, hospitals, and offices.

Sleep Disturbance and Health Effects: Continuous exposure to high levels of construction noise can disrupt sleep patterns, leading to sleep disturbances and potential health issues such as fatigue, irritability, stress, and reduced overall well-being for individuals living or working in close proximity to the construction site.

Communication Interference: Excessive noise levels can hinder effective communication among construction workers and nearby residents, affecting work efficiency and social interactions.

Impact on Sensitive Receptors: Noise-sensitive locations such as schools, healthcare facilities, and residential areas with vulnerable populations, including children, the elderly, and individuals with existing health conditions, may experience increased stress levels and reduced quality of life due to prolonged exposure to construction noise.

Environmental Disruption: Construction noise can disturb wildlife and natural habitats in the vicinity of the construction site, affecting their behavior, breeding patterns, and overall ecological balance.

6.1.4.2 Noise Related Mitigation

In consultation with environmental experts from the Construction Supervision Consultant (CSC), the activities should be planned to minimize noise disturbance. Priority should be given to conducting noisy activities during periods of the day that result in the least disruption. Machinery operations near sensitive receptors should be limited to daylight hours, and a mutually agreed schedule should be established between the contractor and local communities.

The use of vehicle horns should be limited to situations where it is necessary to warn other road users or animals of the vehicle's approach. To mitigate noise impacts, working hours will be restricted to between 9 am and 5 pm, six days a week, as recommended in the Environmental and Social Management Plan (ESMP) and in accordance with the Social and Environmental Quality Standards (SEQS). Monthly noise monitoring will be conducted as part of the monitoring requirements outlined in the ESMP.

Furthermore, in response to any complaints or requests, the affected communities will have the option to conduct on-demand noise monitoring. The noise levels generated by construction machinery will be controlled and measures will be taken to limit them as per the SEQS. Additionally, workers will be provided with earmuffs where necessary to protect their hearing.

To minimize noise from construction equipment, various measures will be implemented. These include using vegetation barriers, vehicle silencers, fitting noise-reducing mufflers on jackhammers, and utilizing portable street barriers to minimize sound impacts on surrounding sensitive receptors.

Regular communication with the community will be maintained to address any complaints and grievances promptly. Buildings at risk of vibration damage will be identified, and the use of pneumatic drills or heavy vehicles in their vicinity will be avoided. Prior consultation with the custodians of important buildings, cultural and tourism authorities, and local communities will be conducted to address key concerns and avoid working at sensitive times, such as during religious and cultural festivals.

By implementing these measures, the aim is to ensure that noise pollution during the construction of rescue stations is minimized, local communities are engaged, and potential impacts on sensitive receptors are mitigated effectively.

6.1.5 Waste Management

6.1.5.1 Impacts of Waste

Efficient waste management is essential for mitigating the potential hazards associated with improper waste handling and disposal, which can have adverse effects on human health and contribute to environmental degradation. The indiscriminate open dumping of waste can lead to unsanitary and visually unappealing conditions in the sub-project area.

The quantity of domestic waste produced will depend on the number of workers employed by the contractor. Since most laborers are expected to be local residents who return to their homes at the end of the workday, the amount of domestic waste generated will vary accordingly. During the peak of construction activity, it is estimated that approximately 25% of the labor force, mainly comprising skilled workers, will reside in the construction camps.

Implementing appropriate waste management practices is crucial to ensure the proper handling, disposal, and treatment of waste materials generated throughout the construction process. This approach will help minimize potential negative impacts on the environment and public health, thereby promoting a clean and hygienic project area.

6.1.5.2 Mitigation for Waste

To effectively manage waste during the construction and operations of Rescue Stations, the following mitigation measures can be implemented:

Waste Management Plan: Development of comprehensive waste management plan that outlines strategies, responsibilities, and procedures for waste handling, storage, and disposal throughout the construction process.

Segregation and Sorting: Encourage workers to segregate waste at the source into different categories such as recyclables (plastic, metal, paper), organic waste, and non-recyclable waste. Provide clearly labeled bins or containers to facilitate proper waste sorting.

Recycling and Reuse: Establish partnerships with local recycling facilities to recycle materials such as cardboard, plastic, glass, and metal. Identify opportunities for reusing construction waste, such as using crushed concrete as aggregate for new construction or repurposing materials for other projects.

Waste Minimization: Encourage the use of efficient construction practices that minimize waste generation. This can include accurate material estimation, ordering supplies in the right quantities, and reducing packaging waste.

Hazardous Waste Management: Identify and separate hazardous materials, such as paints, solvents, batteries, and construction chemicals. Store and dispose of them properly according to local regulations and guidelines to prevent environmental contamination.

On-site Waste Storage: Provide designated and secure areas for temporary waste storage on-site. Ensure these areas are properly managed to prevent waste spillage, odors, or attraction of pests.

Waste Transportation and Disposal: Establish partnerships with licensed waste haulers to ensure proper transportation and disposal of waste materials. Verify that the chosen waste disposal sites or recycling facilities adhere to environmental regulations. Community liaison will be maintained and GRM will be established to address complaints related to waste disposal.

Education and Training: Conduct regular training sessions for workers and staff involved in waste management. Raise awareness about the importance of proper waste handling and provide guidelines on waste segregation, recycling, and disposal.

By implementing these mitigation measures, the construction of Rescue Stations can effectively manage waste, minimize environmental impacts, and contribute to sustainable development.

6.1.6 Biodiversity

6.1.6.1 Impacts on Biodiversity

According to World Bank ESS6, which focuses on biodiversity conservation and sustainable management of living natural resources, aims to safeguard biodiversity, habitats, and prevent detrimental impacts resulting from project activities.

The sub-project areas are devoid of vegetation as most of the lands are barren and vacant with wild herbs and shrubs. There are no occurrences of rare or endangered aquatic faunal or floral species within the sub-project area. This absence minimizes the risk of adverse impacts on these sensitive species.

Given that all the sub-project sites are situated in semi-urban areas; the project activities are unlikely to impact wild animals or critical habitats significantly. This factor contributes to the avoidance of adverse effects on local wildlife populations.

By adhering to these mitigation measures, the project ensures compliance with ESS6, effectively protecting biodiversity, habitats, and minimizing potential negative impacts associated with the project's activities.

6.1.6.2 Mitigations for Biodiversity

During the initial survey conducted in the sub-project area, no endemic or rare species were observed within or nearby sub-project area. The species documented during the field survey are known to have wide distribution ranges. As the campsite will occupy small areas within existing clearings, any impacts resulting from the project can be reversed and confined to localized areas by implementing appropriate mitigation measures. It will be strictly prohibited for laborers to use wood logs of native vegetation as fuel.

To ensure the preservation of wildlife, hunting, harassment, and netting of animals will not be allowed. Clearing of bushes will be strictly prohibited during the nesting and breeding season of birds. Special efforts will be made to protect rodent colonies during the construction phase.

The camps will be adequately fenced and gated to prevent wild animals from entering in search of food. Likewise, proper waste disposal measures will be implemented to prevent wild animals from accessing and consuming camp waste. Staff members involved in the project will receive explicit instructions not to harm, capture, or trap any birds.

Priority will be given to relocating trees that would otherwise be affected by the project. A comprehensive inventory of felled trees will be maintained throughout the construction period. For every tree that needs

to be cut down, five saplings of approved tree species will be planted, emphasizing reforestation and the replenishment of tree cover.

6.1.7 Community and Construction Workers

6.1.7.1 Impacts on HSE of Community and Construction Workers

During the construction phase of the proposed sub-project, there will be various impacts on the health, safety, and hygiene of both the workforce and the local community. These potential impacts can directly affect individuals, such as the risk of accidents involving moving vehicles within and outside the sub-project area. Additionally, there will be indirect impacts on the local community, mainly related to a decrease in air quality surrounding the sub-project area.

The reduction in air quality will be primarily caused by increased dust generation from construction activities and transportation routes, as well as emissions from plants and vehicles. These effects will persist throughout the duration of the construction works. However, these impacts can be mitigated by implementing water bowsers, which will be used to suppress dust. The water required for this purpose will be sourced from a nearby water body.

To prevent the creation of dust and maintain compliance with the stipulated standards for air quality (SEQS), the contractor will be strictly obligated not to use a community tube well. Furthermore, to ensure that plants and vehicles meet the required SEQs, they will be regularly serviced and maintained to a high standard.

By adhering to these mitigation measures, the potential adverse impacts on the health, safety, and hygiene of both the workforce and the local community can be minimized during the construction stage of the sub-project.

6.1.7.2 Health and Safety-Related Mitigations

The following steps are suggested for the proper management of Occupational Health & Safety (OHS) within the sub-project area:

- The contractor will have to prepare Site Specific Labor Management Plan/Occupational Health and Safety Plan according to Sindh Occupational Safety and Health Act, 2017 while adhering to the World Bank ESS2 – Labor and Working Conditions and will submit it to the PIU for review and approval. When approved, the contractor will implement the plan during the construction period. This plan will need to describe all jobs, their risks, and the controls that will reduce risks; these controls may include PPEs, restrictions on activities or locations, and other measures. The plan also needs to describe what type of training will be given to the workers. Those who work near water, at heights, and with heavy equipment will need special training so those hazards can be managed and minimized.
- Contractor will describe and provide in Labor Management Plan a grievance resolution system for all labor hired for site construction, and make details of grievances and resolution to Project supervision consultants;
- The contractor will provide Personal Protective Equipment (PPEs) to labors during the construction period;
- The contractor will train his crews on the aspects covered in the above-described Plan;
- The contractor shall fence the working area and unauthorized shall not be allowed to enter the area;
- The contractor will hire an HSE officer with adequate experience to address the above impacts.

- The Contractor will display signboards and banners about traffic diversion at places on detour routes;
- Provision of speed breakers at appropriate places in consultation with/approval of the Engineer which should be removed after completion of the project;
- Establish and obey speed limits;
- The Contractor will maintain workers' hygienic conditions in labor camps.
- The Contractor shall make available the first aid kit and bandages at all times and all the sites. Moreover, paramedic staff will be available on-site and the cost of hiring will be a part of the Bill of Quantity (BOQ) item. The location of these kits shall be marked and shall be easy to access by all.
- No private property without permission of the owner will be used for transportation;
- Drivers will fix the net on containers while transporting stones and sand etc.
- Community liaison will be maintained during the construction stage and GRM will be established to address complaints related to safety hazards. Sign boards about GRM will be prominently displayed at sub-project site.

The contractor will also prepare an emergency response plan to address events such as urban floods, fires, earthquakes, injury/death, and accidents.

6.1.8 Community Health and Safety

6.1.8.1 Impacts on the Public due to Sub-Project Activities

The potential impacts of the sub-project will manifest directly, including the risk of accidents involving moving vehicles both within and outside the sub-project area. Indirect impacts will also arise from a decline in air quality in the vicinity of the sub-project area. The reduction in air quality can be attributed to escalated dust levels generated during construction activities and along transportation routes, as well as emissions from plants and vehicles. These impacts will persist throughout the entire duration of the work.

6.1.8.2 Potential Mitigation Measures

- Ensure the placement of a proper sign board that the site is restricted from the entry of irrelevant people particularly children;
- Timely public notification on planned construction works should be communicated to the communities;
- Provision of proper safety and diversion signage, particularly at socially sensitive receptors areas;
- Setting up speed limits in close consultation with the traffic police with luminescence sign boards; and
- During construction work, alternative pedestrian and vehicular passages shall be provided for crossing near the settlement if any activity is performed outside the boundary;
- Open trenches and deeply excavated grounds shall be protected by a fence/barricade to avoid any accident.

6.1.9 Cultural Heritage

During the surveys and consultations, no archeological or cultural heritage sites have been identified within a minimum of 2 km of sub-project area. Moreover, all the activities will be performed inside the existing land owned by Government of Sindh. Hence, no further documentation and reporting is required in this regard.

6.1.10 Chance Find Strategy

During the course of development work, there is a possibility of encountering sites or items of significant heritage value. The "chance finds" procedure outlines the steps to be taken upon discovering such a heritage site or item. This includes conducting investigations and assessments to determine the appropriate siting and design of the sub-project in order to prevent significant adverse impacts on the cultural heritage for which the client is responsible. It is crucial to ensure that any further potential discoveries are not disturbed until a competent professional has assessed the situation and appropriate actions are taken in accordance with the requirements outlined in World Bank ESS8 - Cultural Heritage.

ESS8 recognizes the immense importance of cultural heritage, not only as a valuable source of scientific and historical information but also as an economic and social asset for development, as well as an integral part of people's cultural identity. This standard establishes measures to safeguard and protect cultural heritage throughout all stages of the project's lifecycle.

- i. In the case of a chance find, the contractor will secure the site and report immediately to consultant. Works may not recommence until the expert approves.
- ii. Consultant will inform Archeological Department.
- iii. Meanwhile, the contractor will cease operations and due caution will be ensured for archaeological remains.
- iv. Archaeology department to inspect, identify, advise management, and recover remains.
- v. Site visits of the Archaeological Department will be facilitated. Further works will be carried out on such sites only after obtaining clearance from the Archeological Department.

6.1.11 Labor Influx

6.1.11.1 Impacts of Labor Employed from Outside

Some social impacts could arise due to labor influx. There shall also be a risk to community health from HIV/AIDS/COVID-19 or other transmitted infections as a result of the presence of migrant construction labor. There could be the risk of gender-based violence from migrant labor, which often remains away from home on the site. This may lead to inappropriate behavior including sexual harassment of women, girls and boys in the local community. This could especially be relevant in case the nearby population is from any marginalized group e.g., Hindu community.

6.1.11.2 Mitigation Labor Influx

The sub-project area is expected to have a sufficient local labor supply and the scale of work anticipated is not expected to attract a large influx of labor. Apart from a limited number of managers, supervisors, and skilled workers, the majority of the workforce is likely to be sourced locally or from nearby areas within the district. Priority will be given to employing local labor based on their skill, experience, and capacity, which will help minimize the risk of labor influx, particularly for positions requiring specialized skills.

To address potential social conflicts and mitigate adverse impacts on surrounding communities, the contractors will establish camps for their staff at a minimum distance of 500 meters from communities. The construction camps will be fenced, and the contractor will ensure security measures are in place. The camp layout plan and a code of conduct for workers will be developed by the contractor and submitted for review and approval by the Engineer.

Furthermore, the contractor's Environmental & Social Management Plan (CESMP) and training plan will include proposals for raising awareness about HIV/AIDS, COVID-19, and the spread of sexually



transmitted diseases. Workers will receive training on topics such as Gender Based Violence (GBV), sexual harassment, child abuse, and human trafficking to reduce the risk of these social conflicts.

These measures aim to ensure the effective management of labor, promote community harmony, and address important social issues to create a safe and respectful working environment during the subproject.

6.1.12 Gender Base Violence (GBV), Sexual Exploitation and Abuse (SEA)/ Sexual Harassment (SH)

6.1.12.1 Impacts related to GBV/SEA/SH

Although the influx of workers will be minimal as discussed earlier, new workers (outside of their social spheres) may form close social relationships with local communities. This can lead to unacceptable and/or illegal behavior, ranging from unwanted aggressive advances, SEA/SH against women and children.

6.1.12.2 Mitigations related to GBV/SEA/SH

As part of the mitigation strategy, training/orientation sessions will be conducted to sensitize PIU and the Contractor's staff/workers on the importance of addressing GBV/SEA/SH risks at the sub-project level. The contractor will be required to have a written contract with their workers materially consistent with the objective of ESS2, following the procedures as specified in the World Bank's Procurement Regulations. The workers will be required to sign a Code of Conduct (CoC) prepared by the Contractors and reviewed and approved by PIU.

6.1.13 Violence Against Child (VAG) and Child Labor

6.1.13.1 Impacts Related to VAG and Child Labor

The level of risks of VAG & child labor is anticipated on the lower side. Because child labor is not allowed on the sub-project. The work is only offered to the person having CNIC. The Computerized National Identity Card (CNIC) is an identity card issued to any citizen of Pakistan that is 18 years of age or older.

6.1.13.2 Mitigations Related to VAG and Child Labor

When construction activities involve hazardous work, people under the age of 18 will not be employed for the sub-project development activities. Moreover, for child labor in hazardous work, the minimum age is 18 years and above as specified by the Sindh Prohibition of Employment of Children Act 2017. To confirm that workers below the age of 18 years are not hired to work on the project; workers will need to provide legally recognized documents such as Computerized National Identity Card (CNIC) to verify age. However, if other labor-related risks arise during project implementation, the PIU will develop procedures to prevent other impacts. This will include awareness-raising sessions, which will be conducted regularly in the communities to sensitize on prohibition and the negative impacts of child and forced Labor.

6.1.14 Human Resource Development

During the construction stage, the local population would get jobs in the form of semi and unskilled labor. The contractor would ensure that unskilled and skilled labor is paid on the basis of daily wages or monthly as notified by the Government of Sindh. Due to their interaction with skilled labor, their skills would be developed for future development activities of this kind.

6.1.15 Road safety Risks

The increased vehicular movement and speed may result in road safety issues like traffic accidents. The impacts on road safety would be permanent and moderately negative. They will be mitigated by enforcing speed limits and imposing penalties on traffic violators.



6.1.15.1 Mitigations for Road safety

Traffic signs will be provided to facilitate road users about speed limits, diversions, speed breakers, informative signage for developmental activity, timings of work and movements etc. Warning messages should also be displayed at appropriate locations and local language to aware drivers of likely accidents due to over speeding. All the median and sharp bends will be reflectorized to facilitate travelers in the night time. Zebra crossing and traffic calming measures including additional signage, marking and rumble strips with raised walkways and speed restrictions shall be given near socially sensitive receptors areas.



7. GRIEVANCE REDRESS MECHANISM (GRM)

7.1 Grievance Redress Mechanism (GRM)

The grievance redress mechanism (GRM) is an institutional arrangement that allows stakeholders to address grievances related to the project through a timely, transparent, and predictable process. A grievance is defined as any formal communication that expresses dissatisfaction about an action or lack of action, about the standard of services, works or policy, deficiency of service, works or policy of the project management and its implementation mechanism. During project execution, different issues and constraints may arise. In this situation, if stakeholders have inadequate means to voice and resolve grievances, they may turn to other venues, which may be cumbersome and lengthy, leading to delays in the project. Alternatively, if their grievances remain unresolved or ignored over time, it may lead to inflexibility, stalemate and delays for the project to meet its sustainable development goals.

The SFERP GRM will be gender-responsive, culturally appropriate, and readily accessible to the stakeholders at no cost and without retribution. It will enable Project Affected Persons (PAPs), local communities, employees, and other affected stakeholders to raise grievances and provide suggestions vis the sub-projects with the project proponents and contractor/s and seek redress when they perceive a negative impact arising from the activities. This mechanism serves as a platform to promptly resolve and address community concerns, reduce risks, and strengthen systems and processes, thereby contributing to positive service delivery. Therefore, the complaints/grievances should be addressed through a well-organized Grievance Redress Mechanism (GRM) covering all activities under the project.

7.2 Objective and Composition of GRM:

The principal objective of GRM is to implement and maintain a procedure for handling the environmental and social concerns of the project stakeholders. This procedure will include a redressal mechanism scaled to the project's identified risks and adverse impacts, focusing on stakeholders. Standard Operating Procedures (SOPs) and informational material will be prepared for the SFERP GRM in Urdu, Sindhi and English and made publicly available as soon as the Project begins implementation and before contractors mobilize to sites.

7.2.1 Specific Objectives:

- i. To provide effective communication methods and systematic process for complaints registration and to provide a prompt, transparent and fair response and resolution without reprisals for the environmental and socially affected stakeholders of the sub-project area;
- ii. To provide project staff with practical suggestions/feedback that allows them to be more effective, accountable, transparent, and responsive to beneficiaries;
- iii. To demonstrate responsibility towards the local community for their environmental wellbeing by preventing and mitigating any adverse environmental effects caused by the sub-project activities.
- iv. Increasing stakeholder involvement in the project. To provide free and fair access to diverse members of the local community, including more vulnerable groups such as women and youth, keeping confidentiality and privacy of complainants.
- v. The GRM is expected to address 4 types of complaints: *Compensation; Environmental issues* (e.g., noise, pollution, solid waste management, flora/fauna, etc.); *Social issues* (Exclusion, Inclusion); *Gender Based Violence (GBV)*; and *others*.



7.3 GRM structure

The SFERP grievance redressal mechanism (GRM) is established at three levels starting from the site, PIU and Project Steering Committee (PSC). The process at each level is defined as under:

7.3.1 Site-level Grievance Redress Cell (GR Cell)

At the site level, a GR cell will be established to enter the PAPs concerns/grievances. The Community Liaison Officer (CLO) appointed by the Contractor will be its Focal Person/Convener and be responsible for registering grievances and maintaining all records. Grievance Focal Points (GFPs) will be nominated by the community at each sub-project site. These will be men and women whom the community can easily approach. Grievances can be received by GFPs or the CLO in writing or by word of mouth and recorded in the grievance register by the CLO. The Grievance Register contents will be kept updated by the CLO and s/he will share the monthly Grievance Register with the Grievance Redress Committee (GRC) at PIU level so that the GRC can maintain a consolidated record of all Project sites' grievances. The contractor and the project manager are responsible for resolving site-level grievances. If a grievance remains unresolved, it will be sent in writing by the project manager of each sub-project to GRC.

The responsibilities of GR Cell shall include the following:

1. Review, consider and resolve grievances site level;
2. Conduct fact-finding pertaining to grievances;
3. Resolve grievances within a period of one week;
4. Undertake analysis of data on grievances and use this to make informed decisions;
5. Maintain confidentiality if complainants wish to remain confidential;
6. Maintain an updated GRM database/ Complaints Log;

During the complaint investigation, the GRC works with the Contractor and the PIC. If mitigation measures are identified in the investigation, the Contractor promptly carries out the mitigation. PIC is responsible for ensuring that the Contractor carries out the measures.

7.3.2 Grievance Focal Points (GFPs)

The GFPs will be men and women from each community who will assist and facilitate the community members in reporting grievances resulting from project activities. The GFPs will be provided training by the PIU/PIC in facilitating grievance redress.

GFPs will be identified by the relevant community in consultation with the Social Safeguard team of PIU (SFERP), PIC and CLO. The GFP would be responsible for making the community aware of the following components:

- Inform people about the GRM and how it works, and their options depending on the types of complaint;
- Types of grievances not acceptable/eligible to the GRM;
- Intake channels at the GRM, e.g., phone numbers, postal and email addresses, and website and information that should be included in a complaint;
- Inform the Complainant of the investigation results and the action taken, and the option of appeal to PSC if not satisfied with the outcome;
- Two GFPs (a female and a male) will be selected for each sub-project site.



7.3.3 PIU Level GRM

A Grievance Redress Committee (GRC) has been established at SFERP PIU office, which shall resolve the grievances of affected persons/parties received at the PIU level. If a grievance remains unresolved at the PIU level despite making best efforts till the stipulated time of 21 days, it will either be retained for another 21 days with the prior agreement of the Project Director and the complainant or sent to Project Steering Committee (PSC) for resolution, depending on the GRC's assessment on which is the best option to facilitate a resolution.

The GRC will function as a dedicated body that ensures the grievance redress process is effective and efficient. It will comprise Environmental, Social Safeguard and Gender Specialists, Technical Specialist of PIU, and community/civil society members as co-opted from sub-project areas. Its Focal Person/Convener will be the Social Safeguards Specialist. Decisions or findings taken in the GRC would be binding upon the contractor.

The PIU will issue public notices to inform the public about the Grievance Redress Mechanism (GRM) sub-project area. The contractor will also display prominent signage containing the contact details of GRC in the Sindhi language. The complainant(s) can lodge their grievances through an email, phone (021-99332368), and fax number (021-99332530) at GRC based at PIU.

These phone and fax numbers and email IDs will be managed by GRC based at PIU. The Social Safeguard Specialist will be the designated focal person to receive a complaint(s) in writing through calls, fax and emails. The Social Safeguard Specialist will have resources and facilities to maintain a complaints database which will be digitized and available online and will communicate with the contractor, Site Engineers, and PIC.

Given that female community members have restricted mobility outside their villages and homes, the female PIU staff (Gender Specialists) will be required to visit the local communities to record grievances. The frequency of visits will depend on the nature and magnitude of activity in an area and the frequency of grievances.

The responsibilities of the GRC at PIU are:

1. The Social Safeguard & Resettlement Specialist shall be the focal person for GRC, which is responsible for logging the complaint and date of receipt onto the complaint database and informing the PIC and the Contractor;
2. The GRC will coordinate with local government to receive project-related complaints made directly to them;
3. The GRC shall review, consider and resolve grievances related to environmental and social issues during implementation received at the PIU level;
4. The GRC, with the PIC, is responsible for investigating the complaint to determine its validity and assess whether the source of the problem is due to project activities and identifying appropriate corrective measures. If corrective measures are necessary, GRC, through the PIC, will instruct the Contractor to take necessary action;
5. Resolve grievances presented to the GRC within a period of two weeks;
6. Inform the Complainant of the investigation results and the action is taken;
7. Undertake analysis of data on grievances and use this to make informed decisions;
8. GRC decisions, if not acceptable to the complainant(s), can be appealed to the PSC;
9. Maintain an updated online GRM database/Complaints Log.

7.3.4 Appeals at the Project Steering Committee (PSC) Level

The PSC will meet on a quarterly basis to hear grievance cases during its regular meetings and will be convened for special grievance redressal meetings as needed. PSC members and the Secretary will address the grievance with a viable resolution. The below flow chart shows the grievance entry points:

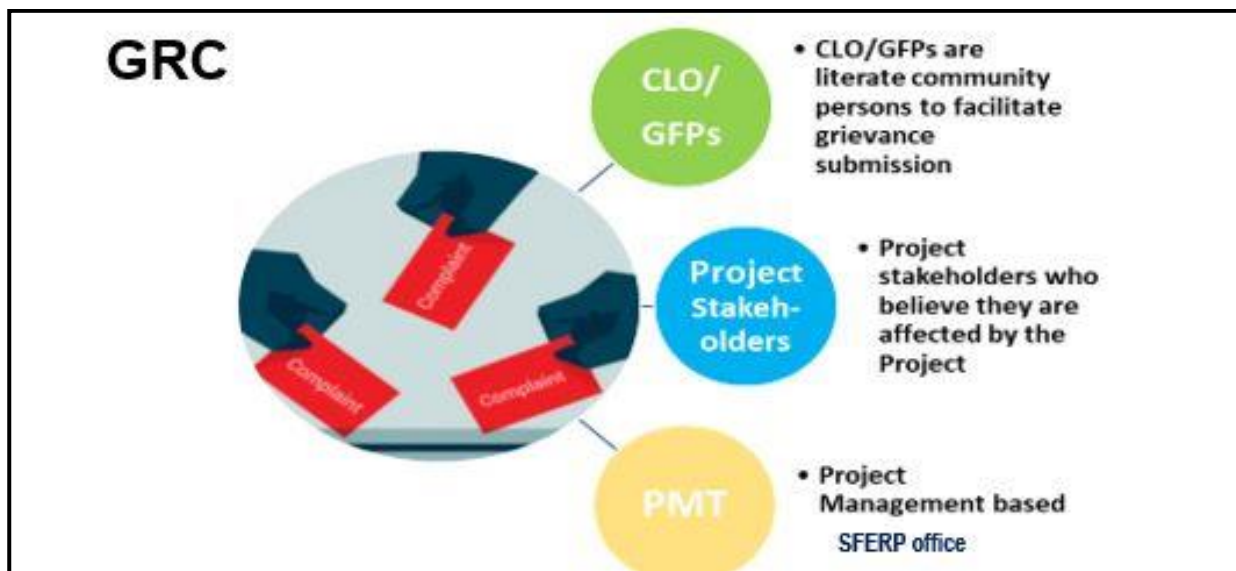


Figure 40: SFERP Grievances Processes

The GRC composition at different levels is given below.

SITE Composition

- Community Liaison Officer (CLO) – Focal Person
- Grievance Focal Points (GFPs)
- Consultants' E&S Staff
- Contractors' E&S Staff
- Project Manager
- Co-opted Members

GRC PIU Composition

- Project Director
- Social Development Specialist – Focal Person
- Environment Specialist
- Gender Specialist
- Technical Specialist
- Co-opted Members

PSC Composition

- Chairmen P&D Board
- Project Director
- Secretaries of Relevant Departments.
- E&S Specialists
- Co-opted Members

Grievance Entry Points for Complaint

7.4 GRM for workers

Community Liaison Officer (CLO) will serve as Grievance Focal Point (GFP) for labor/workers complaints at site level. If the issue is successfully resolved, no further follow-up is required, and the case shall be documented and closed. In case the grievance is unresolved at the site/contractor level, the workers may directly approach GRC about their grievance. The prominent signage containing the contact details of GRC in the Sindhi language will be displayed at each site.



7.5 Grievance Redress Mechanisms for GBV and SEA/SH

Grievance Redress Mechanisms (GRM) will integrate mechanisms to track complaints related to SEA/GBV, including a feedback system for regular and timely feedback on actions taken to respond to complaints. These mechanisms will protect the confidentiality of individuals without compromising access to justice.

Grievances related to GBV and SEA/SH will always be escalated to the PIU, and will be dealt with by the PIU designated Gender specialist. GBV/SEA-related complaints will be communicated to World Bank no later than 48 hours after being received by the GR Cell (site level) or by the GRC (PIU level).

The GRC/PIU will assist GBV survivors by referring them to GBV Services Provider(s) for support immediately after receiving a complaint directly from a survivor. A list of GBV service providers will already be available with the GRC before project work commences. In general, the timeframe for resolution of complaints shall not exceed 21 days.

Grievances related to GBV and SEA/SH will be forwarded to the staff specifically trained to handle these types of complaints. The Social Specialist (as GRC Focal Person) and the Gender Specialist at the PIU will receive the necessary training to handle such sensitive cases.

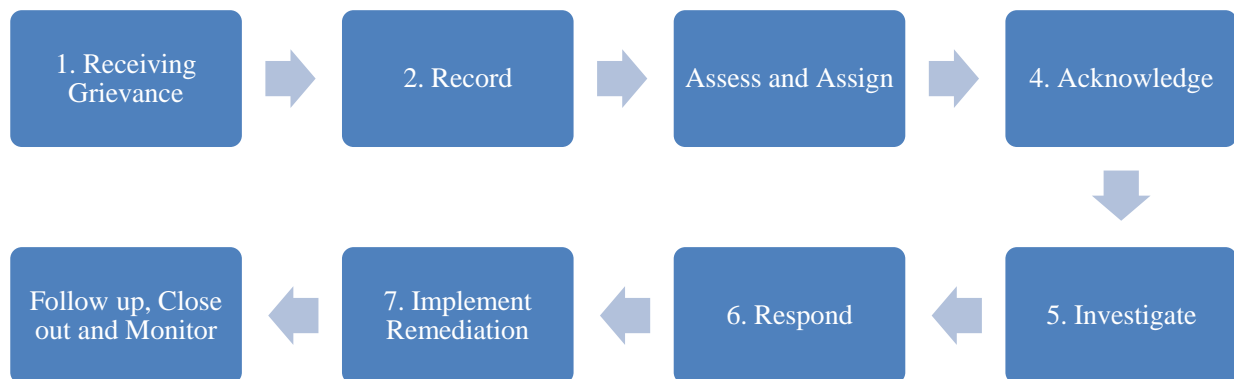
The GRC will develop specific procedures to ensure complainants are able to register their grievances anonymously and in a survivor-centered and discreet manner. The GRC will assist GBV survivors by referring them to GBV Services Provider(s) for support immediately after receiving a complaint directly from a survivor.

7.6 Role of Contractor in GRM Complaints Register

The Contractor will maintain a complaint register at the campsite office to document all complaints received from the local communities. The register will also record the measures taken to mitigate these concerns. The final report regarding complaint closing will be communicated to CSC, the project manager is responsible to provide the record to GRC/PIU. The PIU shall carry out the monitoring of the implementation of measures for the eradication of complaints.

7.6.1 Labor Grievance Redressal Mechanism

Labor, who may be direct workers or third party/subcontractor's workers, are encouraged to submit written complaints, comments, and concerns. Since the privacy of the complainant must be protected, complaints are collected in complaint boxes located in the rest areas of the labor. Through specified forms, workers will also be able to make anonymous complaints. Information on how to express complaints, opinions and suggestions to labor will be provided during the orientation training process. Depending on the situation and the nature of the grievance, the project manager/E&S staff of contractor will make efforts to resolve the grievance within due time 7 to 15 days by coordinating with the resident engineer/E&S staff of CSC in order to help ensure an objective and transparent investigation process. Following process will be followed to resolve any grievance;



Mechanism to be adopted for grievance management throughout the sub-projects' life cycle is;

- Submitting a complaint by using specified procedures at construction site of sub-projects;
- Receiving a complaint with acknowledgment as soon as possible;
- Reviewing and adequately investigating grievances and close out;
- Grievance resolution options and responses with appropriate realistic solutions and monitored;

Project manager/E&S staff of CC will be implemented the PIU-labor GRM SOPs and ensure the effective management of labor grievance.

7.7 Reporting and Monitoring

The GR Cell will enter the PAPs' concerns/grievances at the site level. The PIU gender specialist will be responsible for managing GBV and SEA/SH-related complaints at the project/PIU level. SFERP PIU will develop specific procedures to ensure complainants can register their grievances confidentially and in a discreet manner. GBV/SEA-related complaints will be communicated to World Bank no later than 48 hours after being received by the GR Cell (site level) or by the GRC (PIU level).

The GRC will record the complaint, investigation, and subsequent actions and results in the monthly Environmental Management and Monitoring reports. In the construction and initial operational periods covered by loan covenants, the PIU will periodically report progress to the World Bank, including reporting complaints and their resolution. The tracking and documenting of grievance resolutions within the GRC and or PIU will include the following elements:

- i. tracking forms and procedures for gathering information from project personnel and complainant(s);
- ii. computerized grievance database with dedicated staff to update the database routinely;
- iii. systems with the capacity to analyze information to recognize grievance patterns, identify any systemic causes of grievances, promote transparency, publicize how complaints are being handled, and periodically evaluate the overall functioning of the mechanism;
- iv. processes for informing stakeholders about the status of a case; and
- v. procedures to retrieve data for reporting purposes, including the periodic reports to the PIU and GRC, reports into the monthly ESMP Compliance monitoring report to the World Bank.
- vi. An annual qualitative review of all complaints processed (ensuring filters such as gender, type of complaint, resolution status, time taken, intake channel, district/site, etc.) will also be undertaken to analyze the efficacy of the system.



The GRM will be provided with the necessary budget required for its efficient functioning. An estimated budget allocated for GRM and its related activities are provided in table 14 (refer part C and part D) under section 8.8 of ESMP.



8. ENVIRONMENTAL, SOCIAL MANAGEMENT AND MONITORING PLAN

8.1 Objectives

The purpose of the Environmental and Social Management and Monitoring Plan for the expansion works of DHQs Rescue stations are to ensure that all necessary identified measures have been adopted to protect the environment and social situations and to comply with the country's environmental and social legislation and applicable World Bank standards. After the preparation of ESMF, PIU has outlined site-specific ESMP for the Contractors and executing agency.

8.2 Institutional Arrangements

8.2.1 Project Management Responsibilities

Implementation of the ESMP will be a contractual obligation between the Contractor and the Project Implementation Unit (PIU), SFERP. To fulfil the contractual obligation, full-time technical staff capable of carrying out the monitoring activities as proposed in the ESMP will be engaged.

Environmental and Social Team – PIU will carry out monitoring activities related to the project during the construction phase by using checklists and notify the Contractor of any violations of the ESMP, check the progress reports, advise the client and contractor regarding any violations which require further action and maintain a record of events and surveys for reference.

The overall responsibility for the SFERP project as well as the Environmental and Social Team will rest with the PIU. Besides, the PIU will be supported during ESMP implementation by E&S team to be established within PIU respectively.

8.2.2 Project Implementation Unit (PIU)

The overall responsibility for the supervision of ESMP will rest with the PIU under SFERP will act as the apex body of the project to take care of Social/Gender, Environmental issues and to take policy decisions at the project level. An Environmental and Social Management team (E&S Team) is already present at Key positions within the E&S Team including Environment Specialist, Social Safeguard/Resettlement Specialist and Gender Specialist.

The E&S Team shall be responsible for the supervision of implementing and monitoring the ESMP including GRM. The team shall be answerable to the Project Director (PD) SFERP. The team shall be responsible for the monitoring defined in the ESMP as part of their overall monitoring of social and environmental management.

8.2.3 Construction Supervision Consultant

The Construction Supervision Consultant (CSC) will be engaged by the project proponent, will be responsible for monitoring of the ESMP on behalf of the PIUs during the execution of the Civil Works for sub-projects areas, and shall submit periodic progress reports. In general, the CSC has the following responsibilities regarding the environmental and social aspects of the sub-project:

- Review the documents prepared by the Contractor regarding E&S implementation.
- Monitor the implementation of ESMP regularly during the execution of civil works by the Contractor. The CSC must have the following key positions:
 - a) Environmental Specialist
 - b) Social and Resettlement Specialist
 - c) OHS experts



8.2.4 Contractor Responsibilities

The Contractor will be responsible for the on-field implementation of the ESMP as well as maintaining responsibility for environmental protection liabilities under Sindh Environmental Protection Act (SEPA), 2014, World Bank ESF 2017, ESMF of SFERP, Stakeholder Engagement Plan (SEP-SFERP), Labour Management Procedures (LMP) for SFERP, and other applicable national as well as provincial policies and regulations.

The Contractor will also be responsible for training his crews on all aspects and implementation of the ESMP. The bid should include an environmental and social mitigation budget as part of the engineering costs of the respective works. The key positions to be filled within the contractor's staff for implementation of the ESMP include:

Environmental Coordinator(s); Occupational Health and Safety (OHS) Officers; and Community Liaison Officer(s).

8.3 Environmental Code of Practices (ECOPs)

The objective of the preparation of the Environmental Code of Practices (ECOPs) is to address less significant environmental impacts and all general construction-related impacts for the proposed SFERP sub-project implementation. The ECOPs will provide guidelines for best-operating practices and environmental management guidelines to be followed by the contractors for sustainable management of all environmental issues. This ECOP will be annexed to the general conditions of all the contracts to be carried out under the SFERP project. Detailed ECOPs can be obtained from the website³³.

8.4 Contractor's ESMP (C-ESMP)

This Environmental and Social Management Plan (ESMP) has been prepared before the Contract award, and therefore, certain mitigations, which are dependent upon the methodology chosen by any Contractor to deliver the project, could not be specified in it. For example, haulage routes are dependent upon the exact campsite locations chosen by the Contractor. Therefore, it is required that the Contractor shall prepare plans before mobilization and implement the plans described below with the help of mitigation measures. Once approved by the CSC Environment Specialist & PIU, these documents will become part of the Contractor Environmental Management Plan (C-SEMP). The C-ESMP is annexed as Annexure-IV.

8.4.1 Labour Management Plan (LMP)

The contractor shall prepare and get approval from PIU for the LMP. The LMP shall be drafted under the guidelines of Labour Management Procedure, which has been set for SFERP. These procedures have been developed to manage risks under the SFERP funded by World Bank. The LMP will set out the project's approach consistent with national requirements as well as the objectives of the relevant World Bank's Environmental and Social Standards on Labor and Working Conditions (ESS2).

8.4.2 Camp Management Plan

The contractor camp management is also a part of LMP (Annex-V) and will provide all details of social facilities, including dormitories, washrooms for labor, cooking areas, dining facilities, prayer areas, septic tanks, drinking water, and other necessary facilities to all labors.

8.4.3 Communicable Diseases Management and Prevention Plan

The contractor shall provide the details of prevention measures, and arrangements planned for the Management of communicable diseases. The Plan shall include the details of the designated care units,

³³<https://documents1.worldbank.org/curated/en/249991468024570005/pdf/E40110V70REVIS00disclosed0100260120.pdf>

hygiene facilities for workers, and medicines inventory arriving on site. The plan shall also include necessary supplies, such as monitoring equipment, medicines, sterilization facilities etc. Disposal of infectious/medical waste plans should also be prepared.

8.4.4 Pollution (air, land, and water) Control Plan

The Contractor shall provide details of the principal pollution control facilities proposed and of contingency plans in the event of failure of these facilities. The contractor must follow ESS3 – Resource Efficiency and Pollution Prevention and Management while formulating the plan before the start of civil work.

The plan shall include the details of the designated and licensed tip, oil treatment facilities and hazardous waste disposal sites that shall be used to dispose of waste. The plan shall also include Environmental effects monitoring.

8.4.5 Waste Management Plan

The Contractor shall include details of the procedures for the collection and disposal of wastes. The Plan shall deal with each waste stream separately. WMP will be prepared and implemented by the Contractor based on ECoPs 1, 2, 4 & 10 and WBG EHS Guidelines (2007), as well as the mitigation plans given in the report. The Plan will include the camp layout, and details of various facilities including supplies, storage, disposal and excavated material disposal plan.

8.4.6 Traffic Management Plan

The basis of the Contractor's Traffic Management Plan and further information is to be provided. The Contractor is required to provide further details once camp/worksite locations and material sources are finalized. The Traffic Management Plan must include details of the proposed access routes to the project area as well as haulage and access routes throughout the project area (including access to and from borrow pits).

8.4.7 Plan for Handling of Hazardous Materials

The Contractor shall identify control measures to ensure no environmental or health impacts from the handling of hazardous materials and the collection and safe disposal of hazardous materials (this may be included within the Pollution Control Plan).

8.4.8 Occupational Health and Safety

Upon mobilization, the Contractor shall prepare an Occupational Health and Safety Plan following ESS4 – Community Health and Safety & Sindh Occupational Safety and Health act 2017, which shall be relevant to his chosen methodology. This plan shall detail the following:

- Health and safety management structure, responsibilities, supervision and reporting scheme
- Health and safety goals for the project
- Identification of potential hazards (health risks, safety risks)
- Proposed measures to reduce the risk of identified hazards
- Arrangements to implement such measures
- A system for reporting and investigating accidents, incidents and near misses
- A plan for emergency transfer of staff or public from the site to medical facilities
- Fire and emergency procedures
- Site security.

8.4.9 Environmental and Social Awareness Training Plan

This shall include details of the Contractor's environmental and social awareness training program proposed for the workforce. Details are given in Table-16 given below.

Table 15: Trainings Required for Environmental and Social Awareness

Areas of Training	Key Aspects to be Covered	Target Group	Frequency	Budget.
Environment, Social Safeguards	<p>a. Environmental and social awareness on ESS;</p> <p>b. Key environmental and social issues associated with the project and subprojects ESMP and findings;</p> <p>c. Subproject monitoring and reporting;</p> <p>d. Occupational Health and Safety Issues associated with Construction.</p> <p>e. Grievance Redress Mechanism implementation</p> <p>f. Gender-Based Violence (GBV)/SEA/SH</p> <p>g. Child Labor</p> <p>h. Communicable Diseases</p> <p>i. Safety measures for COVID-19</p> <p>j. Water conservation and optimal resource use, Awareness regarding open defecation and better WASH practices for relevant community</p> <p>k. Identifications, conservation and precautionary measures of wildlife.</p>	Consultant, Contractor staff as well as relevant communities.	Before physical works commencement, during construction and after construction.	A total of eleven types of training for the proposed sub-project will be conducted.

8.4.10 Emergency Preparedness and Response Plan

The contractor will prepare an emergency plan to address emergencies/events such as fire, floods, earthquakes, accidents, and death/injury. The Plan will include the following details:

- Contacting the relevant agency (e.g., Fire Brigade)
- Procedure for the shutdown of the site;
- Indicators on-site that shall prompt the shutdown of areas of work (linked to natural events)
- Emergency evacuation procedure of staff and members of the public within range of likely impact.)

8.4.11 Tree Plantation and Maintenance Plan

The Contractor is required to prepare an inventory of the trees (either it is indigenous or invasive) to be cut/uprooted/shifted before the commencement of the physical works in presence of PIU staff, submit a detailed tree plantation plan, and define the proposed plantation methodology, species and plantation locations. It is recommended to plant indigenous species where ever possible at site other than landscaping



and plantation provision to provide aesthetic view and cooling effects for staff. Sindh Forest Department, the PIU shall approve the plantation location. All trees to be planted shall be of native species as they have more chances of survival and plantation of invasive species shall be prohibited. The Contractor shall be responsible for the aftercare of the saplings/plantation for one year. Plantation will be carried out within 3 month of construction phase.

8.5 Compliance and Effects Monitoring

Consultant/Client shall carry out monitoring within the sub-project area using the monitoring checklists to be prepared based on this mitigation and monitoring plan to aid the monitoring process, the Contractor will complete the following:

- The construction staff will be train for the implementation of the ESMP and safety measures.
- Periodic progress reports will be submitted to the Environmental and Social Specialists of PIU.
- Progress Reports will include various issues related to the HSE, including but not limited to the following:
 - OHS Measures adopted (as OHS statistics)
 - Fuel and hazardous material consumption
 - Workforce statistics (employment/deployment etc.)
 - Compliance monitoring to check whether the actions proposed in the ESMP are being carried out.
 - Effects monitoring to record the impacts of mitigation measures.

. The effects monitoring shall be the responsibility of CSC. Examples of compliance and effects monitoring parameters have been included in Box 1 below. Both approaches will be conducted using the monitoring parameters by visual observation, photographic documentation, and measurement where necessary. A record of events and surveys will be maintained.

Box 1

(i) Compliance Monitoring:

- Frequency of anti-dust water sprays during construction period;
- Installation of signage regarding community health and safety
- Safety at workplaces and working hours during construction;
- Incidence of liquid/solid waste in the vicinity of work camps (type and amount of waste, amount, interference with local residents, fauna, flora and crops);
- Plantation of saplings of new trees against trees cut
- Survival rate of saplings of new trees
- Arrangements made at construction sites for protection of floral and faunal resources
- Assurance of installation of signage regarding community health and safety

(ii) Environmental Effects Monitoring

- Ambient air quality (Particulate matter) during construction phase;
- Surface water quality during construction phase especially at diversion sites
- Ground water quality at camp sites;
- Ground water table at construction sites;
- Number of patients suffering from malaria, cholera, diarrhea, respiratory ailments during construction phase
- Noise levels (in dBA), monitored at fixed locations and planned schedule during construction
- Extent and degree of functionality of diversion channels to ensure un-interrupted water supply;

(iii) Social Effects Monitoring

- Number of local people recruited on project works.
- Incidence of child labour, force labour and disproportionate wages
- Community health and safety
- Conflict at community level
- Chance find archaeological site
- Grievance redressal mechanism is in place
- Health screening of labour at site
- Labour Campsite Management (Sanitation, kitchen, resting facilities etc.)

8.6 Environmental Non-compliances and Corrective Measures

The Contractor will be notified of any violations of the ESMP, as well as any corrective actions required. Outlined below are some steps relating to the increasing severity of environmental problems, which will be implemented. The principle is to keep as many issues within the first few steps as possible.

Step 1. PIU and Contractor to work out mitigations together and record the facts and the decision implemented.

Step 2. A more serious infringement will be observed and PIU will be notified the Contractor of the issues in writing, with a deadline by which the problem must be rectified. All costs will be borne by the Contractor.

Step 3. The suspension will be enforced until the offending parties, procedure, or equipment is corrected and/or remedial measures put in place if required. No extension of time will be granted for such delays and all costs will be borne by the Contractor.

Step 4. Breach of contract - One of the possible consequences of this is the removal of a Contractor and/or equipment and/or the termination of the contract. Such measures will not be replaced any legal proceedings that PIU may institute against the Contractor.

8.7 Communication Reporting and Documentation

The following environmental meetings will be proposed:

- Primary meetings between the E & S team of PIU and the Contractor for setting out the format for the regular meetings shall be held before the commencement of the project.



- Scheduled Environmental and Social Progress Review Meeting (ESRPM) meetings between the team PIU and the Contractor will be done every regular interval.

The Contractor and CSC will be required to prepare monthly, quarterly and work completion reports of the sub-projects depending upon the nature of activity going on during construction phase. The distribution of the reports shall be to PIU and World Bank.

A photographic record of the project area shall be kept. The contractor, CSC, will be required to take photographs at key locations using a digital camera of the sub-project areas in a walkthrough survey. The following data will be recorded for each photograph:

- Shot number
- All the photographs will be referenced with GPS Coordinates
- Title of photograph
- Date and Time, and
- Photographic features.

The photographic record shall be incorporated into the monthly reports.

Complaints Register. The Contractor will be required to maintain a complaint register at the campsite and workplaces to document all complaints received from the local communities. The register will also be recorded the measures taken to mitigate the reported concerns. The final report will be communicated to the E&S team of PIU. All complaints/issues of the community will be reported in the monthly progress report of the following month, along with the status of the last month's complaints and will be reviewed by the E&S team of PIU.

Moreover, telephone numbers and addresses of all concerned tiers within the GRM will be displayed in Sindhi and Urdu at all sites, and the same will be distributed in community training/meetings.

Complaints Register Ties in with the Project GRM

The stakeholder's or affected people's concerns, complaints and grievances about sub-the project's environmental & social performance will be received, recorded and replied to in a systematic way using an understandable and transparent process that is gender-responsive, culturally appropriate and readily accessible to all segments of the affected people at no cost and without retribution.

Change Record Register. A review of this ESMP will be triggered in two scenarios:

- A change to the designs deviates from the parameters that are safeguarded in this ESMP.
- A discovery in the baseline socio-environmental conditions, which is not recognized or covered by this ESMP.

In the event of either scenario, the ESMP will be updated and reissued accordingly. The Contractor and PIU to document any change in the project design/operation shall maintain the design change record.

8.8 Environmental and Social Management and Monitoring Cost

The implementation of the ESMP involves inputs from Construction Contractor (CC), CSC and PIU. The CC will be primarily responsible for ensuring the implementation of mitigation measures proposed in the ESMP, which will be part of the contract documents. Hence, the provision of environmental mitigation cost as a separate head in Bill of Quantities (BoQs) will be made mandatory in contract documents.

However, if the CC fails to comply with the implementation of ESMP and reporting properly, the proponent will enforce compliance with the terms of the contract, including adherence to the ESMP and WB operational policies. For the smooth execution of ESMP implementation activities, it has been



recommended that all the bills/payments related to ESMP implementation will be approved/authenticated by the CSC Environment and Social specialist. ESMP implementation cost will be deducted from Interim Payment Certificates (IPC) until compliance has been done.

The cost of Rs. 11,296,000/- budget for the implementation of the ESMP has been allocated. The breakup of the cost is given in Table 17.



Table 16 Environmental & Social Management and Monitoring Cost

Item No.	Item	Rational	Frequency	Average Rate (Rs.)/unit*	Site-wise Quantity	No of units/sites	Total Quantity	Estimated Amount (Rs.)
A. Safety Equipment's (Banners, Barriers, PPEs, Fire Extinguishers)								
1	Masks Box	At each DHQs of Rescue Station	Ensure Availability during construction phase	300.00	6.00	9.00	54	16,200
2	Safety Shoes	At each DHQs of Rescue Station		1500.00	40.00	9.00	360	540,000
3	Safety Gloves	At each DHQs of Rescue Station		200.00	40.00	9.00	360	72,000
4	Safety Goggles	At each DHQs of Rescue Station		300.00	40.00	9.00	360	108,000
5	First Aid Box	At each DHQs of Rescue Station		1000.00	1.00	9.00	9	9,000
6	Ear Plugs	At each DHQs of Rescue Station		100.00	40.00	9.00	360	36,000
7	Safety Helmets	At each DHQs of Rescue Station		700.00	40.00	9.00	360	252,000



Item No.	Item	Rational	Frequency	Average Rate (Rs.)/unit*	Site-wise Quantity	No of units/sites	Total Quantity	Estimated Amount (Rs.)
8	Safety Jackets with reflector	At each DHQs of Rescue Station		300.00	40.00	9.00	360	108,000
9	Provision of Dustbin	At each DHQs of Rescue Station		1000.00	5.00	9.00	45	45,000
10	Fire Extinguishers DCP	At each DHQs of Rescue Station		10000.00	1.00	9.00	9	90,000
11	Safety boards	At each DHQs of Rescue Station		5000.00	5.00	9.00	45	225,000
						Sub Total - A		360,000
B. Environmental Monitoring Cost During Construction Phase (12 months)								
1	Wastewater	1 Sample from where construction waste discharge at Each Site	Once every in three months	17,000	6	9	54	918,000



Item No.	Item	Rational	Frequency	Average Rate (Rs.)/unit*	Site-wise Quantity	No of units/sites	Total Quantity	Estimated Amount (Rs.)
2	Drinking Water	One (1) from camp area at each site		15,000	6	9	54	810,000
3	Generators/Stack Emission (If available)	1 Sample from construction site		10,000	6	9	54	540,000
4	Ambient Air	One from the camp area & other from nearby receptors		20,000	6	9	54	1,080,000
5	Ambient Noise	Construction Site and nearby receptor		1,000	6	9	54	54,000
6	Mobilization Charges	At each DHQs of Rescue Station		20,000	6	9	54	1,080,000
Sub Total - B								4,482,000



Item No.	Item	Rational	Frequency	Average Rate (Rs.)/unit*	Site-wise Quantity	No of units/sites	Total Quantity	Estimated Amount (Rs.)
C. EHS Management								
1	Personal Protective Equipment		Bi annual	6,000	1	9	9	54,000
2	Waste Disposal from construction Sites						Lump sum	50,000
3	Project dissemination materials such as banners, flayers, notice board etc.			10000	1	9	9	90,000
4	Soft and Hard Landscaping - Plantation Plan within 3 months after start of construction at each site						Lump sum	900,000
Sub Total - C								1,094,000
D. EHS Administrative Cost								
1	Training/Capacity Building (Environment, Social, Gender, & OHS)		50 persons	20,000	6	9	54	1,080,000
2	Social Expert (for social compliance & GRM implementation) Salary			120,000	12	1	12	1,440,000
3	GRM running & General Community support needs (if any)						Lump sum	500,000



Item No.	Item	Rational	Frequency	Average Rate (Rs.)/unit*	Site-wise Quantity	No of units/sites	Total Quantity	Estimated Amount (Rs.)
4	Environmental & OHS Officer Salaries (120 thousand for each person)			120,000	12	1	12	1,440,000
5	Restoration Cost - After completion of the project			100,000	1	9	9	900,000
Sub Total - D								5,360,000
TOTAL OF (A TO D)								11,296,000



Table 17: Environmental & Social Management Plan

Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
DESIGN PHASE							
Pre-construction considerations	Slope Instability	Excavated Material Disposal Plan to include siting and detailed assessment of the suitability of the proposed excavated materials disposal site	CSC	PIU	All excavated surplus materials are to be disposed of in designated sites.	Once at the end of the design stage	Sub-project areas
	Compliance to ESMP	Consideration of ESMP in preparation for the detailed design and bid documents.	CSC	PIU	Added ESMP in contract documents	Before the tendering	Sub-project areas
	Baseline Environmental Monitoring	As per the monitoring plan given in ESMP before the start of the civil works as per SEQS	CC	CSC	Compliance to ESMP	Once before the start of the works	Sub-project areas
	Geology and seismology	Stone pitching of the degraded reaches	CSC	PIU	Emergency Preparedness Plan in place before the commencement of construction.	Once at the end of the design stage	Sub-project areas
	Public Consultations in rural semi-urban areas	Stakeholder Engagement Plan (SEP) has been prepared for the SFERP and will be implemented in the sub-project. Stakeholder consultations will	CC	CSC	Implementation of SEP	Once at the end of the design stage	Sub-project areas



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
		be conducted throughout the project implementation. Full-time CSC Social Expert will be engaged for the proposed project. The CSC Social Expert will exchange construction work to roadside landowners, the period of access restriction, and the measures taken to allow movement around the construction work					
	Loss of flora and disturbance of fauna within the sub-project sites	Sub-project sites are devoid of any vegetation only few native shrubs and trees are present commonly observed in the area but avoidance of tree cutting to the possible extent is recommended	CSC	PIU	Tree inventory prepared	Once at the end of the design stage	Sub-project areas
CONSTRUCTION PHASE							
Site Preparation and Clearance							
Site preparation	Top Soil Erosion	Contractor will prepare an earthworks checklist and get approval from CSC. That Checklist defines the limits to the excavation during reconditioning works.	CC	CSC& PIU	Approved Plans and comply with ESS1	During the Planning phase, in parallel with the preparation	At any locations where borrow pits, and quarries will be operated.



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
		Instructions for topsoil management will also be defined. The use of soil from private land will be minimized and only after consultation and paying off the compensation to landowners.				of bid documents	
		Vegetation clearance shall be limited to the area required for work.	CC	CSC& PIU	Written approval for cutting marked trees before cutting	Weekly	Same as above
		Use of existing accessing tracks	CC	CSC& PIU	No tree-cutting on temporary haul routes	Weekly	Same as above
Disposal of Excavated Material	Identification of re-use of excavated material on site, to reduce off-site effects	All excavated materials are to be disposed of in designated sites as per the approved waste management plan the Plan shall deal with each waste stream separately	CC	CSC& PIU	Comply with approved WMP as per ESS1 – ESS3 –and Community complaints;	Monthly	At approved disposal sites of 9 Districts of Sindh
	Community Disturbance	Community liaison will be maintained during the construction stage and GRM will be established to address complaints.	CC	CSC& PIU		Monthly	At approved disposal sites of 9 Districts of Sindh



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
	Noise	Limiting working hours to between 9 am and 5 pm, six days a week. The campsite/s shall be situated at least 500m from any settlement. The affected communities will carry out on-demand noise monitoring in case of any complaint or request. Additional mitigation measures will be identified and implemented in case the noise levels exceed the permissible limits of SEQSS. Community liaison will be maintained to ensure that complaints and grievances are addressed as soon as possible.	CC	CSC& PIU		Monthly	Same as above
	Damage to existing infrastructure Need to relocate public infrastructure such if available	Currently, no public infrastructure exist within the proposed boundary of DHQs are observed which creates hindrances in the execution of the work. Community liaison to be maintained.	CC	CSC& PIU		Monthly	Within the proposed sub-project area



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
Construction and Labor Camps							
Locating Camp	Community disturbance	Locate the camp at least 500m away from the communities. Community consultations will be carried out and liaison will be maintained. GRM to be established to address related complaints.	CC	CSC& PIU	Review of Camp layout plan	Once	Proposed sub-project area labor campsite
	Loss of flora and fauna	Submit layout plans for the camp for the approval of the Engineer before the construction of the camp	CC	CSC& PIU	Construction of campsite: do not begin before approval of the layout plan.	Once before camp establishment.	Same as above
	Surface water pollution	Locate camps away from the waterbody, canal, watercourses, etc.	CC	CSC& PIU			
Supply of Drinking Water	Depletion of local drinking water resources	The contractor shall make his arrangements for the supply of water ensuring water supply and availability to local communities is unaffected.	CC	CSC& PIU	The contractor will not be entitled to use public water resources	Monthly	Near the community water resources
	Spread of the disease through the unsuitable water supply	Provision of safe drinking water and monthly testing according to the SEQS 2016	CC	CSC& PIU	Comply with SEQSs	Monthly	Same as above



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
Ground Water contamination s	Construction of impermeable layer at washing and bathing area of the construction camp	Suitable latrines (septic tanks etc.) and washing facilities are provided in the camps	CC	CSC& PIU	Latrines are provided at each camp	Once	Construction Camp of proposed sub-project area
		Lined washing facilities including a shower, are available near each latrine, including clean running water, soap and drying facilities.	CC	CSC& PIU	Suitable washing facilities are provided at each camp	Once	Same as above
Accidents and Emergencies	Emergency Response	The contractor shall prepare a shutdown procedure and evacuation plan	CC	CSC& PIU	Approved Plan as per ECoP 10: Construction Camp Management	Once after the completion of the proposed expansion work of DHQs rescue stations.	At the Construction area of sub-project sites
		Emergency Response Plan to man-made and natural disasters (including rains, urban floods, fire, etc.)	CC	CSC& PIU	Annual evacuation drill	Quarterly	Same as above
		Emergency access routes shall be signed and maintained	CC	CSC& PIU	Emergency access routes are clear and signed	Monthly	Same as above
		Fire extinguishers are to be provided throughout the camp	CC	CSC& PIU	Fire extinguishers provided	Monthly	Same as above



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
Security	Conflict with local communities, attack on staff	Security for avoiding any conflict with local communities	CC	CSC& PIU	Fencing and security. The entrance to the camp shall be monitored and restricted	Monthly	Same as above
		Preparation and Implementation of communication strategy which will be developed by the contractor. under the guidance of CSC and get approval from PIU before the start of civil work.	CC	CSC& PIU	Approval of Communication Strategy by PIU	Once	
		The contractor shall provide all staff with Identity Cards showing their association with the project	CC	CSC& PIU		Monthly	All active work sites
		Sindh-speaking staff to be available at all active work sites to communicate with the local community	CC	CSC& PIU	Sindh staff available at all active work sites	Monthly	Same as above
		The Contractor shall include in the Emergency Plan, a procedure for emergency	CC	CSC& PIU	Plan submitted and approved	Once before the start of civil work	Camp area



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
		evacuation of camp and practice this procedure					
Restoration	Change in Landscape after the closure of works	All temporary facilities shall be removed by the Contractor after the completion of the works	CC	CSC& PIU	Temporary facilities are removed on completion of works (before and after Pictorial evidence)	Once at the time of completion of the subproject.	Same as above
Storage of Material							
Stockpile Storage of Materials	Increase in particulate matter	Proper covered storage. Water sprinkling of any uncovered stockpile where dust is generated	CC	CSC& PIU	No dust generated from stockpiles	Monthly	Stockpiles
Storage of Hazardous Materials	Health and safety due to improper use of hazardous material	Fuel tanks and other hazardous material storage containers will be properly marked to highlight their contents.	CC	CSC& PIU	Comply with the approved Waste Management Plan for Handling of Hazardous Materials	Monthly	Hazardous material storage areas at campsite
		Hazardous areas to be secure and access limited to trained personnel only	CC	CSC& PIU	Untrained personnel are not accessing	Monthly	Hazardous material storage



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
					hazardous storage areas		areas at campsite
		Provide fire extinguishers	CC	CSC& PIU	Fire extinguishers are provided	Monthly	
		Provide and enforce the use of PPEs as per the Contractor's Health and Safety Plan	CC	CSC& PIU	Proper implementation of PPEs	Monthly	
	Health and Safety and Pollution	An oil-designated storage area used	CC	CSC& PIU	Stockpiles only in storage areas identified in the camp layout plan	Monthly	Sub-Project area
		Training on handling, use and disposal of hazardous material must be given to all those with access to the hazardous material area	CC	CSC& PIU	Training as per the Contractor's approved training plan	Monthly	Hazardous material storage area at campsite
Waste Management							
Disposal of sanitary wastes using the municipal	Introduction of Inappropriate Contaminants or Waste Volume to Municipal System	Testing of wastes and submission of results to the Engineer.	CC	CSC& PIU	Test results show waste is within SEQS limit for pre-treatment	Quarterly	Construction camp/s



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
system (if available)		Written consent from the operator of the municipal system submitted to the Engineer	CC	CSC& PIU	Consent submitted	Once before the start of civil works	
	Use of municipal system which falls below SEQs standards	All waste shall be disposed-off through SEPA SEPA-certified vendors.	CC	CSC& PIU	Agreement with the certified waste collectors	Once before the start of civil works	
Collection of domestic wastes	Surface and groundwater pollution	Provide garbage bins within all camps for domestic wastes	CC	CSC& PIU	Provision of bins	Monthly	
Disposal of domestic wastes using Municipal facilities.	Ground and groundwater pollution, the spread of disease	Domestic waste shall be collected from waste bins on alternate days and transported by tractor trolley to dispose of in a nearby Municipal facility. A written agreement shall be made between the Municipal operator and contractor for the disposal of domestic waste.	CC	CSC& PIU	License or Written agreement b/w Municipal operator and Contractor checked.	Monthly	Licensed site
Disposal of medical wastes	Surface water pollution, health and safety of staff and public.	Medical wastes will be stored on site The contractor will engage a third-party contractor for the treatment and ultimate disposal	CC	CSC& PIU	No medical waste in the municipal facility. Waste receiving receipt	Monthly	Collection point



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
		of medical waste in a controlled manner.			should be collected.		
Disposal of hazardous wastes	Ground, groundwater and surface water pollution, health and safety	Hazardous wastes are to be passed to licensed contractors, or, available wastes are to be stored in long-term storage facilities meeting the requirement of hazardous material storage area to be taken on client following construction. Details are to be provided in the pollution plan to the Engineer.	CC	CSC& PIU	As per approval of the Plan and guidelines set by ECoP 1: Waste Management. ECoP 2: Fuels and Hazardous Substances Management to meet the ESS1 & 3	Once	Collection point
Closure of works	Ground, groundwater and surface water pollution, health and safety.	All solid wastes shall be removed from the project area on completion of works	CC	CSC& PIU	All solid wastes disposed of or removed from the site and comply with the restoration plan	Once after the completion of civil work	Sub-Project area
Construction Plant and Vehicles							
Movement/ operation of vehicles on site	Air pollution	All vehicles are regular services as per manufacturers' requirements	CC	CSC& PIU	Black smoke will not be observed emitting from Vehicles/plant	Quarterly	Sub-Project area



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
	Generation of dust	The access road is to be adequately compacted or regularly sprinkled to prevent dust generation during use	CC	CSC& PIU	Dust not reaching the settlements in the sub-project area		Settlement in the Sub-project area
	Soil and Groundwater pollution	Vehicles/plants will be checked daily for fuel oils and leaks and fixed as required	CC	CSC& PIU	No fuel oil leaks will be observed from the plant/vehicle		Sub-Project area
	Safety of the community, other road users, fauna and staff	Vehicle speed is limited to 15km/hr.	CC	CSC& PIU	Submittal and approval of the plan	Once	
		Safe driving practices included in Contractor's training plan	CC	CSC& PIU	Training of the drivers as per the approved plan	Monthly	Sub-Project area
		Flag persons to be deployed where plant cross/meet the village road	CC	CSC& PIU	Flag persons provided	Monthly	Road approaching and crossing of the road
		The contractor's Community Liaison Officer collaborates with communities to identify sensitive areas and inform communities before the movement of large plant	CC	CSC& PIU	No complaints were received from the communities	Monthly	Settlement in the sub-project area



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
		Vehicles with restricted rear visibility to be fitted with an audible backup alarm or provided with banks men	CC	CSC& PIU	Back-up alarms	Monthly	Sub-project area
		Driving in the project area after nightfall is prohibited except on public highways	CC	CSC& PIU	No driving after dark	Monthly	Haul roads and temporary access roads
	Damage to public infrastructure	Damage to roads, infrastructure and property was immediately repaired/compensated by the Contractor	CC	CSC& PIU	No damage to roads/infrastructure	Monthly	Public roads
		Use of horns is prohibited near the settlement	CC	CSC& PIU	Nor horns were heard at the settlement	Monthly	Settlement in the sub-project area
	Disturbance of Fauna	Biodiversity monitoring of impacts on fauna	CC	CSC& PIU	Status and behavior of terrestrial and avian-fauna	Quarterly	Sub-Project area
	Reduction in access to women and girls	Avoid routes used by women and girls as far as possible, if unavoidable, identify alternate routes for women and girls	CC	CSC& PIU	No complaints were received from women and girls	Monthly	Sub-Project area
Deliveries to Site	Dust	Covered transportation of loose materials	CC	CSC& PIU	No dust generation from delivered materials	Monthly	Public roads which are crossing or



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
							connected to the sub-project area
	Community disturbance increase in traffic	Traffic management plan to be submitted to Engineer for approval and to include routes for delivery vehicles	CC	CSC& PIU	Submittal and approval of plan TMP as per ESS 4	Once	Same as above
		Deliveries should be carried out during normal working hours and prohibited at night if unavoidable then follow the nighttime working protocols.	CC	CSC& PIU	No deliveries were carried out at the night.	Monthly	Construction camp
		Delivery vehicles are prohibited from queuing on public roads	CC	CSC& PIU	No queuing delivery vehicles on public roads	Monthly	Same as the above
Road/access Closure	Community disturbance increase in traffic	Flag persons are to be deployed where the plant cross/meet the village road.	CC	CSC& PIU	Flag persons provided	Weekly	At road partial closure
		The contractor's Community Liaison Officer collaborates with communities to identify sensitive areas and inform communities before movement.	CC	CSC& PIU	No complaint received	Monthly	Settlement in the project area
		Request for road closure must be approved by the relevant authority	CC	CSC& PIU	As per Approved TMP	Once for each closure	Throughout construction period



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
Health and Safety of the Workforce							
General construction works	Health and safety of provisions	<p>The contractor shall prepare and submit occupational health and safety plan.</p> <p>This plan will need to describe all jobs, their risks, and the controls that will reduce risks; these controls may include PPE, restrictions on activities or locations, and other measures. Those who work near water, with heavy equipment will need special training so those hazards can be managed.</p> <p>The contractor will ensure the use of Personal Protective Equipment (PPE) for his labors during the construction period; To overcome the drinking water contamination issue, at each construction camp, the contractor shall install a solar-operated domestic water filter/150GDP with Ultraviolet</p>	CC	CSC& PIU	<p>Submittal and approval of Labor Management plan as per the guidelines provided in Labor Management Procedure of SFERP</p> <p>The number of reported accidents.</p> <p>The number of reported near-misses.</p> <p>Non-compliance observed.</p> <p>Community complaints.</p>	Regularly as specified in the monitoring plan	Construction site of Sub-Project area



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
		(UV) to ensure safe and healthy drinking water for the workforce. The Contractor will display sign boards and banners about traffic diversion at places on detour routes; Community liaison will be maintained during the construction stage and GRM will be established to address complaints related to safety hazards.					
	Health and safety of Staff	The contractor will submit an accident report to the Engineer following an accident on site. The report must detail actions to be taken to reduce the risk of occurrence	CC	CSC& PIU	Submittal of the accident report	Monthly	Same as above
		Qualified health and safety manager will be appointed by the Contractor	CC	CSC& PIU	Qualified health & safety manager present on site	Monthly	Same as above
		The contractor shall engage a full-time first-aider on-site	CC	CSC& PIU	On-site Presence of qualified Doctor, medical	Monthly	First aid center



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
		Contractor to have the on-call doctor			practitioners and first aid facilities		
		Provision of the dispensary for the treatment of staff. Dispensary to be stocked with appropriate medicines for likely incidents, diseases and ailments to have occurred on site. Stock is to be replenished as necessary.	CC	CSC& PIU	Dispensary available on-site and regularly restocked	Monthly	Same as above
Archaeology and Cultural Sites							
Construction near religious sites	Community disturbance	All works excluded from mosques and Graveyards at the Project Site. (Spiritual Place for local people).	CC	CSC& PIU	Compliance with ESS8 – Cultural Heritage by adopting the ECoP 11: Cultural and Religious Issues. All works excluded from the identified locations	Monthly	At the Construction Sites of sub-project area



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
		Works do not block access to sites	CC	CSC& PIU	access to the sites is not blocked	Daily	Same as above
Discovery of unidentified cultural or religious site	Community disturbance	The contractor shall not trespass into the site, shall exclude all works and immediately inform the Site Engineer	CC	CSC& PIU	The engineer informed of the discovery of unidentified cultural or religious sites	Monthly	Same as above
		Community liaison to be maintained. GRM to be established to address related complaints.	CC	CSC& PIU	Number of complaints	regularly	Same as above
Chance finds strategy		In the case of a chance find, the contractor will secure the site and report immediately to PIU. Works may not recommence until the Engineer approves. Site visits of the Culture Tourism & Antiquities Department, Govt of Sindh, will be facilitated. Further works will be carried out on such sites only after obtaining clearance from the Department.	CC, CSC	PIU & Culture Tourism & Antiquities Department, Govt of Sindh	Chance finds strategy	As or when depends on chance and find	Same as above



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
Safety/Health Measures for The Local Population							
The local population living within/near the sub-project especially women, children and elderly people	Accident risks, particularly for the local population living within/near the subproject especially women, children and elderly people; Public awareness campaigns through displaying signboards at site and haulage routes; Vulnerability to accidents; Deterioration of health due to dust	Restriction on movement of machinery on the designated haulage routes for transportation of materials. Public awareness campaigns through displaying signboards at the site and haulage routes. Interaction with the community; Setting up speed limits (not more than 15 Km in work areas); Availability of first aid box for locals; Strict enforcement keeping non-working persons, particularly children, away from work sites; Ensure water sprinkling. (ECoP 12) For Community Female Members: •Awareness should be created among the local community including females about the construction work.	CC	CSC& PIU	Number of complaints to ensure compliance with ESS4 – Community Health and Safety	Frequently	Same as above



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
		<ul style="list-style-type: none">•Workers should not be allowed to crowd in the residential communities within the site.•Alternative routes for pedestrians should be provided to avoid mixing women with workers.•Raise awareness among the communities of the potential risks of GBV, SEA, and SH and establish links with response services in the nearby communities that can respond to instances of GBV (particularly those related to issues of labor influx).•Contractor should take proper measures to address and resolve issues relating to harassment, intimidation, and exploitation, especially against women.•Measures to prevent GBV, SEA and SH the Contractor must include relevant clauses in the workers' code of conduct.					



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
		•Development and implementation of grievance redress/stakeholder response mechanism procedures to ensure timely handling of grievances.					
OPERATION PHASE							
Maintenance of rescue station facilities	Infrastructure and allied facilities	Infrastructure maintenance will be carried out as per the contract agreement. During maintenance follow best practices, rules and regulations to avoid any mishap.	SFERP/Go vt. Of Sindh	Third-party	No incident or any damages	Continues as per the government schedule or best practices	Entire sub-project area
Increased Traffic	Air pollution and Greenhouse gases	Regular motioning of the vehicles for engine efficiency and avoid any unnecessary work and transportation. Alternative energy resources should be considered where possible. SEQs applicable to gaseous emissions generated by construction vehicles, equipment and machinery	SEPA/ SFERP/Go vt. Of Sindh	Third-party	Compliance with SEQS	Once in year	Entire sub-project area



Project Activities	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
			Execution	Monitoring			
		should be enforced during construction works.					
		Reduction in travel time and better mode and frequency of transport and enhanced tourism activities in the area which in many terms will boost the local economy and improve the lifestyle of local people. Access to quality health care facilities, educational and other infrastructural facilities. A better investment climate for industries creates more employment opportunities for local people.					



Table 18: Environmental Monitoring Plan

Sr. No.	Parameters	Means of Monitoring	Frequency	Responsibility	
				Implementation	Supervision
1	Vegetation clearance	Visual inspection of loss of vegetation, soil erosion & instability, surface water pollution and occupational health of workers and community	Weekly	CC	CSC/PIU-SFERP
2	Top Soil	Visual inspection of topsoil of 20 cm to 30 cm depth should be excavated and stored properly	Beginning of earthworks	CC	CSC/PIU-SFERP
3	Erosion	Visual inspection of the occurrence of erosion and erosion prevention measures	At the end of the filling activity	CC	CSC/PIU-SFERP
4	Operation of burrow and quarry site	Visual inspections of quarry sites/ burrow areas for change in landscape and creation of water ponds.	Monthly	CC	CSC/PIU-SFERP
5	Excavation of earth	Visual inspection for soil erosion & stability	Weekly	CC	CSC/PIU-SFERP
6	Material supply	Inspection of possession of official approval or valid operating license of suppliers' materials (asphalt, cement, quarry and burrow material)	Before the agreement for the supply of material	CC	CSC/PIU-SFERP
7	Storage and handling of materials	Visual inspection of storage facilities	Monthly	CC	CSC/PIU-SFERP
8	Local roads	Visual inspection to ensure local roads are not damaged	Monthly	CC	CSC/PIU-SFERP
9	Traffic safety	Visual inspection to see whether proper traffic signs are placed and safety barriers for traffic management are occupied	Monthly	CC	CSC/PIU-SFERP
10.	Air Quality	Air quality monitoring mobile lab (Certified laboratory from the relevant agency)	Quarterly	CC	CSC/PIU-SFERP



Sr. No.	Parameters	Means of Monitoring	Frequency	Responsibility	
				Implementation	Supervision
		Visual inspection to ensure water sprinkling is being implemented	Daily	CC	CSC/PIU-SFERP
		Visual inspection to ensure asphalt plant is located greater than 500 m from residential areas	Monthly	CC	CSC/PIU-SFERP
10	Air quality & noise	Visual inspection of conditions of equipment in use	Quarterly	CC	CSC/PIU-SFERP
11	Surface & groundwater quality	Sampling and analysis of surface water quality (Certified laboratory from the relevant agency)	Quarterly	CC	CSC/PIU-SFERP
12	Solid waste	The visual inspection that solid waste is disposed of at the designated site	Weekly	CC	CSC/PIU-SFERP
13	Floral and faunal monitoring	Visual inspection	Daily	CC	CSC/PIU-SFERP
14	Cultural and archeological sites	Visual inspection	Daily	CC	CSC/PIU-SFERP
15	Visual check for exhaust emissions from equipment and vehicles	Visual inspection	Daily	CC	CSC/PIU-SFERP
16	Grievances of the local communities	Visual inspection	Daily	CC	CSC/PIU-SFERP
17	Reinstatement of work site	Visual Inspection	After completion of all works	CC	CSC/PIU-SFERP



Annexures



Annexure- I Expansion of Rescue 1122 Stations- SFERP Screening Checklists



Annexure I: Expansion of Rescue 1122 Stations-SFERP Screening Checklist

Environmental and Social Screening checklist for Nine Districts of Sindh							
Project Area	Dadu, Qamber Shahdadt, Ghotki, Badin, Jacobabad, Jamshoro, Tharparkar, Thatta and Sujawal District of Sindh, Pakistan						
Project Title	Sindh Flood Emergency Rehabilitation Program (SFERP), P&DD Component, Sindh						
Sub-project Title	Expansion of Emergency Rescue 1122 Stations at 09 Districts of Sindh						
SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
			N R	1	2	3	
A. Project Siting Is the project area							
1. Densely populated?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>The proposed schemes are located in a sparsely populated area of Sindh Districts.</p> <p>Mitigation Measures:</p> <ul style="list-style-type: none"> As per the World Bank's Environmental Health and Safety Guidelines, the construction contractor will develop Civil Work Construction and Management Plans for each civil works activity prior to the start of the work to avoid any disturbance to the local residents. The plans will be specifically targeted towards waste management, Emergency preparedness, and an overall environmental & social management plan. This plan will be implemented during construction phase of the project.
2. Heavy with development activities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No development activity is going on in the surrounding areas.
3. Adjacent to or within any environmentally sensitive areas like protected areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No environmental sensitive area like forests, national parks, wetlands, game reserves, wildlife sanctuaries etc. is around of the project sites.
4. Cultural or archeological site							No cultural or archeological site is in the vicinity of this project areas. However,



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Project Title	Sindh Flood Emergency Rehabilitation Program (SFERP), P&DD Component, Sindh						
Sub-project Title	Expansion of Emergency Rescue 1122 Stations at 09 Districts of Sindh						
SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
			N R	1	2	3	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a Chance Finds Mechanism will be proposed and construction contractor will be ensured during construction activities. The contractor will also ensure training of the workers in case a chance find is encountered. This training will be part of the overall training delivered by the contractor. Contractor will also inform the Consultant if any cultural heritage site is discovered.
B. Potential Environmental Impacts (Construction Phase)							
1. Will construction camp site interfere with the community?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	There will be no establishment of camp site at subproject sites. Therefore, no interference to the community as the sub-project site is vacant and barren and free from any interference.
10. Will construction activities require tree cutting?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The existing sub-projects sites are devoid of plantation hence, no tree will be chopped during construction phase.
11. Will construction activities result in damaging existing local roads, bridges or other infrastructure	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The sub-project activities do not involve any construction activity outside the site premises so it will not damage any nearby and existing road, bridge and any other infrastructure.
12. Will construction activities involve use of explosives and chemicals?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No explosives and chemical will be used during the sub-project activities.
15. Will construction activities generate noise?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Yes, noise will be generated from various sources such as plumbing, drilling generators, vehicular movement etc. that will be limited to the proposed boundary of the sub-project site and nearby community will not be affected. Mitigation Measures:



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			N R	1	2	3	
							<ul style="list-style-type: none"> - The contractors would ensure keeping noise levels from construction vehicles and machinery to be within safe limits. - Construction activities will not be allowed at nighttime. - Noisy machines and vehicles will not be allowed to be used at the sub project sites (noise level will not be more than 85 dBA at 7.5 m distance), properly tuned machinery and vehicles will be allowed only. - Workers will use noise protection equipment when working in a noisy area. - Notifying and coordinating with locals adjacent to project area prior to construction to inform them of the possibility of temporary noise disruption, and how to report noise complaints in accordance with the proposed GRM. - The contractor will adhere to the requirements of the mitigation plan contained in the contract documents with true spirit and regular monitored as per SEQs.



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			N R	1	2	3	
16. Will construction activities generate dust?	√	□	□	√	□	□	<p>There will be activities as well as construction vehicles and machines which may generate dust emissions. The machinery used in expansion work will be tractors and trolleys for fetching material.</p> <p>Mitigation Measures:</p> <ul style="list-style-type: none"> - Regular water sprinkling will be the responsibility of the contractor at the dust generation points during construction activities. Water will also be sprinkled at vehicular and machinery movement routes to avoid dust spreading to the nearby community.
							<p>In addition, the provision of dust masks and ensuring their use by the workers will also be the responsibility of the contractor.</p> <ul style="list-style-type: none"> - All vehicles, machinery, equipment and generators used during construction activities will be kept in good working condition and be properly tuned and maintained to minimize exhaust emissions. - Native species of trees should be promoted and planted around the boundary wall of sub-project area.



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17. Will construction activities cause air pollution due to stack emissions from generators, construction machines and vehicles?	√	<input type="checkbox"/>	<input type="checkbox"/>	√	<input type="checkbox"/>	<input type="checkbox"/>	<p>The activities include construction of building and its allied facilities which will cause air pollution at minor extent during the expansion work.</p> <p>Mitigation Measures:</p> <ul style="list-style-type: none"> - The emissions from generators, (if used) and vehicular/machinery movement at the site can affect the ambient air quality at sub project sites. It will be the responsibility of the contractor to use well maintained generators and vehicles/machines to keep ambient air quality within the desired level. The contractor will be obliged to provide fitness certificate/maintenance records of the generators, vehicles and machines before deploying them at the construction sites. - Vehicles speed will be kept 30 km/hr. within project vicinity.
18. Will construction activities generate asphalt emissions?	<input type="checkbox"/>	√	√	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No asphalt activity is involved in the sub-project.
19. Will construction activities cause soil pollution?	<input type="checkbox"/>	√	√	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Soil will not be polluted by the construction activities



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							<ul style="list-style-type: none"> • Placement of fuel containers under containment and proper decantation arrangement to avoid its spillage and leakage on floor. • Presence of spill kit to remove spills from the floor Avoidance of washing the contaminated floors rather dry cleaning the spills from the floor with saw dust and rags. • Location of fuel storage and refilling areas at least 500 m from all cross-drainage structures and important water bodies.
22. Will construction take place near to water bodies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No surface water body is present around the proposed sub project sites.
26. Will construction activities require utilities relocation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The sub-project site is a vacant land hence, no relocation of utilities is required.



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			N R	1	2	3	
27. Will construction activities involve excavation?	√	<input type="checkbox"/>	<input type="checkbox"/>	√	<input type="checkbox"/>	<input type="checkbox"/>	<p>Only minor excavation work will be required</p> <p>Mitigation Measures:</p> <ul style="list-style-type: none"> - The excavation will be done carefully to avoid the damages. - Excavation area will be barricaded. - Contractor will be used safety signs to warn and aware the local people during construction activities. - Contractor will be ensured availability of adequate Personal Protective Equipment (PPE) at the sub-project sites. - Risk assessment will be carried out by contractor before initiation of excavation work. - The contractor will ensure that all workers on site will be properly trained and certified to handle an excavation machine.
28. Will construction involve heavy machinery?	<input type="checkbox"/>	√	√		<input type="checkbox"/>	<input type="checkbox"/>	No, despite few machines like excavators will be used for the civil works on need basis; however, the contractor will ensure safety precautions during construction phase of the sub-projects.
29. Will construction activities increase road traffic at site?	<input type="checkbox"/>	√	√	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Few vehicles will be used during construction work which will not increase traffic on road.



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			N R	1	2	3	
31. Will construction activities cause mobility and accessibility issue for the residents?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No such issue of mobility/accessibility will be caused during the sub-project expansion.
32. Will construction activities/machines be the safety hazards for the workers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Yes, the proposed sub-project will involve civil works and infrastructure developmental activities which can pose safety risks for workers. Risk can occur from machinery usage, vehicles, and civil work activities. General occupational hazards that may be encountered (e.g., moving machinery and motorized equipment, working at heights, repetitive motions, falling objects
35. Community safety	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> - Necessary PPE i.e., face mask, googles etc. will be provided to workers. - Barricading tapes will be installed around the construction activity to avoid any unauthorized entry. - Restrict public to enter construction site through fixing of various warning signs/banners & temporary hard barriers. - No machinery will be left unattended, particularly in running condition. - Public consultation with the nearby community will be carried out before the start of construction activities.
36. Will expansion work of proposed DHQ Rescue Stations be the safety hazards for the occupational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Yes, Occupational Health & Safety issues are anticipated from the proposed expansion work and detailed mitigation measures have been proposed in the ESMP.



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Sub-project Title	Expansion of Emergency Rescue 1122 Stations at 09 Districts of Sindh						
SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
			N R	1	2	3	
C. Potential Social Impacts							
1. Will the construction cause any labor issues such as labor living and working conditions?	√	□	□	√	□	□	<p>Labor condition or rights related issues will be complied such as working hours, leaves, benefits, wages, and other related facilities like provision of foods, clean water, transportation etc. However, no labor camps are anticipated as it involves small scale activities which doesn't involve any living conditions.</p> <p>Mitigation Measures:</p> <ul style="list-style-type: none"> - The Workers' Grievance Redress Mechanism (GRM) will be developed communicated among workers to lodge complains. - Workers should be provided with clean drinking water for free.
2. Will construction activities cause community Health and Safety issues? Or any other such impacts.	□	√	√	□	□	□	<p>No such impacts are anticipated, though following will be applicable to the project activities.</p> <ul style="list-style-type: none"> - GRM must be communicated to the internal staff and the general public. - Close consultation with local communities to identify optimal solutions where needed. - Contractor shall give preference to local community members in the Project Area of Influence, to the extent feasible, with respect to the employment of unskilled labor. - Community grievances will be recorded and responded to on an urgent basis.



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			N R	1	2	3	
							<ul style="list-style-type: none"> - No Hazardous and non-hazardous waste will be dumped outside any community. - There should be sufficient signage to warn of dangers and hazards on a construction or worksite. Signs should be clear and accompanied by ropes, cones, and other equipment to cordon off dangerous areas. - Conduct worksite inspections daily to identify any potential dangers or hazards. Dangers and hazards should be - cordoned off immediately.
3. Will the construction activities cause the socio- cultural issues and damage to any cultural heritage?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No, construction activities will not cause such impacts.
4. Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Local Stakeholders have been consulted and their comments have been noted which will be addressed during construction phase.



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SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
			N R	1	2	3	
D. Potential Environmental Impacts (Operational Phase)							
1. Chances of contamination of water supply	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No contamination in water supply as the sub-project will have its own underground and overhead tanks.
2. Do noise and vibrations generated from the vehicles and facilities, comply with the country's standards?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Noise and vibration will be kept in permissible limits.
3. Do the project sites or discharge areas encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The sub-project sites will have septic tanks and it will not encompass the protected habitats of endangered species designated by the country's laws or any international treaties and conventions.
4. Is there a possibility that the amount of water used (e.g., surface water, groundwater) by the project will adversely affect surface water and groundwater flows?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The amount of water used (e.g., surface water, groundwater) by the project will not adversely affect surface water and groundwater flows.
5. Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused,	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	There will be no involuntary resettlement because sub-project sites are located at Government own land.



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			N R	1	2	3	
are efforts made to minimize the impacts caused by the resettlement?							
6. Is there a possibility that the project will adversely affect the living conditions of inhabitants? Are adequate measures considered to reduce the impacts, if necessary?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	√	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	There is not possibility that the project will adversely affect the living conditions of inhabitants. However, adequate mitigation measures have also been proposed to reduce impacts if generated.
7. Is there a possibility that the project will adversely affect the local landscape?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	√	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Local landscape will not be affected by the project.
8. Are appropriate measures taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	√	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Security guards will be deployed to safeguard the project from the happening any untoward condition.
9. If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	√	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Adequate mitigation measures will be proposed to reduce the impacts on natural environment.
10. If construction activities adversely affect the social environment, are adequate measures considered to	<input checked="" type="checkbox"/>	<input type="checkbox"/>	√	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Adequate mitigation measures will be proposed to reduce the impacts on social



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			N R	1	2	3	
reduce impacts?							environment of the area.
NR: Not Relevant 1. No or Minor Impact 2. Moderate, Short Term, Reversible Impact 3. Severe, Long Term, Irreversible Impact							
Category			A		B		C
Environmental Management Required			NO		N/A		√
Type of Environmental Management Tool to be Used	Social and Environmental Monitoring checklist						



Screening for Involuntary Resettlement/Indigenous People

Involuntary Resettlement Impact screening questionnaire				
Probable IR Impacts	Yes	No	Not Known	Remarks
Involuntary Acquisition of Land and Resettlement Impacts				
1. Will there be land acquisition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No land acquisition will be required, the proposed sub-project land belongs to the Government.
2. Will there be loss of shelter and residential land due to land acquisition or due to clearance of existing proposed sub-project sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	There is no community or residential areas are present on the proposed lands so no shelter or residential land will be lost.
3. Will there be loss of agricultural and other productive assets due to land acquisition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No agriculture or other productive assets exists on proposed DHQs Rescue Station sites.
4. Will there be losses of crops, trees, and fixed assets due to land acquisition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No loss of trees, crops, trees and fixed assets are anticipated.
5. Will there be loss of businesses or enterprises due to land acquisition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No loss of business enterprise is anticipated.
6. Will there be loss of income sources and means of livelihoods due to land acquisition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No such activity is anticipated as this is a government owned land.
7. Will people lose access to natural resources, communal facilities and services due to involuntary restriction of land use or on access to legally designate parks/protected areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	There would be no loses to existing resources, facilities and services
8. Will access to land and resources owned by communally or by the state be restricted?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	There will be no restriction as the proposed sites are not in the route of communal or state-owned resources.
Information on PAPs:				
Any estimate of the likely number of persons that will be affected by the Project? If yes, [NO] Approximately how many? <u>Not applicable</u>				
Are any of them poor, female-heads of households, or vulnerable to poverty risks? [NO]				

Daily Monitoring Checklist



Project Name: _____ Package # _____
Monitoring Location: _____ Date: ____/____/____

Description	Status	Additional Comments
A- Physical Conditions		
1- Ambient air quality		
Are dust emissions being regulated through sprinkling water on the routes being used by the Contractor?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are vehicle speeds being maintained to avoid excessive dust emissions at dust prone areas?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are vehicle properly tuned/maintained to reduce air emissions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2- Noise Control		
Are noise levels remained within safe limits?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
In case excessive noise levels are detected have appropriate mitigation measures been taken?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3- Waste Material		
Is storage, transportation, disposal, handling of hazardous waste properly?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is waste and effluents are collected and disposed safely from camp	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are the waste bins emptied regularly?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is food waste disposed in the open?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is medical waste being generated at camp sites and disposed of properly?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4- Fuel/Lubricant		
Are the fuel tanks properly marked with their contents?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are the fuels and oils handled in a safe manner, ensuring no leakage or spillage?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Any spillage of liquid waste occurred?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
If spillage occurred, managed properly?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5- Traffic Management		
Is vehicle speed limit of 30 km/hr. being followed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	



Description	Status	Additional Comments
Record of accidents and implementation of the traffic management plan prepared and implemented by the contractor	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is the movement of all project vehicles and personnel been restricted to within the work areas?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Do all vehicles and generators have muffles to reduce noise levels whilst working close to communities?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Movement of machinery restricted to designated routes?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Construction vehicles, machinery and equipment parked at designated places within sub-project site?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
6- Biological Conditions		
a- Flora		
Have trees and branches from canal plantation been used as fuel wood?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Has vegetation clearing been minimized?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
b- Fauna		
Are the drivers careful and watchful about wild and domestic animals?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Any damage to animals?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
7- Socio-economic		
a- Community		
Are complaints from local communities being registered and responded to?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is un-necessary interference to adjoining private agriculture land avoided?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are damages (if any) to private property repaired and/or compensated by the Contractor?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are unnecessary visits to the nearby settlements avoided?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is Traffic Management Plan followed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
8- Work Force		
Are safety equipment being used by the workers?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
9- Health and Safety		



Description	Status	Additional Comments
Check quality of food and accommodation at construction camp	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Check safe water supply, hygienic toilet at camps and construction of drains at camp sites	<input type="checkbox"/> Yes <input type="checkbox"/> No	
First aid kit with required tools and medicine	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are storage rooms containing hazardous material locked?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are sufficient guards for security deployed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are the electric equipment, switch boards and electric wires are fully protected and insulated.	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Contractor Environmentalist: _____ CSC Environmentalist: _____

Additional Comments:

<hr/> <hr/> <hr/>



Weekly Monitoring Checklist (Sample)

Project Name: _____

Package # _____

Monitoring Location: _____

Date: ____/____/____

Weekly Monitoring Check List

Description	Status	Comments
A- Physical Condition		
1- Soil Conditions		
Is any soil erosion observed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Has the movement of Construction equipment been restricted to work areas to avoid unnecessary disturbance to the soil types?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have the area along the access road been visually monitored and show any sign of soil erosion?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2- Fuel / Lubricants		
Is regular inspection carried to check leaks & spills?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is there any combustible or flammable material in the fuel storage area ?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are the fuels and oils handled in a safe manner, ensuring no leakage & Spillage ?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Have the entire oil and fuel storage areas provided with impervious floor underneath to prevent soil contamination from leaks or spills?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are the spilled oil or fuel and used clean up material being disposed of properly ?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are the spills and leak thoroughly cleaned?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3- Waste Material		
Is waste being stored temporarily on camp & sites within the designated area?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is any type of solid waste is being disposed of in the fields?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Do the vehicles carry adequate container / trash bags for litter garbage and are they emptied at the camp site or other designated location regularly?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4- Traffic Management		
Are the existing routes being used to access the project area?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are the number of routes kept to a minimum?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are shortcuts been used?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are all the vehicles and construction machinery properly maintained and tuned to maintain NEQS level?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Are pressure horns being used?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5- Borrow Areas		
Is necessary approval for the borrow areas been obtained from the Engineer?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is the top soil of the borrow pits removed and conserved for rehabilitation of borrow areas?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is the condition of approval for excavation of the borrow pits are being compiled with?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is the drainage profile of the area is maintained to avoid any impoundment of the agriculture runoff or storm water in the borrow areas?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
6- Camp Site		
Are the generator in the construction camp properly maintained?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is the emergency response plan available in the camp	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Contractor Environmentalist: _____

PIC Environmentalist: _____

Additional Comments: _____



Monthly Monitoring Checklist (Sample Form)

Project Name: _____ Package # _____

Monitoring Location: _____ Date: ____/____/____

S. No.	Description	Week				Monthly Avg
		1	2	3	4	
Major Adverse Impacts (Weightage 0-3)						
1	Camp Management, Health & Hygiene/ Heating, Cooling, Lighting and Housekeeping					
2	Contractor provided PPE to their workforce and they are being used?					
3	Potable water is available to labor?					
4	Medical Facilities, First Aid Kit is provided at camp and individual nominated for addressing emergency?					
5	Contractors maintained Environmental Monitoring Record and submits monthly monitoring reports?					
6	Contractors maintained Grievances Log and registered the complaints from community?					
7	Contractors prohibited child labor and forced labor?					
8	Borrow area is leased and the landowner is compensated as per a lease agreement?					
9	Septic Tank and Soak Pits are designed for treatment of effluents?					
10	No complaint filed regarding transmission of Communicable diseases					
11	Private Land would be required or not					
12	Site selected for camp is 300 m from the human settlements and wildlife habitats?					
13	No wood cutting for fuel?					
14	LPG cylinders are provided for cooking or heating purposes?					
15	Arrangement for proper storage and disposal for solid waste is planned?					
16	Safety signs are properly displayed?					



S. No.	Description	Week				Monthly Avg
		1	2	3	4	
17	Contractors provided training to workers?					
18	Contractors has shown HSE plan and Emergency Response Procedures					
19	Contractors properly disposes debris materials in approved barren land/ TMA facilities preferably recycling, reuse process?					
20	Natural areas with high elevation are normally selected as borrow areas?					
21	Minimum damage to the agriculture land due to borrow pits on agriculture land?					
22	Stockpiling of Material, Construction Material Management					
23	Waste being stored temporarily on camp & sites only within the designated area					
24	Fuel/oil storage areas are away from watercourses?					
25	Fuel/oil storage areas are paved & ventilated					
26	Fire Extinguisher is placed near Fuel Storage area					
27	No vegetation cover aside from that required as part of construction and inside the DHQ Rescue Station removed?					
28	Tree cutting restricted to DHQ Rescue Station areas only?					
29	No damage reported to public services like electric, water, gas, sewer or telephone lines?					
30	Project activities are displayed at proper locations					
31	No complaints were made due to noise and vibration?					
32	Fire Extinguisher are placed and checked properly					
33	Contractors hiring of local labor?					
34	Project site is fenced to prevent trespassing?					
35	Generator in the construction camp properly maintained					
36	Community consultation has been carried out for project activities/concerns?					



S. No.	Description	Week				Monthly Avg
		1	2	3	4	
37	Spilled oil or fuel and used clean up material being disposed of properly					
38	Waste segregation at source					
39	Construction & Maintenance of Walkways					
40	Dust Generation during construction well managed					
41	Number of routes kept to a minimum					
42	Proper sprinkling is done on regular basis? Record is available					
43	spills and leak thoroughly cleaned					
44	Construction machinery parked at designated areas?					
45	Traffic issues managed well, no complaints on record					
46	Construction activities carried out in daylight to reduce the impact of noise?					
47	Has water been monitored by approved laboratory					
Monthly Percentage Compliance						

Key: (Percentage)

above 95 = Excellent

above 80 = Good

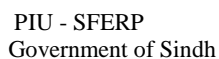
above 60 = Average

above 50 = Below Average

below 50 = Unsatisfactory

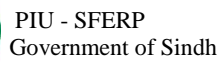


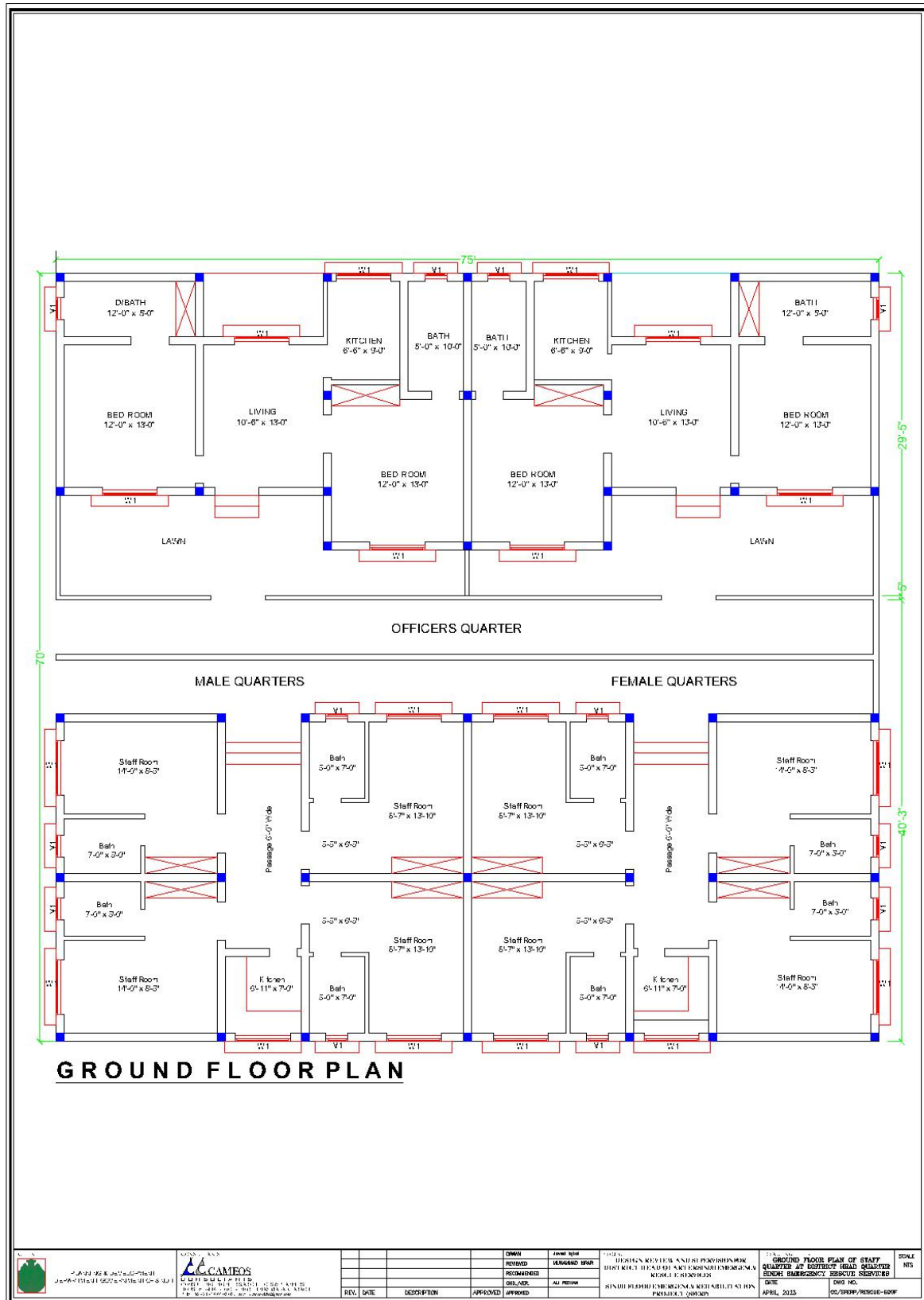
Annexure II: Typical Cross Sections of Sub-Projects



**Sindh Flood Emergency Rehabilitation Project (SFERP)
Expansion of Rescue 1122 Stations at Nine Districts of Sindh
Environmental & Social Management Plan (ESMP)**









Annexure III: Proposed Elevations for Emergency Rescue 1122 Stations



Proposed Elevations for Emergency Rescue 1122 Stations







Annexure-IV Contractor's ESMP



Annexure IV Contractor's ESMP

S. NO	DATE	PREPARED BY	CHECKED BY	APPROVED	REMARKS
1.		The Contractor	CSC	PIU	



ABBREVIATIONS / DEFINITIONS

CESMP	Contractor's Environmental & Social Management Plan
CFP	Chance Finding Procedure
CLO	Community Liaison Officer
E&P	Equipment & Plant
EIA	Environment Impact Assessment
EO	Environmental officer
EPA	Environmental Protection Agency
ESIA	Environment Social Impact Assessment
GRC	Grievance Redress Community
GRM	Grievance Redress Mechanism
HSE	Health, Safety & Environment
I/C	In-charge
IEE	Initial Environment Examination
MOU	Memorandum of Understanding
OHSO	Occupational Health Safety officer
PCIS	Physical and Cultural Infrastructure
PIC	Project Implementation Consultants
PM	Project Manager
PPE	Personal Protective Equipment
SDS	Safety Data Sheet
SM	Site Manager
WMP	Waste Management Plan



INTRODUCTION

This Contractor's Environmental & Social Management Plan (CESMP) is formulated for the Expansion of DHQ Rescue Stations to control and minimize the environmental and social impacts of all construction related activities associated with the project at construction sites as well as at camp & batching plant sites.

This section explains the purpose of CESMP, the procedures and responsibilities associated with its implementation. It contains the general overview of the CESMP and details of measures, which have been included in the CESMP. The mitigation measures of each specific condition have also been addressed.

CESMP minimizes negative impacts of activities on local communities and natural environment. It also helps in reducing the induced impacts of construction activities; prevent pollution and ensure that construction activities are planned to ensure sustainable development without posing any risk to the environment.

Requirements of CESMP

Expansion works are limited to the existing Govt. owned land provided for DHQ Rescue Stations hence, the proposed project will have some medium-minor adverse environmental impacts that are reversible in nature and site-specific with short duration. Therefore, this sub-project falls under the moderate risk category of ESMF of the SFERP. The ESMP has been prepared at PIU level accordingly to meet the moderate risk level requirements.

This CESMP has been prepared by (The Contractor) E&S Staff in line with guidelines provided in ESMP document.

Aims and Objectives of CESMP

For the main stakeholders, namely the Employer, Project Implementation Unit (PIU), Construction Supervision Consultant (CSC) and the Contractor, this CESMP will provide a guide on; (i) what mitigation measures need to be taken; and (ii) when and where they are needed to be invoked. Thus, it will help in mitigating adverse impacts associated with the project execution, which ultimately results in maximizing project benefits.

Development and implementation of CESMP is the requirement for execution of different activities (such as construction of camp, office building, parking sheds and allied works) to provide delivery mechanism for addressing associated socio-environmental impacts of the project.

Following is the synopsis of CESMP objectives.

- Identify the potential negative environmental impacts that can result from the construction activities and identify measures to control or avoid these impacts.
- Outline specific roles and responsibilities of project staff related to environmental management and mitigation measures.



- Take actions and conduct monitoring to show the compliance with Provincial, National, International requirements and ESS 2018.
- To ensure that the impacts on the environment are kept to a minimum by ensuring the mitigation measures described in the CESMP are implemented and continuously monitored.
- To plan, organize and implement all the measures required for health and safety of the workers.
- The CESMP will perform a risk assessment & hazard identification and will propose site-specific mitigation options that would appropriate and commensurate with the actual impact and implement all the measures required for health and safety of the workers.

CESMP Administration

Copies of this CESMP will be kept at the site office and will be distributed to all senior project officers i.e., Project Manager, Construction Managers, E&S Staff and site engineers etc. All senior officers will be required to understand and familiarize themselves with the contents of this document.

Institutional Arrangements for implementation of CESMP

PIU (Project Director and its E&S Staff)

Overall responsibility for environmental and social management and monitoring will rest with the Project Director (PD). An Environmental & Social Staff (E&S Staff) has been deployed within the PIU, with direct reporting line to the PD to ensure compliance to ESMP/CESMP.

The responsibilities of PIU- E&S Staff will be, but not limited to the following.

- Ensure effective compliance of CESMP in line with ESMP.
- Provide technical assistance to the project team, in matters related to environmental and social safeguards as a whole.
- Put in place reporting mechanism and monitoring regimes for project staff as well as contractors.
- Provide technical input to the various training programs proposed as a part of the CESMP.
- Ensuring that all regulatory clearances from the Sindh-EPA are obtained before starting civil works for the Project.
- Conduct on site spot checks; to check the compliance level, as well as for any outstanding issue not being covered by the CESMP - Regularly report to PD as well as The World Bank on progress related to CESMP Compliance.
- Approve the CESMP prepared by the Contractor, reviewed by CSC and monitor the implementation.



Table 19 PIU Staff for CESMP Monitoring

Sr. No	Name of Staff	Designation	Contact Number

Construction Supervision Consultants

- During implementation, the Construction Supervision Consultants will support PIU.
- The CSC is responsible for day-to-day supervision of the CESMP on behalf of the Employer during execution of the project civil works and will accordingly submit periodic reports to the PIU regarding the implementation status.

Table 20 CSC Staff for CESMP Supervision

Sr. No	Name of Staff	Designation	Contact Number

The Contractor

- Contractor will be responsible for the implementation of the CESMP as well as maintaining responsibility for environmental protection liabilities. Contractor will also be responsible for training his crew in all aspects and implementation of the CESMP.
- Contractor has prepared CESMP, which includes the Contractor's plan to implement environmental management and monitoring requirements. The CESMP has been prepared in line with ESMP. The plan shall be reviewed by CSC and approved by the PIU. The Contractor will also be responsible for site restoration.

The key positions to be filled within the Contractor's staff for implementation of the EMP include:

Table 21: Contractor Staff for CESMP Implementation

Sr. No	Name of Staff	Designation	Contact Number



PROJECT DESCRIPTION

The proposed sub-project falls in the District Dadu, Qamber Shahdadkot, Ghotki, Badin, Jacobabad, Jamshoro, Tharparkar, Thatta and Sujawal, Sindh. The proposed project is aimed for expansion of the Rescue Stations of the district (refer Table-4 for detailed description and Figures 1 for location reference), effectively manage affected communities during any emergent situation.

Table:1 Details of Sub-projects for Expansion of Emergency Rescue Stations (1122)

S. No.	Name of the Sub-Project	District	Sub-Project Location	Cost in PKR	Coordinates
1					
2					
3					
4					

Location of the Project

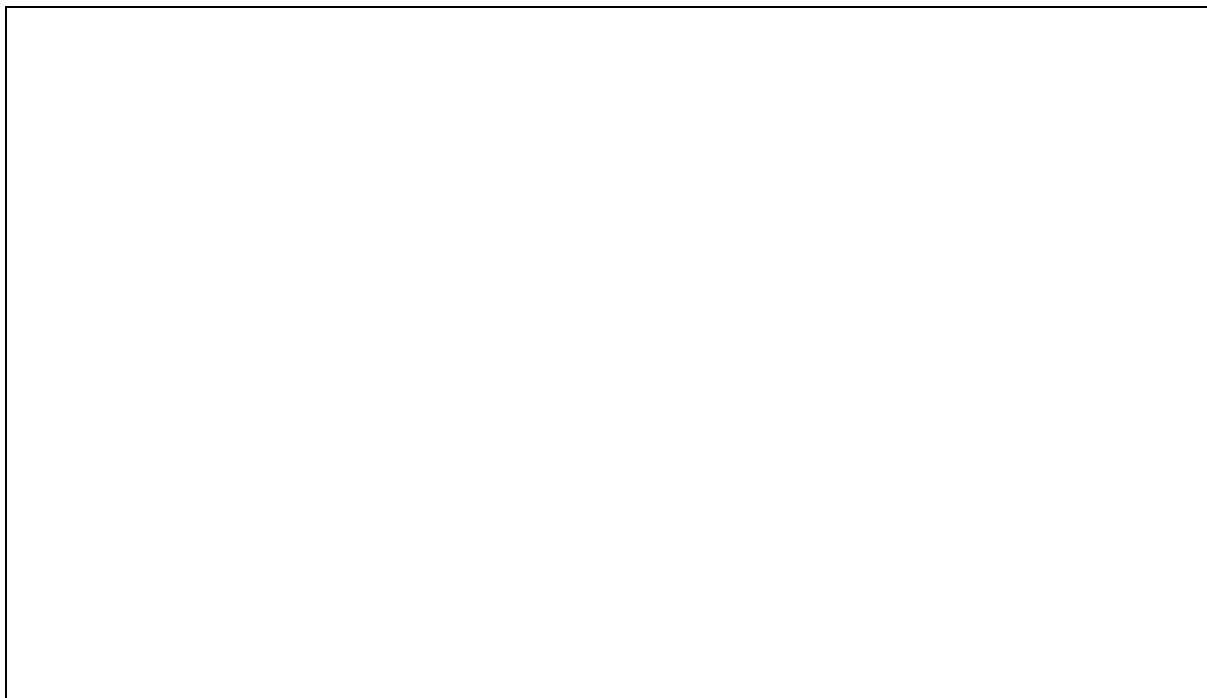


Figure 1: Location Map of Proposed DHQ Rescue Stations



Contract Description

Table 2.1 below, describes the brief of contract.

Table2.1: Brief Contract Description

Project Name	Sindh Flood Emergency Rehabilitation Project (SFERP) P&DD component
Sub-Project Name	Expansion of DHQ Rescue Stations (1122) in Different Districts of Sindh
Project Cost	
Project Duration	12 Months
Camp Location	Inside Sub-Project Sites
Client/Proponent	PIU - SFERP
The Engineer	Cameos Consultant Pvt. Ltd.
The Contractor	
Focal Person Name & Number	From PIU From CSC From Contractor



DESCRIPTION OF CONSTRUCTION AREA AND BOUNDARIES

Project Boundaries

The proposed construction area lies inside the DHQ Rescue Station sites. All construction activities will be undertaken within the premises of sub-project sites; therefore, it has been taken as Construction Boundaries. In addition, the construction boundaries for temporary works like Contractor's Camp have been shown in Figure - 2 below.



Figure 2 Camp Location on Google Imagery

Borrow Areas and Materials

For the construction activities, engineering specific soil for designated borrow areas will be used with the help of suppliers as no borrow areas are available in the vicinity of the sub-project sites. The borrow areas are designated by governments and allot to contractors. The size of the area and coordinates are given in Figure -3:

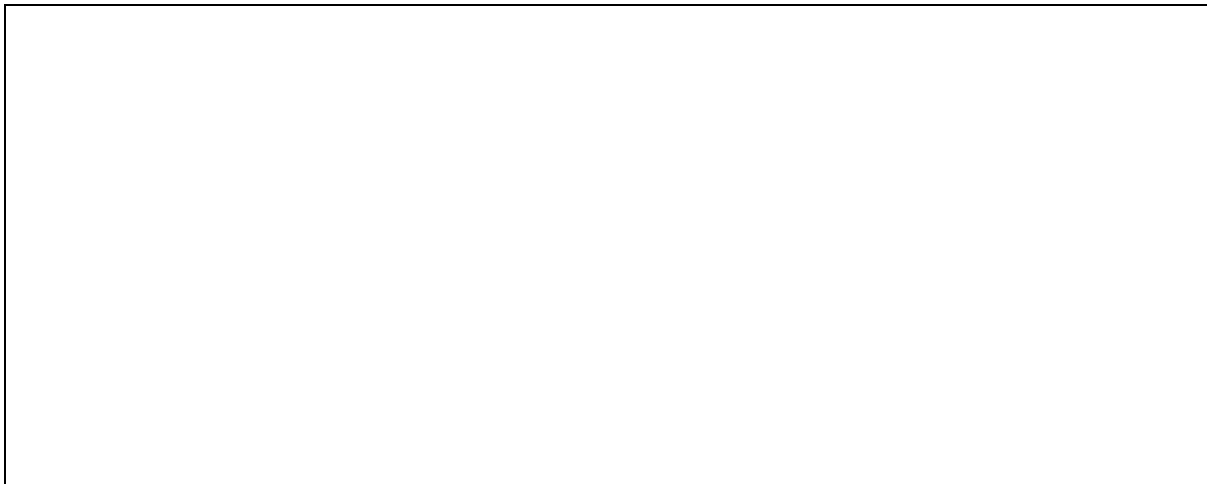


Figure 3: Borrow Area



RISK ASSESSMENT

Risk assessment and management techniques have been adopted so that potential hazards are identified and evaluated prior to execution of critical job or the job, which is going to be conducted first time. In the Risk Assessment Matrix, the environmental & social impacts and the control measures are explained with respect to the construction activities. Special attention needs to be paid during construction with adequate protection, to create friendly environment.

These potential risk activities can damage the community badly if not controlled. In order to prevent or mitigate any potential adverse impacts of the construction, it is necessary to implement the recommendations.

On the most common failures of environmental management is that the construction teams have no guidance as to what environmental management measures are required and so there is a high probability that environmental damage will occur. Once the damage has taken place it is often impossible to put right again, therefore the environmental management measures have failed right at the point when they are most needed. It also becomes difficult to retrofit the environmental management requirements after the construction activities have started. Proper planning is therefore essential.

Risk Assessment and Management

Risk assessment and management are used interchangeably to describe a sequence of analysis and management activities focused on creating a project-specific response to the inherent risks of developing a new capital facility. The objectives of Risk Assessment for the construction phase CESMP are described in Table –.3 below:

Table 3: Risk Assessment Objectives and Expected Outcomes

Objectives for Risk Assessment	Expected Outcomes
<ul style="list-style-type: none">Identify major design and construction risks	<ul style="list-style-type: none">Better understanding of environmental engineering, and construction issues faced by each project
<ul style="list-style-type: none">Identification, quantification, and likelihood of major scope, budget and schedule risks for all major project components	<ul style="list-style-type: none">List of major project risksReasonable estimate of risk costs and probable total project costs and durationLong list of risks mitigation strategiesPreliminary risk management plan focused on design and constructability risksPreliminary risk allocation planning
<ul style="list-style-type: none">Targeted assessment of construction problems, causes, and potential cost/schedule impactsIdentification and systematic evaluation of possible corrective actions	<ul style="list-style-type: none">Analysis of specific problemsCosts/Benefits of possible corrective actions that will allow project sponsors/owners to maintain (or recover) schedule and avoid cost overruns

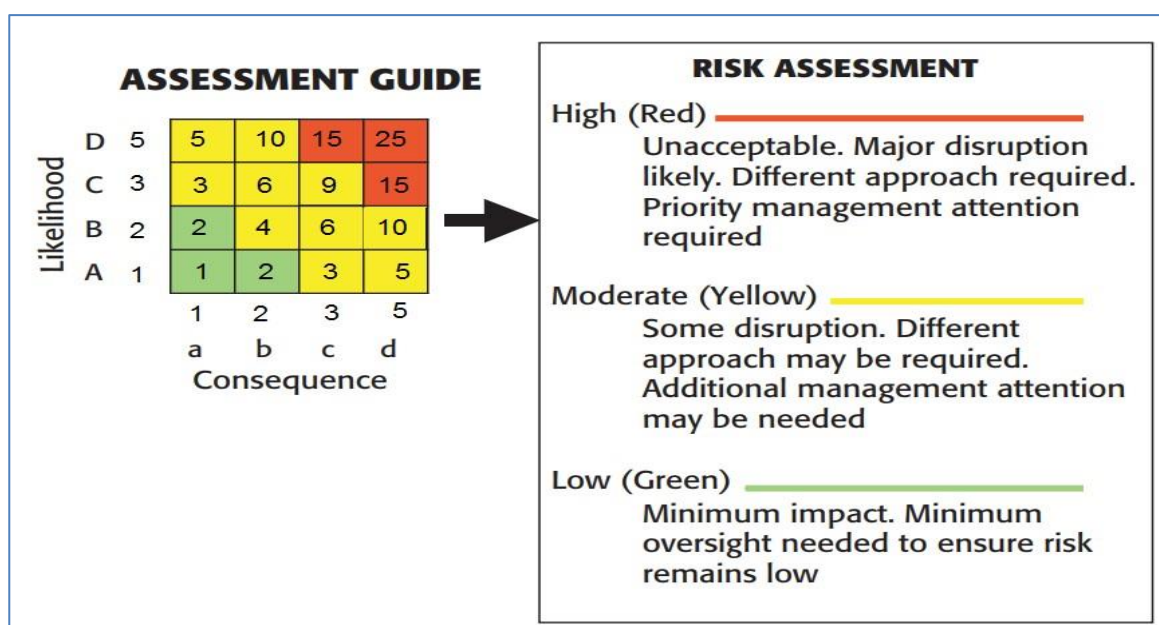
Risk Identification

The risk identification process identifies and categorizes risks that could affect the project. The objective of risk identification is the early and continuous identification of events that, if they occur, will have negative impacts on the project ability to achieve performance or capability outcome goals. The tools and techniques outlined in this chapter will support the risk identification process, but it will be the people involved in the exercises who are most critical to the success of the process.

Risk Assessment Process

Risk is assessed as the likelihood that the activity will have an effect on the environment as well as the consequence of the effect occurring, as described below.

$$\text{Risk} = \text{Likelihood} \times \text{Consequence}$$



Risk Assessment Model

Response Options

Risk identification, assessment, and analysis exercises form the basis for sound risk response options. A series of risk response actions to avoid or mitigate the identified risks is considered as follows. The likelihood scale and consequence scale are described in Table - 4 and 8 respectively.

Table 4: Likelihood Scale

S/No	Likelihood	Definition	Score
A	Certain	Will certainly occur during the activity at a frequency greater than every week if preventative measures are not applied	5
B	Likely	Will occur more than once or twice during the activity but less than weekly if preventative measures are not applied	3



S/No	Likelihood	Definition	Score
C	Unlikely	May occur once or twice during the activity if preventative measures are not applied	2
D	Rare	Unlikely to occur during the project.	1

Table 5: Consequence Scale

S/No	Consequence	Definition	Score
A	Catastrophic	Unprecedented damage or impacts	5
B	Major	Major adverse damage	3
C	Moderate	Limited adverse impacts	2
D	Minor	No or minimal adverse environmental or social impacts	1

- Avoided (by taking appropriate steps).
- Reduced (by an alternative approach).
- Handled by a combination of the above.

All the assessed risks are handled by providing mitigation, management or both. Special consideration and specific management sub plans are formulated for moderate and major risks. The consideration of issues in risk assessment matrix is carried out with respect to construction activities. The risk assessment process is undertaken with a risk assessment matrix and is provided in Table - 6 below (the table will be customized as per the sites conditions). The list of construction activities involved in the project is given in Table - 8.

Table 6: Risk Assessment Matrix

Construction Activity	Issues to Consider	Likelihood (Score)	Consequences (Score)	Risk: Likelihood x Consequences	Mitigation Measures
Site Surveying, Clearing and Grubbing	Damage to vegetation beyond project footprint				•
	Loss of topsoil and erosion of exposed area				•
	Deterioration of air quality due to machinery and equipment operation.				•
	Noise				•
Establishment of Camp, Batching plant etc.	Loss of vegetation				•
	Water pollution				•
	Noise				•
	Traffic congestion and access for road side residents				•
	Soil contamination due to chemical spill.				•
	Land degradation due to Solid Waste Disposal of campsite.				•



Construction Activity	Issues to Consider	Likelihood (Score)	Consequences (Score)	Risk: Likelihood x Consequences	Mitigation Measures
	Deterioration of air quality due to machinery and equipment operations.				•
	Health and Safety issues inside the Camp				•
Earth Work	Noise and vibration				•
	Soil erosion				•
	Surface water contamination				•
	Dust generation				•
	Deterioration of air quality due to machinery and equipment's operation.				•
	Worker safety				•
	Traffic congestion				•
	Community safety				•
Construction of Structure	Noise and vibration				•
	Deterioration of air quality				•
	Worker safety				•
	Traffic congestion				•
	Dust generation				•
	Deterioration of air quality.				•
	Traffic congestion				•
	Community safety				•
	Worker safety				•
Concrete Activity	Noise				•
	Air quality deterioration				•
	Worker safety				•
	Community safety				•
	Traffic congestion				•
Removal of Temporary Works from Site	Dust generation				•
	Water contamination				•
	Soil erosion				•
	Community safety				•
	Worker safety				•



The specific mitigation measures for the risks assessed in Table - 6 above, have been discussed in details in Table 7.

Table - 7 (on A-3 size pages) below will be made part and parcel of the construction drawings and shall be available with the Engineer and Contractor at Site. In circumstances, where any unforeseen risk







emerges during the currency of the contract, same shall be reflected with the proposed mitigation measures by updating the foregoing and shall be issued with the prior approval of the Employer.

Table 7: List of Issues and Mitigation Measures

Legends	Issues	Specific Mitigation Measures	Legends	Issues	Specific Mitigation Measures
	Noise Pollution	<ul style="list-style-type: none"> • Avoid Night operation • Inform community for unavoidable night work. • Use vehicles equipped with exhaust muffler (Silencers) • Inform community regarding noise generation. • Provision of PPE and ensure their usage • Acoustic guards and doors kept in place and usage of serviced equipment • Switch off vehicle's engines, while queuing • Consult public with nearby schools and hospitals. • Installation of temporary acoustic noise barriers 		Worker Health and Safety	<ul style="list-style-type: none"> • Provision of safety vests, hard hats and protective footwear for workers. • Usage of protective mask by machine operators. • All time use of high-visibility jackets by project staff at site. • Proper lighting arrangement at site particularly in case of night work. • Installation of protecting fencing around the camp. • Provision of fire extinguishers, sand buckets etc. near fueling facility(y)s. • Isolated fuel storage area and prohibition of unauthorized entry. • Toolbox talk at the start of activities. • Firefighting training to the camp staff. • Provision of First Aid facilities at camp and Site • Provision of ambulance and dispensary at Camp. • Provision of hygienic food and drinking water. • Follow safety precautions while transporting, handling and storage of hazardous substance. • Insulation of electrical wires, switchboards and electric equipment at camp and at site where required. • Handling of used oil and chemical waste in



Legends	Issues	Specific Mitigation Measures	Legends	Issues	Specific Mitigation Measures
					<p>accordance with MSDS.</p> <ul style="list-style-type: none"> Provision of spill kits and spill catching trays to the mechanical workshop crew
	Air Pollution	<ul style="list-style-type: none"> Use of serviced vehicles as per manufacturer's requirements. Regular sprinkling of water on compacted access road. Removal of excess material upon job completion. Observance of speed limit (30km/hr.) on kutchra track/haulage routes/local roads. Ensured usage of PPE i.e., face mask etc. 		Community Safety	<ul style="list-style-type: none"> Isolation of work area through installation of demarcation tap. Prevention of unauthorized entry. Installation of temporary hard barriers and warning sign boards etc. at work site entry. No machinery will be left unattended, particularly in running condition. Public consultation with the nearby community. Provision of night time light at work area particularly at excavated sites.
	Water Pollution	<ul style="list-style-type: none"> Avoid pollution of surface water. Disposal of unsuitable materials to approved disposal sites. Avoid disposal of materials in flood drains. Locating storage area away from watercourses drains and transport routes. Fuel storage areas having masonry and concrete secondary containment with 120% capacity of fuel stored. Daily check of fuel tanks and immediate plugging of leaks Using only designated storage areas. Proper drainages for effluent discharge into the septic tanks. 		Soil Erosion and Contamination	<ul style="list-style-type: none"> Ensure canal stability of vulnerable cut and fill sections. No soil will be left unconsolidated after completion of work Placement of chemicals, engine used oil etc. on the brick paved surface. Good housekeeping practices at camp and workshop areas. Handling of used oil and chemical waste in accordance with MSDS. Provision of spill kits and spill catching trays to the mechanical workshop crew





Legends	Issues	Specific Mitigation Measures	Legends	Issues	Specific Mitigation Measures
		<ul style="list-style-type: none"> Septic tanks are well lined. Provision of soakage pit for final disposal. Provision of drain for drainage of storm water from camp Runoff from refueling and wash down areas collected for treatment. 			
	Traffic Collision	<ul style="list-style-type: none"> Avoid traffic hampering at local/major roads. Depute Flagman Installation of proper warning signboards. Near diversion point, public consultation for road diversion Securing proper NOC for diversion (if required) Provision of compacted diversion road 		Solid Waste Management	<ul style="list-style-type: none"> Provision of garbage bins for domestic waste collection within camp. Avoidance of camp waste disposal near residential areas or in agriculture fields. Lining of disposal area base in case of permeable strata. Upon usage, rehabilitation of disposal area to the baseline conditions. Locate disposal area at least 100 meters away from the settlements. Promotion of good housekeeping inside camp. Ensure construction waste disposal at approved site

Table 8: List of Major Construction Activities

S/No	Construction Activities Involved	Proposed Manpower	Equipment Needed	Proposed Schedule of activities
1	Site Surveying & clearance			
2	Concrete Work			
3	Mechanical Work			
4	Drainage system			
5	Plumbing Work			
6	Electrical Work			



S/No	Construction Activities Involved	Proposed Manpower	Equipment Needed	Proposed Schedule of activities
7	Finishing			
8	Removal of temporary works from the site			

Sensitive Receptors Assessment

Sensitive Receptor Analysis

Sensitive receptors are generally considered to include those, where noise/dust exposure could result in health-related risks to individuals, as well as places where individuals expect silence to be an essential element of the location. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise and potential sleep disruptions. Additional areas, such as parks, historic sites, cemeteries, and recreation areas, are also considered sensitive to exterior noise. Schools, mosques and other places of worship, hotels, libraries, nursing homes, and other places where low interior noise levels are essential are also considered as sensitive receptors. The majority of sensitive receptors in the study area are residential dwellings, etc.

In order to identify potentially sensitive community structures, a survey of the Project impact area was undertaken. The indirect impacts on Socially sensitive receptors have been evaluated in a radius of 200 meters buffer zone from proposed sub-project sites. These were identified through direct observation and by interviewing those living within the sub-project area. Most of the structures were located near towns and settlements in rural areas. Details of Socially Sensitive Receptors around proposed sub-project areas have been enumerated in tabular form in Table – 9 same have been depicted in Figure – 4.

Table 9: Inventory for Sensitive receptor around subproject area.

Sr. No	Socially sensitive receptors	Village/Goth Name	District	Coordinates	Distance	Direction from DHQ Rescue Station

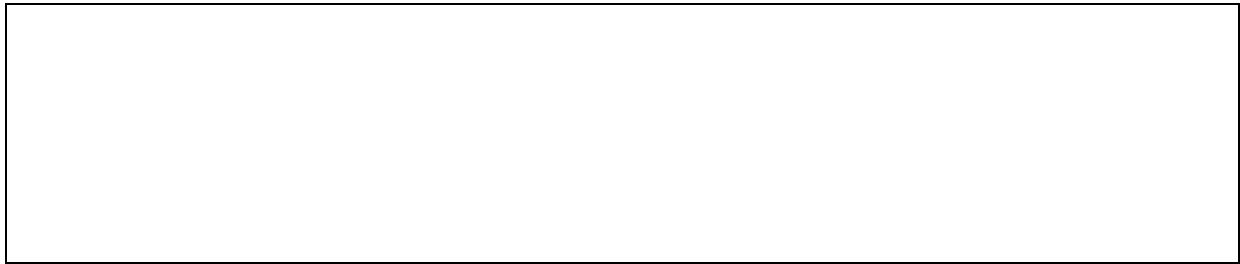


Figure 4: Photo log of Sensitive Receptors

Impact on Sensitive Receptors Short-Term Construction Related Activities

The proposed sub-project would result in intermittent construction activities near the sensitive receptors. These construction activities could potentially expose sensitive receptors to noise levels in excess of the applicable noise standards or result in a noticeable increase in ambient noise levels, or both. Impacts of construction equipment, noise, dust and construction-related traffic on exposure of sensitive receptors to temporary and short-term construction related activities are discussed below.

Impact of Construction Equipment

Construction noise levels in the study area would fluctuate, depending on the particular types of equipment, the number of equipment used and the time duration of equipment use. The effects of construction noise depend largely on the type of construction activities. Construction generally occurs in several discrete stages, each phase requiring a specific balance of equipment with varying equipment type, quantity, and intensity.

Construction equipment includes bulldozers; loaders; excavation equipment, such as graders and scrapers; and compaction equipment. Erection of large structural elements and mechanical system could require the use of a crane for placement and assembly tasks, which may also generate high noise levels.

To assess noise levels associated with the various equipment types and operations, construction equipment can be considered to operate in two modes: mobile and stationary. Mobile equipment, such as loaders, graders, and dozers, moves around a construction site, performing tasks in a recurring manner. Stationary equipment is used to perform continuous or periodic operations in each location for an extended period, such as a batching plant, pile driver etc. Thus, determining the effective acoustical center of operations for mobile equipment during the construction process or the location of stationary sources during specific activities is necessary when conducting a noise analysis. Operation of heavy construction equipment typically is characterized by short periods of full-power operation, then by extended periods of operation at lower power, idling, or powered-off conditions.

Mitigation- Measures for Noise-Reducing

Contractor will implement the following measures during construction activities when noise-sensitive receptors are located nearby.

- It will be ensured that the regular inspection, maintenance, lubrication of construction vehicles and equipment will be carried out.
- Equipment will be operated, stored, and/or maintained as far away as practical from sensitive noise receptors.



- Construction equipment will be properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (e.g., mufflers, silencers, wraps). All impact tools will be shrouded or shielded, and all intake and exhaust ports on power equipment will be muffled or shielded.
- Substitution of high noise generating equipment with low noise generating equipment is necessary in the vicinity of sensitive receptor.
- Construction equipment operating in the vicinity of sensitive noise receptors will not be left idling for extended periods between construction activities.
- To the greatest extent feasible, construction activities will limit the use of "alarms" (e.g., backup indicators) on construction equipment in the vicinity of sensitive noise receptors.
- Construction equipment will be inspected before use at a project site located near sensitive noise receptors.
- To the extent feasible, construction outside of normal construction hours will be minimized or avoided completely when located in the vicinity of sensitive noise receptors.
- Where stationary construction equipment would result in exceedance of noise standards at a nearby sensitive receptor, temporary acoustic noise barriers or fence will be installed, where feasible, between the stationary construction operation and the sensitive receptor. Noise barriers will be 2.5m high corrugated sheets or wooden boards/sheets to avoid dispersion of noise into nearby community.
- As far as possible, nighttime traffic would be avoided. Local community will be well informed beforehand in case of night traffic is unavoidable.
- Vehicles equipped with exhaust muffler (Silencers) will be used for construction activities.

Impact of Ground borne Dust

Heavy-duty truck travel on haul routes for material transport and the use of heavy-duty equipment would cause ground borne dust during construction.

Mitigation Measures for Dust

Following are the mitigation measures for dust prevention.

- Implement a dust prevention strategy; reduction in speed limits 20km/hr. on unpaved access roads, regular water sprinkling, covered transportation of materials, access roads to be adequately compacted and regularly sprinkled to prevent dust generation, construction traffic limited to work area and established tracks.
- Take dust suppression measures, such as promptly watering exposed areas when visible dust is observed.

Impact of Operational Noise

- Some activities could result in long-term noise from operation of stationary sources (e.g., water pumps). Depending on the location of management actions and the equipment needed for long-term operation, a new source of noise could be introduced near sensitive receptors.

Mitigation-to Reduce Operational Noise

The project proponent will implement the following measures during operation.

- Stationary noise sources will be located as far away from sensitive receptors as feasible.



- Design techniques to reduce noise (e.g., structure encasing, installation below grade) will be implemented for stationary noise sources (e.g., water pumps) in the vicinity of sensitive receptors. If noise modeling indicates that noise reduction techniques are sufficient to allow the stationary noise source to be located closer to sensitive noise receptors and still not violate applicable noise standards, then the facility may be located closer to the receptor.

Impact of Air Contamination and Smoke

- There may be risk of air pollution and smoke from construction equipment near sensitive receptors.

Mitigation Measures for Smoke

- To ensure there is no health risk or loss of amenity due to emission of exhaust gases to the environment, following measures are required.
- Ensure that all vehicles and machinery are fitted with appropriate emission control equipment, maintained frequently and serviced to the manufacturers' specifications.
- Smoke from internal combustion engines should not be visible for more than ten seconds.

Impact of Traffic

- Bad traffic management and traffic may increase chance of traffic accidents near sensitive receptors.

Mitigation for Construction Traffic

- A proper traffic management plan will be in place during construction activities to overcome the problem of traffic jams causing inconvenience near sensitive receptors. In the project corridor, the impacts are temporary and minor negative in nature and will be mitigated by implementing proper alternative traffic management plan. The measures include the following:
- Traffic management plan will be prepared and get approval from the Engineer in consultation with community and local stakeholders.
- proper traffic management with marking will be done on the road crossings near proposed interchanges
- Speed limit will be reduced near sensitive receptors and speed limit boards will be installed near all sensitive receptors including, mosques etc.
- Alternative routes will be clearly defined.



CONSTRUCTION CAMP MANAGEMENT PLAN

The project Manager will ensure that all construction camps and welfare facilities shall be designed, constructed and maintained in accordance with the company set procedures. The following shall be ensured:

- General Arrangements for Camp Construction
- Construction camp hygiene
- Kitchen Areas/Food Storage & Quality
- Personal Hygiene
- Toilet Sanitary Facility and Laundry
- Temporary Electrical Facility, Internet accessibility and Installations
- Firefighting/Emergency Response System
- Insecticides/Mosquito Control
- Sewage Handling
- Evacuation Routes and Emergency Exits
- Medical Facilities
- Assembly points.
- Site office.
- Parking area

Drinking Water Supply

Access to a free, safe, readily available potable water source shall be provided at all times. Drinking water quality shall meet WHO standards & Sindh Environmental Quality Standards. Prior to use, the contractor shall arrange for tests on samples of each drinking water source from a certified laboratory approved by the Supervision consultant on a monthly basis. The results of these tests shall be submitted to the Supervision Consultant. Each supply of drinking water shall be conspicuously marked by an appropriate sign. All water storage tanks shall be covered to avoid the risk of contamination.

Room / Dormitory Facilities

Floors to rooms/dormitories shall be constructed, float finished concrete, or other similar solid, washable material. Rooms/dormitories shall be maintained to a livable standard and cleaned daily.

A minimum spacing of 1m (3.3ft) shall be provided between beds /cots and one bed/cots should be provided per resident. The use of bunk beds shall be avoided. Each worker shall be provided with an appropriate mattress, pillow, cover, clean bedding and mosquito net. Bed linen shall be washed regularly and treated with repellents as necessary. Cupboards for residents shall be provided for personal storage, with separate storage being provided for any clothing or Personal Protective Equipment required for staff to carry out the work assigned to them.



Sanitary Facilities

The contractor shall provide and maintain hygienic, well-lit and ventilated sanitary facilities. Sanitary facilities shall be provided within separate buildings in the vicinity of rooms/dormitories. Separate latrines and washing facilities shall be provided for males and females (if females working on site) with total isolation by wall or by location. A minimum of one hand wash facility, one latrine and one shower shall be provided for every ten persons/10 Rule will be followed properly.

Latrines (Toilets) shall be clearly distinguished in a language understood by those using them to avoid miscommunication.

Washing facilities, including showers, shall be provided at readily available places within the immediate vicinity of every latrine. Washing facilities shall include a supply of clean running water, soap and clean towel.

All sanitary facilities shall be built from easily cleanable material and shall be cleaned daily. Sanitary facilities shall be built so as to provide adequate privacy. All doors shall be lockable.

Canteen, Cooking and Laundry Facilities

Canteen, cooking and laundry facilities shall be built from easily cleanable materials and kept in a clean and sanitary condition. All such facilities shall be cleaned daily.

Adequate facilities for washing and drying clothes shall be provided.

Kitchens and other areas used for food preparation shall promote good food hygiene and protect against contamination. Kitchens shall include raised, smooth, easily cleanable, non-toxic and non-corrosive surfaces for food preparation. Wood burning will not be taken during cooking. Cooking and other activities will be done by gas provision through gas cylinder

Adequate facilities for cleaning, disinfecting and storage of kitchen utensils shall be provided throughout the Contract period. Kitchens shall provide facilities to promote good personal hygiene, such as adequate hand wash and hand drying facilities. Food waste and other refuse shall be adequately deposited in sealed containers and regularly removed from the kitchen.

Kitchens shall be sheltered and separated from living quarters.

The contractor shall provide sufficient fuel for cooking inside camps, to prevent the collection of firewood.



Standards for Nutrition and Food Safety

The WHO safer food process shall be implemented. Food shall be made available to workers and shall contain an appropriate level of nutritional value and consider religious/cultural backgrounds.

Leisure, Social and Telecommunications Facilities

Basic collective social/rest/recreational spaces shall be provided. Workers shall be provided with dedicated spaces for religious observance if so warranted.

Parking Area

Sufficient parking area for material/equipment vehicles, and light vehicles shall be ensured

Types of Safety & Security Events

The variety of safety and security events, impacts, locations, levels of severity, and combinations with other elements or other emergencies makes it impossible to define and plan for every scenario however, general types of events can be identified that may be faced by the Contractors, whether natural (e.g., flooding), accidental (e.g., fall), intentional (e.g., theft), or technological (e.g., communications failure). Contractor's Plan must adequately address reasonable possibilities. Listed below are safety and security events and emergencies for which Contractor will be prepared to respond.

- Natural events such as extreme temperatures
- Structural collapse or imminent collapse of structures or buildings
- Fire or smoke at or near works areas
- Accidental or intentional release of hazardous and non-hazardous material
- Loss of power, lighting or communications at job sites
- Collision involving private vehicles and/or construction vehicles/equipment
- Person struck by vehicle or construction equipment
- Unauthorized access onto the worksite
- Theft of material or equipment from job sites
- Vandalism or criminal acts
- Response to injuries, fatalities, medical emergencies or equipment/facility damage
- Pandemic of communicable or infectious disease
- Site evacuation, including persons with disabilities; and other scenarios deemed reasonable and appropriate

Signage & Access Control

- Proper signage will be placed on the exterior of each worksite so that persons approaching the site from any area, sidewalk or known or anticipated access point are sufficiently informed that they are approaching a controlled area.
- Signage must identify the site as a worksite, with restricted public entry, and warn of the potential dangers. A phone number must be provided for notification of hazardous or emergency conditions or to report suspicious or inappropriate activity.
- Signage will be placed within the site prohibiting unauthorized crewmembers from operating machinery or equipment for which they are not qualified or trained, informing site crews and visitors of PPEs requirements and any other safety or security requirements.



- Appropriate access controls will be implemented at all worksites. Access control will include barriers, fencing and gates or other methods to prevent unauthorized individuals and vehicles from entering the worksite.
- All worksites on and along public roadways will provide physical separation through traffic control and pedestrian control, using barrels, barriers, tape, signage, or other means as appropriate. Work performed in close proximity to traffic must comply with all SOPs set by the Contractor. Work zones must be adequately protected from live traffic.
- Contractor will keep entry/exit records of all construction work zone visitors. Each visitor will be briefed and trained as appropriate about concerned hazards and dangers present at the work site before they are allowed to enter. All authorized work site visitors will be required to wear PPEs.

Drugs and Alcohol Usage

No person will be working on or otherwise present at any of the Contractor's construction site while under the influence of alcohol or any prescription drug that was not specifically prescribed to that person and taken in the directed amounts.

No person will operate any vehicle or machinery, or work in hazardous areas while under any narcotic or drug that impairs judgment or cause dizziness or drowsiness unless there is written approval by the attending physician. Particular concern will be applied if this individual performs a safety sensitive role and or operates equipment or machinery at the job site.

Any person found in such condition must be immediately removed by the site. Contractor will enforce all alcohol and drug-free workplace policies and requirements.

The use of illegal drugs and alcohol is strictly prohibited on Contractor's construction project sites. The contractor and all subcontractors are required to have a Program that addresses the prohibited use of alcohol and drugs, including pre-placement, periodic, for cause, and post-accident/incident testing.

Security Risk

In view of the present security situation, the Contractor will have to make necessary security measures to avoid the risk of security. Due to the uncertainty of the attacker, the measures for security will be with the orientation of precaution. The following precaution measures will be taken strictly.

- Camp will be fenced with temporary arrangement and at the entry of camp; security guards will be deployed for the security checking. All persons who enter or exit from the camp will be asked and searched. All vehicles coming inside will be thoroughly searched to avoid taking any hazardous materials. The person, who is not cooperative with the security staff for checking, will be rejected to enter or exit from the gate.
- Coordination with local police & authorities will be done to acquire more support and facilities from these authorities.

Hazards and Vulnerability Identification & Management

A central element of a CESMP is the management of construction site hazards and vulnerabilities. A key tool to support this is a safety and security risk assessment, which identifies hazards and vulnerabilities for the physical construction aspects of the project and then develops methods to mitigate



or control such risks to acceptable levels or to eliminate them. Contractor will perform the hazard and vulnerability assessment prior to performing work on the project. The outcome from the risk assessment and the plan for appropriate mitigations must be provided to the Site Manager for approval prior to the start of field work on the project.



POLLUTION PREVENTION AND CONTROL PLAN

The Contractor shall ensure that its construction activities do not result in the contamination of any surface water, groundwater or agricultural soil by adopting methods that will prevent entrance or accidental spillage, solid matter, contaminants, debris, and other objectionable pollutants and wasters into Indus River flowing streams, flowing or dry watercourses, and underground sources.

Air Pollution Control

The Contractor shall ensure that mitigation measures as defined in the ESMP are in place to minimize the impact on health and the environment. The Contractor shall arrange Emission tests of vehicles, and generators through a third party approved by Environment Protection Agency in order to ensure compliance with national guidelines on ambient air quality.

Water is to be sprinkled during the construction phase in all mixing areas where dry materials are handled and/or crushed. Temporary access roads to aggregate sites must be included in the dust suppression program.

- The Contractor shall routinely inspect generators by using a checklist and emission tests through a third party shall be done quarterly in order to ensure that emissions do not exceed SEQS.
- Materials are to be transported safely in vehicles going to and from the construction sites to reduce spills. Dust suppression measures with the spraying of water should be taken for all roads used for transport.
- Comply with the national guidelines on ambient air quality standards and shall Implement ECP (Environmental Code of Practices) on Air quality management as defined in the ESMP.
- Vehicular traffic through communities will be avoided as far as possible. Vehicle speeds will be kept low if they should pass through communities.
- Dust Control Systems are an important factor in meeting environmental, health and safety requirements. Water Bowser shall be used to suppress the dust within the construction area.

Noise Pollution and Control

Administration control will be applied to control noise pollution shall be:

- Warning Signs shall be affixed in noisy areas.
- Training shall be conducted to create awareness in workers about noise protection.
- PPE shall be provided for noise protection.
- Noise survey shall be conducted on regular basis to monitor the level of noise. Noise monitoring through third party certified laboratory will be carried out on quarterly basis.
- Moreover, engineering controls will also be taken to control noise and separate rooms shall be constructed for generators and other noisy equipment.



- Ear plug/ear muff shall be used if the noise level exceeds from SEQs for day and night times.
- Safety signs and other mandatory hearing protection signs shall be placed in high-noise areas.
- The Contractor shall maintain construction machinery for the purpose of minimizing construction noise on the work site.
- The Contractor shall monitor noise and vibration results and adjust construction practices if required.
- In areas where noise may interfere with communication, suitable alternative arrangements shall be in place.
- All equipment in orders to keep it in good working order shall be maintained following manufacturers' maintenance procedures.
- Unnecessary use of alarms, horns and sirens shall be avoided
- Best available work practices shall be employed on-site to minimize occupational noise levels

Water Pollution

The environmental Officer shall comply with applicable regulations concerning the control and abatement of water pollution as follows

- Construction activities shall be performed by methods that shall prevent entrance or accidental spillage of solid matter, contaminants, debris and other objectionable pollutants and wastes into flowing streams, flowing or dry watercourses and underground water sources.
- Pumps shall be provided to transfer fuel from fuel drums/tanks, and manual fuel pouring shall be prohibited.
- The Contractor shall ensure that caps on drums and tanks are completely sealed after filling.
- The Contractor shall ensure that drums and tanks are in good condition.
- Regular maintenance of vehicles and water browsers/ Water Pumps shall be carried out.
- Minimal generation of sediment, oil and grease, excess nutrients, organic matter, litter, debris and any form of waste (particularly petroleum and chemical wastes), It shall be ensured that these substances must not enter into waterways All waterborne plants shall be inspected daily prior to operation.
- All fuel tanks/drums shall be shifted and not stored on barges / waterborne vessels.
- The Contractor shall provide bunding around refueling points on any waterborne vessels to contain any spilled fuel.



- The Contractor shall ensure spill kits and absorbent material is provided at refueling points on all waterborne plant and ensures that staff involved in refueling operations is trained.
- Wastewater and Drinking water testing will be carried out on quarterly basis by engaging SEPA certified laboratory
- Proper storage and disposal of waste shall be ensured.
- Handling of chemical waste through proper channels/third parties.

Spill Prevention and Contingency Plan

Spill Prevention and contingency plan describes planning, prevention and control measures to minimize impacts resulting from spills of fuels, petroleum products, or other regulated substances as a result of construction.

Plant and Vehicle Maintenance

- Vehicles shall be inspected by Equipment and Plant (E&P) department on a daily basis to check for leakages
- Vehicles found with the leakage shall not be allowed to move on site

Treatment of Spills

- Spill kit including absorbents, neutralizers, PPE's and tools for cleanup, oil spill boom, shovels; plastic bags shall be available to deal with spills.
- Shovels, plastic bags, and absorbent material shall be present near fuel and oil storage or handling areas to attend the spills and leaks
- All oil spills major or minor on the ground or in water shall be managed by the HSE team.
- Contaminated material resulting from spills shall be collected and declared hazardous waste.
- Contaminated material (hazard waste) shall be disposed of through proper procedure.

Run-off from Camps and Worksites

The campsite shall be provided with all necessary drainage of storm water from the camp, construction area and community settlement.

Ground Pollution

Hazardous substances shall not be discharged onto the ground

- All possible efforts will be taken to maintain the ground in a better condition & to avoid ground pollution
- Most Importantly the contractor will import monthly effects monitoring from a third party as suggested by CSC/ Client.



- The following parameters will be taken into account;
- Gaseous Emissions;
- Physical, Chemical and Biological Parameters of water being used at site;
- Noise Levels;
- Ambient air;
- Disease/Health monitoring;



EMERGENCY PREPAREDNESS & RESPONSE PLAN

Purpose

A good Emergency Preparedness & Response Plan (EPRP) will help people take quick and effective action in the event of an emergency. It will help in easing the severity of the situation and limit the consequences.

EPRP provides procedures and structures for response to emergencies. EPRP provides strategies to combat specific situations and assign responsibilities for implementation.

The emergencies include but are not limited to;

- Fires
- Rains/Floods
- Explosions
- Civil disturbance
- Poisoning
- Structural Failures
- Workplace violence resulting in bodily
- Harm and Tolerance
- Chemical spill

Emergency Drills

All site personnel/members of the public (if applicable) will follow this plan that shall be tested through exercises/drills quarterly. These drills shall be conducted on the following scenarios;

- Fire Fighting
- Medical Evacuation
- Flooding
- Thunderstorm
- Spills of hazardous material
- Work at height

Fire Fighting

The operation on Fire Extinguishers and fire buckets shall be taken according to the “**Firefighting Procedure**” laid for which training shall be given at regular intervals.

Maintenance and inspections of firefighting appliances will be ensured through the checklist and regular monitoring.

Emergency Drills



Emergency response drills shall be conducted in the camp and the work site, and the observations and debrief notes shall be recorded. OHSO shall analyze the findings and identify any remedial actions required.

The emergency procedure shall be updated from time to time to reflect observations made. Training shall be conducted on a regular basis for emergency response teams.

The location of emergency facilities e.g., firefighting appliances shall be identified on plans displayed at conspicuous locations.

Emergency Evacuation

Activate the emergency disaster siren to evacuate the area safely and ensure that unnecessary personnel leave the site by a safe route. The PM shall assign responsible personnel to advise security to open the facility's main gate for emergency vehicles.

For emergency response activities managed by The Contractor, key roles and responsibilities are detailed below:

Roles and Responsibilities

Key roles and responsibilities are detailed below:

Project Manager (Contractor's Representative)

The Contractor's Project Manager shall be responsible for the implementation of all the details of Environment and Social Management activities given in this CESMP.

- Providing leadership and direction in the event of an emergency.
- Ensuring that emergency response planning, preparedness and execution are consistent with the site requirements
- Ensuring that appropriate field response teams are defined and prepared for the various emergency response scenarios identified in this plan.
- Notification to the Client of any emergency incident.
- Providing leadership and direction in the event of an emergency.
- Ensuring that emergency response planning, preparedness and execution are consistent with the site requirements
- Ensuring that appropriate field response teams are defined and prepared for the various emergency response scenarios identified in this plan.
- Notification to the Client of any emergency incident.

Following initial notification, the liaison will be made with the Client during the execution of any emergency response.

Environmental Officer (EO)

The environmental officer shall be responsible to aid with the practical implementation of CESMP. Specific responsibilities of the Environmental Coordinator officer include;



- Ensure compliance with national legislation related to the environment and with the World Bank's environmental safeguard policies
- Oversees and ensures the implementation of the environmental components of CESMP and parallel management plans
- Reports on non-compliances and promotes corrective actions.
- Conduct regular inspections to check that impact mitigation measures are being implemented properly
- When required, arrange environmental training for the relevant.
- Personnel, The Contractor staff, contractors and service provider
- Reviews environment performance and reports to the in-charge HSE.
- To ensure that workers' accommodation meets the basic environmental requirements
- Maintain Trees Inventory
- Participate in Monthly Effects Monitoring by the third party

Occupational Health and Safety Officer (OHSO)

OHSO will be responsible for site management for the on-site implementation of the CESMP plan. OHSO will specifically aid with the following;

- To ensure that worker camps & latrines shall comply with The Sindh Occupational Safety and Health Act, 2017, Labor Camp Rules, 1960 & Sindh Factories Act 2015.
- Prevention of injury to personnel and damage to equipment
- Provision and ensure the use of protective clothing and equipment
- Assessments of potential hazards on jobs before work start
- To ensure that workers' accommodation meets applicable requirements
- Carrying out hazard identification and risk assessment, in association with the Construction Manager, Civil Supervisor to decide on the best safe methods of work in operation.
- Determining the cause of any accident or dangerous occurrence and recommending means of preventing recurrence. Arrange necessary OHS training for the workers and other relevant staff

The OHSO is responsible for ensuring at the site that provisions are in place for emergency response, including:

- Muster points.
- Arrangements for conducting head counts.
- Identification and Mobilization of the Fire Team.
- Setting up drills and exercises.



- First Aiders with Ambulance.
- Conduct TBT (Tools Box Talks)
- Conduct WSTS (Weekly Safety Talks)

In the event of any emergency the OHSO shall take the following actions:

- Shall attend the site of the incident, assess the situation and issue directions to the concerned parties and the Fire Team.
- Ensure that messages have been communicated to The Field Response Team Leader.
- Ensure all escape routes and assembly areas are marked by respective safety signs in the field as indicated on the site plan.
- Evaluate the scale of the incident and decide whether additional resources are required to adequately deal with it.
- Ensure effective use of PPE.
- Liaise with site supervision for the mobilization of any plant and equipment necessary for dealing with the emergency
- Limit access to the area with barriers or other means to prevent unauthorized access
- Coordinate the reinstatement measures following the stabilization of the incident.
- Prepare a full report.

Community Liaison Officer (CLO)

Ensure access to information by communities and use of localized means to disseminate information.

- CLO will provide information to communities on employment opportunities, Risks, Impacts and Mitigations prior to the start and end of construction and when other changes in project activities take place
- CLO will conduct consultation meetings with community leaders
- Coordinate activities concerning social mobilization and civil society involvement in the project
- The Community Liaison Officer (CLO) will maintain the Social Complaint Register (SCR) and complain box at the site to document all complaints received from the local communities and the actions taken against each complaint
- CLO will be inconsistent liaison with management and the community
- CLO will also document oral complaints (if any) by the community
- Community Liaison Officer (CLO) shall be hired having a background in sociology Subject

Proper communication & implementation of Communication and Local Recruitment Plan



CLO will also handle the issue of resettlement due to dam work. Employment opportunities will be addressed through CLO and Village Focal Points nominated and their frequency depends upon manpower requirements at the site. Community complaints will be maintained on a register and in the complaint box. Community issues will be communicated as part of the routine HSE meetings held with the management. Actions taken against the complaints will also be maintained to show as issue close-out evidence. the progress will be part of the monthly monitoring and implementation report of the contractor to be submitted at PIC.

Dispenser

Holding a Certificate/Degree recognized by Pakistan Medical Commission

- Able to conduct the bred examination of each patient and also to document clinical findings
- Able to screen out Blood samples
- Able to operate BP apparatus and glucometer
- Able for Main medical record and could give a complete first add before reaching hospital
- Able to prescribe proper medication
- Able to keep a record of all medical proceedings
- Able to communicate and report the progress as and when necessary.

Emergency Response Team

In the event of an emergency, the chain of command will be as follows;

Name	Designation	Contact No.
	Site Manager	
	Environmental Officer	
	Occupational Health & Safety Officer	
	Community Liaison Officer	
	Dispenser	



TRAINING PLAN

As part of the Contractor's Environmental and Social Management Plan (CESMP) the training plan including the details such as subject, attendees, duration and frequency of the training has been prepared to provide all personnel with adequate information, instruction and training on environmental and social awareness, cultural sensitivity & occupational health and safety (Please see Table 13). The Contractor shall be responsible for conducting all the specified training through its highly trained Health, Social, and Environmental Management Team with the consultation of PIU. The Contractor shall also hire the services of experts with the prior approval/consultation of PIU for more training necessary and momentous for health, safety, social & environmental particular perspective under the provision of the contract. Training activities shall be recorded and reported on a regular basis. The Contractor shall:

- Update the training plan on a need basis.
- Organize induction training for all staff.
- Ensure employees are trained in the proper use of equipment in their care to minimize the risk of accidents.

Training Plan shall include below subject training as a minimum:

- Handling, use & disposal of hazardous material
- Waste Management
- Efficient & safe driving practices, including road & vehicle restrictions
- Actions to be taken in the event of major or minor pollution events on land
- Pollution Prevention
- Refueling of waterborne plant and Vehicles
- Use of spill kits and flexible booms
- Safe way to work & hazard awareness
- Safe Use of Plant and Equipment
- Work at Height
- Use of PPE
- Emergency Procedures and Evacuation
- Fire Fighting
- Importance of Tree Plantation
- Awareness of site-sensitive areas.
- Communicable Diseases
- Cultural Sensitivities of the local population
- Grievance Redressal Mechanism / GBV /SEA/SH



- Social Mobilization/Consultation
- Awareness of Social and Cultural Dynamics
- Gender Issues

All trainings will be conducted by a qualified competent person familiar with the work and hazards at the job sites, and deemed competent in terms of education, relevant experience, and instructional capability

Table 10: Environment, Social, Health & Safety Training Matrix

S. No.	Topics/Courses Required	To be Attended By			Duration	Schedule	Status		Remarks
		PIU, CSC	Skilled Crafts	Labors			Completed	Outstanding	
1.	Initial Orientation	✓	✓	✓	2 hrs.	Once upon joining			
2.	Specific Orientation (on job)	✓			2 hrs.	On job assignment			
3.	Training to Staff Working within Active Process Area	✓	✓	✓	2 hrs.	As & when required			
4.	Daily Tool Box Talk		✓	✓		Daily			
5.	Safety Talks				15 min	Weekly			
6.	Communicable Diseases	✓	✓	✓	10 min	Daily			
7.	Task-Specific Training Course	✓	✓	✓					
8.	Environmental Issues	2 hours as & when required							
9.	PPEs on Site				2 hours	Weekly			
10.	Driving Rules and Driver's Training	For Any Category			2 hours	- Do -			
11.	Risk Assessment				1/2 day	- Do -			
12.	Accident/Incident Reporting				1/2 day	- Do -			
13.	Emergency and Evacuation Drills & Exercises				1/2 day	- Do -			
14.	Scaffolding and Ladders				1/2 day	- Do -			
15.	Fire Fighting				1/2 day	- Do -			
16.	Hazardous Material Handling				1/2 day	- Do -			
17.	First Aid				1/2 day	- Do -			
18.	Working at Heights				1/2 day	- Do -			
19.	Wastes and Spills				3 hours	- Do -			
20.	Air/Water Emissions				3 hours	- Do -			
21.	Grievance Redressal Mechanism		✓		½ hour	As & when required			
22.	Community Mobilization/Consultation		✓	✓	½ hour	Once in month			
23.	Social and Cultural Dynamic		✓	✓	½ hour	Once in month			
24.	Gender Issues		✓	✓	½ hour	Once in month			



On-site induction, TBT and trainings will be organized by the Emergency Response Coordinator/ HSE Officer/ Engineer regarding the health & Safety measures from potential and existing hazards, environmental protection, etc. New workers and staff will be orientated regarding their work and the potential hazards, and safety from them. All trainings will be recorded and communicated to the Supervision Consultant.



COMPLIANCE AND E&S IMPACTS MONITORING PLAN

General

Monitoring Plan is an essential part of the CESMP. It is Contractor's contractual obligation to implement the CESMP. In this regard, Contractor has engaged full time technical staff capable of carrying out the suggested measures in the CESMP.

Objectives of the Monitoring

The main objectives of the Environmental Monitoring will be to:

- Monitor the actual project impact on physical, biological and socio-economic environment.
- Check the implementation status of CESMP and EMP.
- recommend mitigation measures for any unexpected impact or where the impact level exceeds SEQS that anticipated in the CESMP and EMP
- Ensure compliance with legal and community obligations including safety on construction sites.
- Ensure compliance of provisional obligation.

Compliance and Effects Monitoring

Compliance Monitoring:

The contractor shall carry out compliance monitoring within the sub-project area using the monitoring checklists as annexed in the Annexure 1 to be prepared based on this CESMP to aid the monitoring process:

Frequency of anti-dust water sprays during construction period;

Installation of signage regarding community health and safety

Safety at workplaces and working hours during construction;

Incidence of liquid/solid waste in the vicinity of work camps (type and amount of waste, amount, interference with local residents, fauna, flora and crops);

Arrangements made at construction sites for protection of floral and faunal resources

- Assurance of installation of signage regarding community health and safety

Environmental Effects Monitoring

The Monitoring tests outlined in Table - 11 below shall be performed through Sindh EPA certified environmental laboratory and reports of monitoring tests would be shared with supervisory consultant for further guidance.



Table 221: Environmental Monitoring Plan

Environmental Quality	Parameters	Standards/ Guidelines	Location	Monitoring period/ Frequency	Responsibility	
					Implementation	Monitoring
Pre-Construction Stage						
Air Quality	SO ₂ , NO _x , CO, PM ₁₀ , PM _{2.5} , Humidity, Wind direction, Wind speed, Temperature etc.	Air quality standard by SEQS	Throughout the sub-project areas particularly at: Camp and Batching plant site. Sensitive receptors at active construction site	Before start of civil work	Contractor	CSC and PIU
Water Quality	Water quality standard by SEQS	SEQS	Drinking water source at camp area	Quarterly	Contractor	CSC and PIU
			Surface water near sub-project areas and camp site	Quarterly	Contractor	CSC and PIU
			Ground water near sub-project areas particularly of sensitive receptors	Quarterly	Contractor	CSC and PIU
Noise Level	dB(A)	Noise pollution Control SEQS	Throughout the sub-project areas, particularly near sensitive receptors	Quarterly (24 Hours Duration)	Contractor	CSC and PIU
Construction Stage						
Air Quality	SO ₂ , NO _x , CO, PM ₁₀ , PM _{2.5} , Humidity, Wind direction, Wind speed, Temperature etc.	Air quality standard by SEQS	Throughout the sub-project areas particularly at: Camp and Batching plant site. Sensitive receptors at active construction site	Quarterly (24 Hours Duration)	Contractor	CSC and PIU
Dust	Dust control	Air quality standard by SEQS	Throughout the sub-project areas, particularly near sensitive receptors	Quarterly (24 Hours Duration)	Contractor	CSC and PIU
Noise Level	dB(A)	Noise pollution Control SEQS	Throughout the sub-project areas, particularly near sensitive receptors	Quarterly (24 Hours Duration)	Contractor	CSC and PIU
Water Quality	Water quality standard by SEQS	SEQS	Drinking water source at camp area	Quarterly	Contractor	CSC and PIU
			Surface water near sub-project areas and camp site	Quarterly	Contractor	CSC and PIU
			Ground water near sub-project areas particularly of sensitive receptors	Quarterly	Contractor	CSC and PIU
Noise monitoring	dB(A)	SEQS	Throughout the sub-project areas and campsite.	Monthly	Contractor	CSC and PIU
Light monitoring	(Lux Level)	Monitoring	Throughout the sub-project areas and campsite.	Fortnightly (Weekly during Monsoon)	Contractor	CSC and PIU
Waste Management	Check storage, transportation, disposal, handling of hazardous waste; Waste and effluents to be collected and disposed safely from camps; Waste and garbage from bridge/Aqua duct site	Monitoring	Throughout the sub-project areas and camp site	Weekly	Contractor	CSC and PIU



Environmental Quality	Parameters	Standards/ Guidelines	Location	Monitoring period/ Frequency	Responsibility	
					Implementation	Monitoring
Health and Safety	Check quality of food and accommodation at construction camp. Safe water supply, hygienic toilet at camps and construction of drain at campsites. Toilets are closely located to construction site and separate toilet for female workers; First-Aid kit; personal protective equipment (PPE) for worker at the Sites.	Monitoring	Construction sites, labor camps	Regularly	Contractor	CSC and PIU
Traffic Safety	Record of accidents, and implementation of the traffic Management plan prepared by the Contractor.	None Specific	sub-project areas	Throughout the construction periods	Contractor	CSC and PIU
Socioeconomic issues	Local people recruited for all manual laborer and other jobs for which local skill are available; grievances of and conflicts with communities	;	At sub-project site's locations; settlements	Throughout the construction periods	Contractor	CSC and PIU

Social Effects Monitoring

The social effects monitoring shall be the responsibility of Contractor social expert as well as CSC.

- Number of local people recruited on project works.
- Incidence of child labor and disproportionate wages
- Conflict at community level
- Chance finds archaeological site
- Grievance redressal mechanism is in place
- Health screening of labor at site
- Contractor's staff sensitized on Gender base violence (GBV).

Both approaches will be conducted using the monitoring parameters by visual observation, photographic documentation, and measurement where necessary. A record of events and surveys will be maintained

Role & Responsibilities

The Contractor Environmental & Social Officer (E&S Staff) shall be responsible for day-to-day monitoring of compliance with the environmental and social requirements of this specification as well as the requirements of the CESMP.



The Contractor's E&S Staff shall prepare a monthly report to the Engineer. The format of the monthly report shall mutually be finalized however; it shall be ensured that the requirement of CESMP has been incorporated in the monthly report. The report shall also provide detailed actions taken or proposed by the Contractor in response to any non-compliance identified the report shall be submitted not later than the third of each month.

The Environmental Officer shall be available to attend monthly meetings (when and where arranged by the Employer) to discuss environmental and social performance on Site. When instructed by the Employer or Engineer, any other member of The Contractor staff shall be available to attend such meetings.

HSE Inspections

The Contractor shall utilize a number of inspections not only to ensure compliance with the requirements of the CESMP but also to get feedback for the improvement of the CESMP

- The HSE Officer shall conduct inspections on day-to-day basis
- The HSE Officer shall be responsible to identify noncompliance and report it to the Site Manager/Project Manager
- Construction Managers and the area in charge shall be responsible for rectification of highlighted non-compliance



Reports

General

The E&S staff of the contractor and Supervision Consultant shall produce periodic reports as well as inspection notes based upon the implementation and monitoring of CESMP. All reports shall be location and activity specific. The reports shall especially identify areas of contractor's non-compliances with the EMP and provide guiding remarks on actions to be taken. The significance of the non-compliances shall also be noted. Copies of these reports shall be sent to the Resident Engineer (RE) who shall forward them to the Team Leader, then PD (E&S staff of PIU) and the Contractor for their action(s).

The RE will include in his routine reports a summary status of activities relating to the CESMP. Supplemental reports on issues should also be prepared as and when required. The reports will be prepared, reviewed and distributed according to reporting mechanism provided in Table - 12.

Table 12: Periodic Reports

Report	To be Prepared by	To be Reviewed by	Distribution
Daily	-Contractor's E&S officers	-Contractor environmental officer -Consultant's E&S	-Resident Engineer
Monthly	- E&S officers of the Contractor	-Consultant's E&S officers	-Resident Engineer -PIU E&S officers
Quarterly	- E&S officers of the Construction Supervision Consultants	- E&S officers PIU	-Resident Engineer -PIU -WB - SEPA
Bi-Annual Environmental Monitoring Report	E&S officers of the Construction Supervision Consultants	- E&S officers PIU	-Resident Engineer -PIU -WB - SEPA
Final	E&S officers of the Construction Supervision Consultants	- E&S officers PIU	-Resident Engineer -PIU -WB - SEPA

Complaint Register

The contractor will maintain a complaint register at the construction site(s), document all complaints received from the public or government organizations by whatever medium. The register will also record the measures taken to mitigate the reported concerns. All of these concerns shall be documented in the monthly reports. The status of the closeout concern shall be verified and counter signed by the designated official.

Complaints received shall be recorded in complaint register in tabulated form, which should concisely list the following information:

- Date of the complaint
- Name and contact address of the complainant
- Brief description of the complaint, with a reference number to any correspondence from the complainant
- Brief description of the action taken by the CLO to investigate the cause of the complaint and bring about corrective action, if justified
- Date of reply to the complainant, with a file reference to any correspondence.



PHYSICAL CULTURAL INFRASTRUCTURES (PCIS)






No archaeological site was observed near (within 500 meters) the project area and no physical cultural resources at or near the proposed sub-project; sites are observed that may likely be affected by construction activities.

In case of discovery of an unidentified graveyard or sensitive area, The Contractor shall notify the Engineer and the following Chance Find Procedure will be adopted:

- On discovery of archeology resources, all work in the area shall be stopped
- The engineer shall be informed about the discovery
- A brief report with photo, plan and location shall be submitted to the client and Engineer
- Work shall commence again according to the recommendations and comments provided by the Engineer.



Annexure 1: Compliance & E&S Impacts Monitoring Checklists

DAILY ENVIRONMENTAL INSPECTION CHECKLIST.					
Contractor :			Date of Inspection:		
Location:			Last Inspection:		
Time:			Climatic Conditions:     		
Accompanied By:			Report By:		
ENVIRONMENTAL INSPECTION CHECK ITEMS					
Sr. No.	Parameters	Yes	No	Credit	Remarks
1	Labour Camp Location & Management in order				
2	Drinking water facilities for Labour				
3	Burning of Wood in Camp				
4	Pollution from Concrete Mixer				
5	Oil Diesel Spills on land or Water				
6	Soil Erosion				
7	Traffic Control good & Signology functional				
8	Vehicle with Smoke and Noise				
9	Vehicle with in Speed Limit				
10	Water Sprinkled on Approach Road				
11	Correct Disposal of Waste Water				
12	Correct Disposal of Construction Solid Waste				
13	All materials safely stock piled				
14	Health Precautions taken for workers/first aid kits				
15	Proper PPEs available/used				
16	Threat cause to any endanger Species				
17	Dispensary working, doctor present				
18	Ambulance functional				
19	No loss of Flora and Fauna				
20	No Social issue Created				
21	The location of firefighting equipment identified				
22	Are accident/incident reported, preventive?				
TOTAL CREDIT				0	% of compliance 0.0

I, the undersigned, have been notified of the job site hazards and will take the necessary measures to correct the noted hazards immediately.

Signed/Date:

Environmentalist (Contractor)

Signed/Date:

Assistant Resident Engineer/Inspector (ARE-CSC)

Notes: Key for Climate conditions-Forenoon=FN, Afternoon=AN, Evening=E, Night=N. Weather, Sunny=S, Partly cloudy=PD, Cloudy=C, Rainy=R

Scoring Guide: Full Compliance = 10, Partial Compliance = 5, No Compliance = 0, Not Applicable (NA)



WEEKLY ENVIRONMENTAL INSPECTION CHECKLIST

Contractor:		Date of Inspection:	
Location:	Chainage= Coordinates=	Last Inspection:	
Time:		Weather Conditions:	
Accompanied By:		Report By:	

ENVIRONMENTAL INSPECTION CHECK ITEMS

Theme	Sr. No.	Parameters	Yes/No	Credit	Remarks	Actioner	Action Deadline
CAMP SITE	1	Is the labour camp properly organized in Blocks, Lanes and Barracks?					
	2	Is the drinking water supply to the camp available?					
	3	Is building / camp arrangement fit to guard off the weather effects?					
	4	Is the camp drainage system appropriate and effective?					
	5	Is the waste disposal hygienic?					
	6	Is the food cooked in a proper kitchen?					
	7	Has plantation been carried out to beautify the camp and surroundings?					
	8	the labour camp is not causing a social problem (specify as note)?					
	9	the labour camp is not causing any problem to Biota, (specify as a note)?					
	10	Has proper signology / warning signs been displayed?					
	11	there is no problem which has not been specified in the above question 1-10 (if yes, please specify)?					
	12	there is any violation of any clause of the contract (if yes, please specify as a note)?					
SCORE CREDIT - CAMP SITE				0	% of compliance		0
MATERIAL DUMPS	13	Is material dump suitably located?					
	14	Has the material dump been properly fenced and a gate provided?					
	15	There are any leakages (if so specify their extent and nature in a separate note)?					
	16	Is storage and transaction of material causing any type of pollution to land, nearby water, or air (if so specify)?					
	17	Has proper signology been displayed?					
SCORE CREDIT - MATERIAL DUMPS				0	% of compliance		0



Theme	Sr. No.	Parameters	Yes/No	Credit	Remarks	Actioner	Action Deadline
MACHINERY YARD	18	Is machinery yard suitably located?					
	19	Is dust, smoke or any air pollutant being added to atmosphere?					
	20	Are there any POL leakages (if so specify their size, location and nature)?					
	21	Is the parking, haulage and movement of machinery causing any type of pollution to land nearby water, or air (if so specify)?					
	22	Has proper signology been displayed?					
SCORE CREDIT - MACHINERY YARD				0	% of compliance	0	
WATER SUPPLY	23	Is adequate clear drinking water available for labour and other staff?					
	24	Is adequate and clean water available for other uses in the contract area?					
	25	Is adequate water available for construction?					
	26	In case of fire, is there an adequate water availability for use in fire extinguishers?					
	27	Is there a water storage facility available at a suitable place?					
	28	Is there any violation to any clause of the contract while using the water supply source (If yes, please specify as a note)?					
	29	Has proper signology been displayed?					
SCORE CREDIT - WATER SUPPLY				0	% of compliance	0	
VEHICAL EQUIPMENT MANAGEMENT	30	Do all fuel operated stationary equipment have spill try?					
	31	Are spill try clean & well maintained?					
	32	Is equipment free of leaks?					
	33	Is maintenance conducted in approved area?					
	34	Is vehicles equipment fit for purpose?					
	35	Is there any spill of liquid waste into a water body?					
	36	Spill kits available in designated area.					
	37	Is any of the contract clauses being affected / violated due to waste disposal system?					
	38	Has proper signology been displayed?					
SCORE CREDIT - VEHICAL EQUIPMENT MANAGEMENT				0	% of compliance	0	



Theme	Sr. No.	Parameters	Yes/No	Credit	Remarks	Actioner	Action Deadline
NUISANCE & EMISSION- Dust & Noise	39	Are stockpiles dumped covered/control to minimize dust?					
	40	Are vehicle speed controlled?					
	41	Is the machinery being used new or in best condition so as not to cause noise?					
	42	Is there any spot where excessive noise is being produced (specify in a note)?					
	43	Is there a hospital, road or any other sensitive place along the route?					
	44	Is there any violation to any clause of the contract related to Air pollution or Noise pollution?					
	45	Has proper signology been displayed?					

SCORE CREDIT - NUISANCE & EMISSION

0

% of compliance 0

WASTE DISPOSAL	46	Is there a proper method of disposal of Solid waste in the Camp?					
	47	Is there a proper method of disposal of liquid waste in the Camp?					
	48	Is general waste free of chemicals /POL waste?					
	49	Is hazardous waste stored/removed within reasonable timeframe?					
	50	All are bin properly labelled?					
	51	Is there any spill of solid or liquid waste into a water body, clean living area, building or graveyard?					
	52	Is the smell from solid or liquid waste being added to a living area?					
	53	Is any of the contract clauses being affected / violated due to waste disposal system?					
	54	Has proper signology been displayed?					

SCORE CREDIT - WASTE DISPOSAL

0

% of compliance

0

ECOLOGY	55	Is the labour and other workers of contractor aware of their limits towards the Protected Area?					
	56	Has the project labour been made aware that they will not (a) Disturb any other biotic life (b) Cut trees or bushes for fuel					
	57	Is there a record that shows that plant and machinery has arrived and departed clean and free of debris?					
	58	Due to activity of any one, is any clause of the contract being affected or has it been affected (If yes, specify in a note)					
	59	Has proper signology been put up?					

SCORE CREDIT - ECOLOGY

0

% of compliance

0



Theme	Sr. No.	Parameters	Yes/No	Credit	Remarks	Actioner	Action Deadline
SOCIAL CONTROL	60	Has the SFA been explained to labours and all classes of contractor's workers by the contractor?					
	61	Has the SFA been explained to the nearby members of the public by the contractor?					
	62	Has proper signology, Directions and Warnings been displayed at all suitable places?					
	63	Is there a check and control system to control the Labourers from disturbing the nearby villages and their folks especially for HIV / AIDS and other communicable diseases?					
	64	Is there a violation to any of the clauses of the contract due to any social infringement by anyone in the Project Area?					
SCORE CREDIT - SOCIAL CONTROL				0	% of compliance	0	
HOSPITAL / MEDICAL AID	65	Is there a Hospital/ Medical Aid centre in the area (If yes, specify site, size, location and distance)?					
	66	Is the medical facility available to all classes of workers in the project Area?					
	67	Is the medical facility available to members of the public also?					
	68	Is there an awareness programme for making labour, other workers and members of public run by the contractor, especially HIV/ AIDS, Cholera, Malaria, Dengue and other infectious diseases?					
	69	Is there any violation to any other clause of the contract related to Medical field?					
	70	Does the mess hall have adequate bins?					
	71	Has proper sinology been displayed?					
SCORE CREDIT - HOSPITAL / MEDICAL AID				0	% of compliance	0	
RESOURCE & ENERGY CONSERVATION	72	Is exassive waste minimized?					
	73	Is fuel waste prevented?					
	74	Are energy conservation practices observed?					
	75	Is wastage of water prevented- Behavior?					
	76	Is wastage of water prevented- Equipment/system?					
SCORE CREDIT - RESOURCE & ENERGY CONSERVATION				0	% of compliance	0	
WELFARE & LAYDOWN	77	Is the laydown area litter free?					
	78	Are the toilets adequate?					
	79	Are the toilets free of leak?					
	80	Is the septic tank in good conditions?					
	81	Is sewage spillage is prevented?					
	82	Does the mess hall have adequate bins?					



Theme	Sr. No.	Parameters	Yes/No	Credit	Remarks	Actioner	Action Deadline
	83	Is the area clean?					
	84	Is the pest control effective?					
	85	Are environmental awareness material displayed?					
	86	Is there an environmental notice board?					
	87	Is the site currently operating within normal working hours?					
	88	Is the monthly environmental score displayed?					
SCORE CREDIT - WELFARE & LAYDOWN				0	% of compliance	0	

TOOL BOX TALK & INCIDENT / NEAR	89	Have appropriate toolbox talks been delivered for the works?					
	90	Have incidents or near misses reported previously been adequately mitigated?					
	91	Are accident/incident reported, preventive?					
SCORE CREDIT - TOOL BOX TALK & INCIDENT / NEAR MISS				0	% of compliance	0	

ENVIRONMENTAL SCORE

	SUMMARY	TOTAL SCORE	SCORE CREDIT	%	Relative %
1	CAMP SITE	120	0	0	0
2	MATERIAL DUMPS	50	0	0	0
3	MACHINERY YARD	50	0	0	0
4	WATER SUPPLY	70	0	0	0
5	VEHICAL EQUIPMENT MANAGEMENT	90	0	0	0
6	NUISANCE & EMISSION- Dust & Noise	70	0	0	0
7	WASTE DISPOSAL	90	0	0	0
8	ECOLOGY	50	0	0	0
9	SOCIAL CONTROL	50	0	0	0
10	HOSPITAL / MEDICAL AID	70	0	0	0
11	RESOURCE & ENERGY CONSERVATION	50	0	0	0
12	WELFARE & LAYDOWN	120	0	0	0
13	TOOL BOX TALK & INCIDENT / NEAR MISS	30	0	0	0
		910	0	0	0

This checklist does not include all hazards on every job, but should serve to all concerned you to general hazards.

I, the undersigned, have been notified of the job site hazards and will take the necessary measures to correct the noted hazards immediately.

Signed/Date:

Signed/Date:

Signed/Date:

Environmental (Contractor)

E&S Staff/Resident Engineer (CSC)

Project Supervisor(Contractor)

Notes: Key for Climate conditions-Forenoon=FN, Afternoon=AN, Evening=E, Night=N. Weather, Sunny=S, Partly cloudy=PD, Cloudy=C, Rainy=R

Scoring Guide: Full Compliance = 10, Partial Compliance = 5, No Compliance = 0, Not Applicable (NA)



Annexure-V Labor Management Plan



Annexure V Labor Management Plan

S.NO	DATE	PREPARED BY	CHECKED BY	APPROVED BY	REMARKS
1.		The Contractor	CSC	PIU	



ABBREVIATIONS / DEFINITIONS

CoC	Code of Conduct
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
GBV	Gender Based Violence
GRC	Grievance Redress Committees
GRM	Grievance Redress Mechanism
HSE	Health Safety and Environment
ILO	International Labor Organization (ILO)
PIU	Project Implementation Unit
PPEs	Personnel Protective Equipment
SEA	Sexual Exploitation and Abuse
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection



INTRODUCTION

Introduction

This Labor Management Plan (LMP) has been developed by the Construction Contractor (CC) under the supervision of Construction Supervision Consultant (CSC) with the endorsement of Project Implementation Unit (PIU) - SFERP for Expansion of District Headquarters Rescue Stations in Nine Districts of Sindh. It identifies labor requirements and sets out the procedures for addressing labor conditions and risks associated with the proposed sub-project during construction, which is aimed at helping the proposed sub-project to determine the resources necessary to address project Labor issues. The LMP is enshrined within the context of the World Bank Environmental and Social Standards (ESS) 2: Labor and Working Conditions as well as Labor Management Procedure prepared for SFERP.

The World Bank has rated the risks and impact associated with workers as well as community health and safety, and the risk associated with Labor impact as moderate due to the nature of rehabilitation activities which are well understood and expected to have limited impacts as they can largely be avoided, minimized or managed through procedures, including procedures set out in this LMP. The LMP will be reviewed continually during project implementation and adequate measures and procedures to manage negative impacts will be put in defined.

The present Labor Management Plan (LMP) represents the risks and impact associated with workers for expansion of Rescue station activities.

Objectives of LMP

The objectives of the LMP include:

- To protect sub-project workers including vulnerable workers such as women and girls, transgender, differently abled person/persons with disabilities, children of working age, migrant workers, contracted workers, community workers and primary supply workers
- To promote safety and health at work.
- To promote the fair treatment, non-discrimination
- To prevent the use of all forms of forced labor and child labor.
- To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with The Sindh Occupational Safety and Health Act, 2017.
- To provide project workers with accessible means to raise workplace concerns.

Scope of The Labor Management Plan

This LMP describes the requirements and expectations in terms of compliance, reporting, roles, supervision and training with respect to labor and working conditions, including camp accommodation. The LMP will cover all categories of workers. The LMP will set out the following procedures.

- How workers will be managed in accordance with the national law requirement



- Guidelines for the different categories of project workers
- Terms and conditions of Employment
- Child Labor
- Forced Labor
- Non-discrimination and equal opportunity
- Protecting the Workforce
- Grievance Mechanism
- Occupational Health and Safety



OVERVIEW OF LABOUR USE IN THE PROJECT

Type of Workers

ESS-2 categorizes the workers into direct workers, contracted workers, community workers, and primary supply workers. The categories for which the project workers have been defined are provided below.

- a) **Direct workers:** Direct workers will comprise a mix of government civil servants from various relevant line ministries and those deployed as technical consultants – full and part-time by the PIU-SFERP – under the project. The former will be governed by a set of public service rules, the latter by mutually agreed contracts. The officers in the PIU who will serve as Procurement Officer, Monitoring & Evaluation Officer, Gender Officer, Environmental Safeguard Officer, Social Safeguard Officers and Communications Officer.

The PIU will implement day-to-day coordination, management and monitoring of the project components.

- b) **Contracted workers:** Two broad categories of contracted workers are expected. First is Consultant service providers who will provide construction supervision services to the PIU. Second is the staff of civil works contractors to be subcontracted to arrange for civil works act as Construction contractor/the Contractor under the subproject.

- c) **Community Workers:** The labor will be sourced locally for skilled and unskilled labor.

- d) **Primary Suppliers** are likely to include suppliers of construction materials for any civil works to be supported by the project.

Number of Project Workers

Table 1 below provides labor requirement for expansion of Rescue Stations.

Table 1: Estimated labor requirements for Contract workers for the Proposed Sub-project (DHQ Recue Stations)

Project Phase	Proposed Intervention Works	Activities	Staffing per Sub-project Site	Support Activities	Schedule (Months)
Pre-construction	Preparatory Works: Land clearing, excavation of materials (sand), Creation of burrow pits, Mobilization of workers	Assessment of existing Project location Preparation of staging area	Skilled Labor: =? Unskilled Labor =?	Camp area	
		Mobilization of equipment & personnel to the site Siting and Preparation of staging areas camp/s including sanitary & allied facilities			
Construction	All Civil works	Enlist main activities relating to the scope of work 1 2 3	Skilled Labor: =? Unskilled Labor=?	Burrow pit	



Project Phase	Proposed Works	Intervention	Activities	Staffing per Sub-project Site	Support Activities	Schedule (Months)
			4 5			
			Construction of structures, water sanitation and hygiene and facilities;	Labor=?		
			Disposal of construction wastes	Unskilled =?	Temporary construction waste collection areas	
Demobilization/Restoration		Closure Works: Site demobilization/restoration activities	Removal of constructed/rehabilitated structures; Disposal of construction spoil and waste in general; Dismantling of temporary work camp of the contractor (where available); and waste management	Skilled Labor: =? Unskilled Labor=?	Landscaping services	

Project Implementation Schedule and Activities

The direct workers will be required full time and around the year for the project duration. Consultant ~~Services~~ workers will be required full time and on intermittent basis for the project duration.

Civil works contracted workers will be required, as per the need. Construction season typically starts from March to November but can vary depending on the weather conditions. It will be up to the contractors to mobilize labor force to coincide with the type of works and the season. The Expansion works for DHQ Rescue Stations are estimated to be implemented over a 12-month period. This is the awarded timeline from the commencement of date. It is envisaged that most of the sub-project sites may require less work.



ASSESSMENT OF KEY POTENTIAL LABOUR RISKS

This chapter outlines the potential Labor risks and impacts associated with the expansion of DHQ Rescue stations.

Potential Risks and Impacts

Some of the potential labor risks and impacts associated with the subproject include:

- Unfair recruitment and selection practices which could discriminate against women, transgender and vulnerable groups
- Exploitative wages.
- Over-stretched working hours – no break periods.
- Poor work safety culture, accidents/incidents, Lack of provision of PPEs.
- Perception that wages, salaries and benefits are poor or that foreigners are treated better and receive better conditions of employment.
- Forced Labor.
- Child Labor.
- Gender-based violence (GBV) risks as a result of contractor workforce during civil works.
- Workplace sexual harassment and sexual exploitation and abuse.
- Lack of female security and privacy mechanism
- Lack of provision of basic facilities – water, food, toilets, washing hand facilities, separate space for feeding, and medical aid.
- Sub-standard campsite facilities and campsite management.
- Hostility and security threats from host community.
- Cultural differences may cause conflicts.
- Lack of unified rules and regulations for all workers.
- Favoritism.
- No grievance redress channel for workers.
- Dismissal from work.
- Boredom and lack of recreational activities.
- Search for access to religious practices.

Labor Management Plan

Table 2 below presents a plan to be adopted in the management of Labor risks for the sub-project. The Contractor/s will be responsible for making provisions to ensure implementation of the LMP and develop corrective action for any default and noncompliance. The CSC will monitor contractor's compliance to the LMP with the help of PIU.



Table 2: Labor Management Plan

Risk/Impact	Analysis (Magnitude, Extent, Timing, Likelihood, Significance)	Mitigation
Arbitrary decisions by contractors on Terms and Conditions of employment	<ul style="list-style-type: none"> • The duration of the contracts offered to contractor workers are short and may not allow employees adequate time and information for meaningful collective bargaining, leading to discontent of employees and disputes. • Project workers may not be provided with information and documentation that is clear and understandable regarding their terms and conditions of employment. 	<ul style="list-style-type: none"> • The CSC will closely supervise the Contractor Recruitment Plan and ensure fairness of Employment Terms and Conditions against the applicable and prevailing National requisites. • All information and documentation must be provided at the beginning of the working relationship and when any changes to the terms or conditions of employment occur. • Where applicable, project workers will receive written notice of termination of employment and details of severance payments in a timely manner.
Poor working conditions (unsafe work environment, underpayment, lack of workers' rights, etc.)	<ul style="list-style-type: none"> • The Rights of workers under national labor and employment law (which will include any applicable collective agreements), may be abused. • Worker's payment may be delayed, irregular, or may be underpaid. • Campsites may be poorly managed, inconducive for workers, insecure, poor sleeping conditions, lack of access to basic amenities like water, toilets, healthcare etc. • The general appearance of the camp deteriorates making camp life unpleasant. 	<ul style="list-style-type: none"> • Project workers will be paid on a regular basis as required by Sindh Minimum Wage Notification with a principle of "equal pay for equal work" • In the case of subcontracting, the Borrower will require such third parties to include equivalent requirements and non-compliance remedies in their contractual agreements with subcontractors. • The CSC & PIU shall inspect the campsites to ensure workers have appropriate living quarters, sanitation facilities separate for male and female, basic amenities. • All project workers will be provided with adequate periods of rest per week, annual holiday and sick leave, as required by national law • Ensure that camp grounds and common areas are routinely cleaned and organized with appropriate signage in place, and that grounds are maintained (e.g., grassed areas are regularly mown). • See Annexure 1 for sample campsite management framework.
Non-discrimination and equal opportunity	<ul style="list-style-type: none"> • Decisions relating to the employment or treatment of project workers may discriminate against certain classes of workers including women, vulnerable groups among others. • Payment of workers may be based on 	<ul style="list-style-type: none"> • The employment of project workers will be based on the principle of equal opportunity and fair treatment, and there will be no discrimination with respect to any aspects of the employment relationship, such as recruitment



Risk/Impact	Analysis (Magnitude, Extent, Timing, Likelihood, Significance)	Mitigation
	discrimination e.g., male may be paid higher than women even on the same level of job schedule.	and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment, or disciplinary practices.
Sexual Harassment and Sexual Exploitation & Abuse	<ul style="list-style-type: none"> • Risks of sexual harassment and SEA are possible 	<ul style="list-style-type: none"> • Training should include protocols on how sexual harassment and SEA will be prevent and addressed. • All workers should also be aware for the GBV/SH/SEA-GRM for the project
Child Labor	<ul style="list-style-type: none"> • There is a risk that children (below the age of 18) will be used as Labor in the subproject area. • Underaged persons within the community may disguise as above 18 to enable them work and get paid. 	<ul style="list-style-type: none"> • The minimum age of eighteen (18) will be enforced at recruitment and in daily staff team talks by Contractors. CSC & PIU will also supervise this through the Contractor HR record. • Contractors will liaise with community liaise to attest to the age and conduct of all local hires, and maintain a list of same.
Forced Labor	There is a risk that there could be involuntary or compulsory Labor, such as indentured Labor, bonded Labor, or similar Labor-contracting arrangements.	<ul style="list-style-type: none"> • It will ensure that no forced Labor exists in the subproject by gathering documents and appropriate proof. Written Particulars of Employment as mentioned in the Annexure 2 must be filled by the Contractor and submit to CSC for PIU endorsement. • A consent section will be part of the employee signed employment contract. It will ensure that if Labor is sourced from any sub-contracting agency, the workers are not subject to coercion and forced Labor conditions.
Labor Influx	<ul style="list-style-type: none"> • The project may face influx of Labor to local communities especially where skilled Labour's are not available in some subproject area. This could lead to Increase in potential spread of STIs/STDs, HIV/AIDs due to workers on site, increase in GBV/SEA, sexual relations between contractors and minors. • This could also lead to competition for resources like water, health facilities, electricity in the sub project locations 	<ul style="list-style-type: none"> • Encourage hiring of Labor from the host communities. Maintain Labor relations with local communities through a code of conduct (CoC) Annex 3) • The Code of Conduct must be signed by all categories of workers. Workers must be trained on the provisions of the CoC about refraining from unacceptable conduct toward local community members, specifically women and informed of the sanctions for non-compliance. Training must be conducted for all new hires



Risk/Impact	Analysis (Magnitude, Extent, Timing, Likelihood, Significance)	Mitigation
		<p>including sub-contractors.</p> <ul style="list-style-type: none"> Contractors should make resources available for their workers especially were stated in the ESMP.
Grievance Redressal Mechanism	<ul style="list-style-type: none"> Workers may be aggrieved due to unfair treatment, poor working conditions, conflicts, poor pay, overstretched working hours amongst other things. Project GRM will be surely integrated with a specific contractor's GRM will be designed to address concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned in a local language, without any retribution, and will operate in an independent and open manner. The grievance redressal mechanism will not impede access to other judicial or administrative remedies that might be available under the law. 	<ul style="list-style-type: none"> It shall comply with the Grievance redress mechanism defined to handle workers grievances in a fair and timely manner. The CSC & PIU shall provide oversight to ensure effective implementation of the GRM.
Occupational Health and Safety	<ul style="list-style-type: none"> Site workers will be exposed to risks of accidental collisions with moving vehicles, strains, and ergonomics from repeated movements or from lifting and heaving of heavy objects, slips and falls. Accidental cuts from tools and machines are also safety risks. Dust and particulate emissions and welding works from sub-project site may cause respiratory and eye impairment health concerns for workers and the public Movement of trucks carrying sand and materials, lack of road safety measures may also cause risk of accident, injury and death Contractors should comply with Provincial and international labor legislations. Every site will have emergency preparedness and response arrangements to emergency situations Maintain a safe working environment including workplaces, machinery, equipment and processes under their control are safe and without risk to health, including by use of appropriate measures relating to chemical, physical and biological substances and agents. Where required, hire security for workers. 	<ul style="list-style-type: none"> HSE training/s shall be provided for all workers before commencement of work and periodically (Annexure 4) A full time HSE /OHSO officers shall be hired. PPEs shall be made available for all workers and the HSE officer should enforce compliance. First aid boxes should also be provided at construction site, staging area and mobile. It is obligatory to report OHS accident/incidents to the CSC & PIU promptly, and the PIU should report this to the Bank within 48hrs (in accordance with the Environmental and Social Commitment Plan (ESCP)) It should be ensured that training for their drivers and liaison with the local Traffic Management Agency to control traffic during project implementation.



Risk/Impact	Analysis (Magnitude, Extent, Timing, Likelihood, Significance)	Mitigation
Right of Association and Collective Bargaining	<ul style="list-style-type: none">Workers have the right to freely form, join or not join a trade union for the promotion and protection of the economic interest of that worker.Workers have a right to organize and collective bargaining, and representation.	<ul style="list-style-type: none">The CSC & PIU will ensure that workers are informed of their right of association and collective bargaining.The CSC & PIU should also inform workers of the workers GRM and their right to utilize the system.
Contractors Management	<ul style="list-style-type: none">Records of workers engaged under the subproject, including contracts must be kept.Records of all training attended by workers including CoC, HSE, STIs/STDs, GBV etc.Accidents/ incidents and corresponding root cause analysis (lost time incidents, medical treatment cases), first aid cases, high potential near misses, and remedial and preventive activities required (Corrective Action Register)Records of strike actions, reasons and resolution reached.Records of grievances and how they were resolved.Records of all sanctions, punishments and terminations with reasons and follow-up actions taken.	<ul style="list-style-type: none">Documents should be kept at the site office with the site engineers and CSC office.The PIU team should check these records during monitoring visits.
Primary Suppliers	Primary suppliers could also have occupational injuries, incident/accidents while performing project related functions	Primary suppliers should maintain records related to occupational injuries, illness and lost time accident, which should be reviewed by the contractor every quarterly and report to CSC for information.



ROLES AND RESPONSIBILITIES FOR MANAGING THE LMP

CSC & PIU

The Project Implementation Unit (PIU) have the overall responsibility to oversee all aspects of the implementation of the LMP including occupational safety, health and welfare of workers, and ensure contractor compliance with the assistance of CSC. This role will primarily be part of the responsibilities of the Environmental and Social Specialists of the CSC & PIU; however, they will be required to liaise with other staff of the PIU and report frequently to the Project Coordinator on all LMP matters.

The Contractor

The Contractors will be responsible for implementation of the plan on a daily basis and providing the required human financial and training resources for effective compliance.

Specific roles are outlined below:

Occupational Health and Safety

Contractors must engage a minimum of one Health Safety and Environment (HSE) officer to ensure the day-to-day compliance with specified health and safety measures and records of any incidents. Minor incidents and near misses will be reported to the CSC & PIU (through the Environmental Specialist) on a monthly basis, serious incidents should be reported immediately and not later than 24 hrs. Minor incidents will be reflected in the quarterly reports to the World Bank, while major accidents/deaths must be flagged to the World Bank within 48hrs.

Labor and Working Conditions

The Contractors will keep records in accordance with specifications set out in this LMP. The CSC & PIU may at anytime require records to ensure that Labor conditions are met. Where issues are spotted, the PIU will ensure that immediate remedial actions are implemented. A summary of issues and remedial actions will be included in quarterly reports to the World Bank.

Worker Grievances

Contractors must engage a minimum of one social officer/Social Expert/Labor Officer to handle issues relating to social risks. The CSC (through the counterpart) will review the effectiveness of the workers grievance redress mechanism as stipulated in section 4 and ensure that all complaints by workers are resolved. The CSC will report to PIU as part of the quarterly E&S reports for onward submission to WB.

Additional Training



The contractor will set up a system of daily HSE PEP talks, routine safety trainings and specialized job trainings for workers. Trainings will form part of the contractor's responsibility. The contractors HSE officers will provide safety instructions to contractor staff. The CSC will liaise with contractors to deliver trainings to address risks associated with Labor influx including GBV/SEA with endorsement of PIU. The contractor will be obligated to make staff available for this training, as well as any additional mandatory trainings required by the PIU, as specified by the contract.

Occupational Health and Safety compliance

The contractor shall comply with all provisions of the LMP, contractors ESMP that will be prepared, including occupational health and safety plans, emergency plans amongst others. In addition, contractors shall procure the identified PPE and First Aid kit for use during project implementation. The Contractor shall organize training for workers on the use of PPE and First Aid kit.



GRIEVANCE REDRESS PROCEDURES FOR WORKERS

Introduction

This procedure requires to have a Formal Grievance Procedure which should be known and explained to the employee:

- Who the employee should report to;
- Time frame for addressing grievances at each level should be specified;
- Opportunity to report to a higher-level authority if grievance is not resolved at within the stipulated time;
- Right to seek judicial redress

The grievance process shall be guided by the following principles:

- Transparency
- Confidentiality
- Non-retribution practices
- Non-vindictive
- Right to representation
- Proper documentation

It is recommended that since the nature of civil works for the project is minor-moderate, workers should adopt the existing Grievance Redress Mechanism defined for the subproject as summarized below:

Establish a GRM

Grievance Redress Mechanism (GRM) will be implemented to ensure that all complaints from workers are dealt with appropriately, with corrective actions being implemented, and the complainant being informed of the outcome.

Grievance Redress Committees

Grievance Redress Committees (GRCs) shall be constituted at various levels to implement the GRM for the project including community level, CSC, PIU level, Judiciary as shown in Table 3 below.

Table 3: Levels of Grievance Redress Committees

GRC Level	Redressal Mechanism
First Level GRM: GRC at the Site/Community Level	Composed at the community level and easily accessible to workers. This committee will comprise of community liaison officers, supervision consultant site engineer, representative of CSC management among other identified persons. In addition, complaint box will be placed in appropriate place that will encourage aggrieved workers drop their complaints. This should be checked regularly (at least twice weekly) by a designated person in the committee. This committee will be



GRC Level	Redressal Mechanism
	expected to report to the PIU.
Second Level of GRM: GRC at the PIU Level	This committee shall comprise of PIU members including the Project Coordinator, Social Officer/Expert among others, and other department level representative from within the Project Monitoring Committees. If the complainant does not accept the solution offered by the PIU-GRC, then the complaint is referred by the Project Coordinator to the court
Third Level of GRM: Court Redress of Grievances	While the purposes of GRM put in place by this Project is to resolve all issues caused by the project implementation out of court and to save time which is usually involved in litigation matters, it is not out of place to anticipate a scenario where aggrieved person is not satisfied with the process and judgment given by the grievance redress committee(s). Therefore, PIU shall inform aggrieved persons of their right to seek for redress in the court of law as the final resort.

Roles of the GRCs

The Grievance Redress Committees will be responsible for:

- Communicating with the Affected persons (AP's) and evaluate if they are entitled to recompense;
- Making the list of affected persons public and the established grievance redress procedure.
- Recommending to the Social Safeguard Specialists of the CSC & PIU solutions to such grievances from affected persons; Communicating the decisions to the AP's; to acknowledge appeals from persons, households or groups who rightfully will not be affected by the project, but claim to be, and to recommend to the PIU whether such persons should be recognized as APs, and to communicate back the decisions to the Claimants.

Expectation When Grievances Arise

When workers present a grievance, any of the followings is or are expected from the project management/channel of grievance resolution:

- acknowledgement of their problem;
- an honest response to questions/issues brought forward;
- an apology, adequate compensation; and
- Modification of the conduct that caused the grievance and some other fair remedies.

Typical Grievance Redress Process

The process of grievance redress will start with registration of the grievance(s) to be addressed, for reference purposes and to enable progress updates of the cases. Thus, the aggrieved worker will file a complaint/ fill a grievance form with the Grievance Redress Committee. The complaint should contain a record of the person responsible for an individual complaint, and records dates for the date the complaint was reported; date the Grievance Log was uploaded onto the project database; date information on proposed corrective action sent to complainant



(if appropriate), the date the complaint was closed out and the date response was sent to complainant.

The officer receiving the complaint (part of the GRC member) will ensure that each complaint has an individual reference number and is appropriately tracked, and recorded actions are completed. The response time will depend on the issue to be addressed but it should be addressed with efficiency. The Grievance committee will act on it within 10 working days of receipt of grievances. If no amicable solution is reached, or the affected person does not receive a response within 15 working days, the affected person can appeal to the PIU, which should act on the grievance within 15 working days of its filing.



ANNEX



Annexure 1: Workers Campsite Management Framework

Elements for managing risks associated with the Workers Campsite under the proposed project include:

- **Location:** The Contractor shall ensure to site workers camp at a designated location approved by the PIU. The location was determined during the preliminary design preparation in conjunction with the local communities/authorities with the following criteria:
 - ✓ Be located outside the protection zone of watercourses (100 m) and wetlands;
 - ✓ Be located within an acceptable distance from existing residential areas;
 - ✓ Not located in areas with intact vegetation
 - ✓ The contractor must first obtain the necessary licenses and consents from the local authorities or from the owner of the needed area; Although it is the contractor's decision, it is recommended that whenever possible the camps should be handed over to the administrative or community authorities for future use;
 - ✓ The contractor must submit for the prior approval of the Resident Engineer, the implantation design and other project structures and specifications related to the camps and sites that are intended to be built;
 - ✓ The contractor shall take all necessary measures and precautions to ensure that the execution of the works is carried out in accordance with environmental, legal and regulatory requirements, including those set out in this document; The contractor shall take all measures and precautions to avoid any disturbance in the local communities and among the users of the road, as a result of the project execution;
 - ✓ The contractor shall, whenever possible, apply measures to reduce or eliminate any sources of disturbances. The contractor shall follow the provisions of this document, as well as the applicable legislation and standards, during the use, operation and maintenance of the camps and sites, in particular with regard to water supply and sanitation, solid waste management, handling and storage of dangerous substances, etc.;
 - ✓ The areas occupied by the camps and sites must be recovered at the end of the project, when the contractor is demobilized, through the replacement of previously existing conditions, unless other uses are intended
- **Accommodation, Hygiene and Sanitation:** The Contractor will ensure that all necessary sanitary facilities shall be provided for workers expected on site: separate rooms will be provided for male and female workers, all necessary sanitary facilities complying with World Health Organization (WHO) regulations will be provided for workers including:
 - ✓ Separate toilets for male and female
 - ✓ Portable water with well-placed overhead tanks
 - ✓ Wash basins
 - ✓ Concrete and covered septic tanks
- **On-site Social and Health Care Facilities:** Provision of basic on-site social and medical facilities such as first aid, basic health care center, recreational center, food service, etc. in order to reduce pressure on community facility.
- **Campsite Safety and Security:** Provision of 24 hours security stationed at the Campsite to ensure the security and safety of construction workforce and construction equipment.
- **Campsite Waste Management:** Adequate waste management of sewage and other forms of



waste within the campsite. The Campsite shall be equipped with independent toilet facilities for male and female workers respectively, in order to discourage irregular waste disposal. Furthermore, standards must be instituted for personal and public hygiene among project workers. Additionally, project workers shall be properly trained on personal hygiene.

- **Establishment of and Training on Workers on Code of Conduct:** The Supervising Engineer and Safeguards Unit shall ensure that Contractors establish a workers' Code of Conduct (CoC). The CoC will help mitigate some of the social and environmental impacts of labor influx such as risk of social conflict, Increased risk of illicit behavior and crime, Increased burden on and competition for public service provision, Wastewater discharges, Increased demand on freshwater resources, and Inadequate waste disposal and illegal waste disposal sites etc., will help keep workers (local/foreign) in check on the rules and regulations binding their engagement. Contractors to ensure provision of training to workforce on code of conduct and ensure strict compliance. Measures provided for in the ESMP to deter illicit behavior and other social vices are adequately enforced.
- **Training programs:** Conduct and ensure key staff, including contractors, receive training regarding the likelihood, significance and management of influx-related issues such as HIV/AIDS, GBV, SH, SEA, VAC etc.
- **Carry out Regular Monitoring:** The CSC shall monitor and report to PIU for change throughout the project cycle to ensure compliance and on mitigation effectiveness from contractor. Ensure a documented monitoring program that tracks key social outcomes, changes and issues at regular intervals throughout the project lifecycle.



Annexure 2: Written Particulars of Employment

1. Name of Employer
2. Name of Employee
3. Date Employment began
4. Wage and Method of Calculation
5. Interval at which wages are paid
6. Normal Hours of work
7. Short description of employee's work
8. Probation Period
9. Annual Holiday Entitlement
10. Paid Public Holiday
11. Payment during sickness
12. Maternity Leave (if employee female)
13. Nursing Break Entitlement (for female employee)
14. Notice employee entitled to receive
15. Notice employer required to give
16. Any other matter either party wishes to include

Notes:

- (a) An employee is free to join a trade union or staff association, which is recognized by the undertaking. The address of the Trade Union or Staff Association is:
- (b) The grievance procedure and disciplinary procedure in this undertaking requires to be followed when a grievance arises or disciplinary action needs to be taken.
- (c) When any heading is inapplicable, enter NIL.

.....
Employer's signature Witness
.....
Employee's signature Witness
.....
Date Date



Annexure 3: Sample of a Contractors Code of Conduct

1. Aim of The Code of Conduct

The main aim of the Code of Conduct is to prevent and/or mitigate the social risks within the context of Expansion of Rescue Stations. The Codes of Conduct are to be adopted by contractors. The social risks that may arise include but not limited to Gender Based Violence (GBV), Violence Against Children (VAC), HIV and AIDS infection/spread, and occupational health and safety.

2. Codes of Conduct

This chapter presents three Codes of Conduct (CoC) for use (note all COC must be translated into Sindhi as well):

- i. **Contractors Code of Conduct:** Commits the contractor to addressing GBV and VAC issues;
- ii. **Construction Site Supervisor /Manager's Code of Conduct:** Commits managers to implementing the Code of Conduct, as well as those signed by individuals; and
- iii. **Individual Code of Conduct:** Code of Conduct for each individual working on project funded projects

2.1 Contractors Code of Conduct

Contractors are obliged to create and maintain an environment which prevents social risks. They have the responsibility to communicate clearly to all those engaged on the project the behaviors which guard against any form of abuse and exploitation. In order to prevent social risks, the following core principles and minimum standards of behavior will apply to all employees without exception:

- i. GBV or VAC constitutes acts of gross misconduct and are therefore grounds for sanctions, penalties and/or termination of employment and/or contract. All forms of social risks including grooming are unacceptable be it on the work site, the work site surroundings, or at worker's camps of those who commit GBV or VAC will be pursued.
- ii. Treat women, children (persons under the age of 18) and people with disability with respect regardless of race, color, language, religion, political or other opinion, national, ethnic, cultural beliefs/practices, or other status.
- iii. Do not use language or behavior towards men, women or children that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate.
- iv. Sexual activity with children/learners under 18 (including through digital media) is prohibited. Mistaken belief regarding the age of a child and consent from the child is not a defense.
- v. Exchange of money, employment, goods, or services for sex, including sexual favors or other forms of humiliating, degrading or exploitative behavior is prohibited.
- vi. Sexual interactions between contractor's employees and communities surrounding the work place that are not agreed to with full consent by all parties involved in the sexual act are prohibited. This includes relationships involving the withholding, promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex.



- vii. Where an employee develops concerns or suspicions regarding acts of GBV or VAC by a fellow worker, whether in the same contracting firm or not, he or she must report such concerns in accordance with established Grievance Redress Mechanism (GRM) that protects the identities of victims and whistle-blowers.
- viii. All contractors are required to attend an induction prior to commencing work on site to ensure they are familiar with the social risks and Codes of Conduct.
- ix. All employees must attend a mandatory training once a month for the duration of the contract starting from the first induction prior to commencement of work to reinforce the understanding of the institutional social risks and Code of Conduct.
- x. The Contractor shall ensure provision of financial resources and support compliance to occupation health and safety requirements for all workers. The Contractor shall ensure that workers dress appropriately i.e., dress in a way that:
 - Is unlikely to be viewed as offensive, revealing, or sexually provocative.
 - Does not distract, cause embarrassment or give rise to misunderstanding.
 - Is absent of any political or otherwise contentious slogans.
 - Is not considered to be discriminatory and is culturally sensitive.
- xi. The Company shall ensure provision of financial resources and trainings to prevent spread of communicable disease including Covid 19, HIV and AIDS.
- xii. The company shall comply with all the applicable provincial legislation including giving terminal benefits to workers who have served for at least three months;
- xiii. All contractors must ensure that their employees sign an individual Code of Conduct confirming their agreement to support prevention of social risks activities.
- xiv. The contractor should ensure equitable access to limited natural resources (e.g., water points) to avoid conflicts with local communities.
- xv. Where possible, the contractor should ensure employment of local workforces especially where unskilled labor is required to mitigate social risks

I do hereby acknowledge that I have read the foregoing Code of Conduct, do agree to comply with the standards contained therein and understand my roles and responsibilities. I understand that any action inconsistent with this Code of Conduct or failure to take action mandated by this Code of Conduct may result in termination of the contract.

FOR THE CONTRACTOR

Signed by:

- Signature: _____
- Title: _____
- Date: _____

2.2 Construction Site Supervisor/Managers Code of Conduct

Site Supervisors at all levels play an important role in creating and maintaining an environment, which prevents workers misconduct. They need to support and promote the implementation of the Contractors Codes of Conduct and enforce Workers Codes of Conduct. Construction site supervisor must adhere to



this Code of Conduct. This commits them to develop and support systems, which maintain a safe working environment. Construction Site Supervisor responsibilities include but are not limited to:

- i. Where possible, ensure employment of local workforces especially where unskilled labor is required to mitigate social risks;
- ii. Ensure there is zero tolerance to child labor practices;
- iii. Promote gender inclusion at all levels;
- iv. Establish a workers' committee to oversee issues of workers' misconduct including GBV and VAC;
- v. Ensure compliance to occupation health and safety requirements for all workers;
- vi. Ensure that workers dress code is adhered to appropriately;
- vii. Ensure that access to construction sites is restricted to authorized persons; hoarding is provided and that there is proper signage to construction site(s);
- viii. Facilitate workers training and capacity building on social, environmental and health and safety;
- ix. Ensure that all workers are sensitized on HIV and AIDS issues;
- x. Ensure that fundamental workers' rights (e.g., working hours, minimum wages, etc.) are protected;
- xi. Ensure that possession of alcohol and illegal drugs and other controlled substances in the workplace and being under influence of these substances on the job and during working hours should be strictly prohibited;
- xii. Ensure compliance to all legal requirements;
- xiii. Supervisors failing to comply with such provision can be in turn subject to disciplinary measures including termination of employment; and
- xiv. Ultimately, failure to effectively respond to some provisions of the code of conduct may provide grounds for legal actions by authorities.
- xv. Ensure that every employee under his/her supervision has been oriented on the Code of Conduct and has signed.

I do hereby acknowledge that I have read the foregoing Code of Conduct, do agree to comply with the standards contained therein and understand my roles and responsibilities to comply to all rules of this code of conduct. I understand that any action inconsistent with this Code of Conduct or failure to take action mandated by this Code of Conduct may result in disciplinary action.

Signed by: _____

Signature: _____

Date: _____

FOR THE EMPLOYER

Signed by: _____

Signature: _____

Date: _____

2.3 Workers Code of Conduct

I, _____, acknowledge that preventing any misconduct as stipulated in this code of conduct, including gender-based violence (GBV), child abuse/exploitation (CAE) are important. Any activity, which constitute acts of gross misconduct are therefore grounds for sanctions, penalties or even termination of employment. All forms of misconduct are unacceptable be it on the work site, the work site



surroundings, or at worker's camps. Prosecution of those who commit any such misconduct will be pursued as appropriate

I agree that while working on this project, I will:

- i. Consent to security background check;
- ii. Treat women, children (persons under the age of 18) and persons with disability with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, birth or other status;
- iii. Not use language or behavior towards men, women or children/learners that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate;
- iv. Not participate in sexual activity with children/learners—including grooming or through digital media. Mistaken belief regarding the age of a child and consent from the child is not a defense;
- v. Not exchange money, employment, goods, or services for sex, with community members including sexual favors or other forms of humiliating, degrading or exploitative behavior;
- vi. Not have sexual interactions with members of the communities surrounding the work place, worker's camps and fellow workers that are not agreed to with full consent by all parties involved in the sexual act (see definition of consent above). This includes relationships involving the withholding, promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex - such sexual activity is considered "non-consensual" within the scope of this Code;
- vii. Attend trainings related to HIV and AIDS, GBV, CAE, occupational health and any other relevant courses on safety as requested by my employer;
- viii. Report to the relevant committee any situation where I may have concerns or suspicions regarding acts of misconduct by a fellow worker, whether in my company or not, or any breaches of this code of conduct provided it is done in good faith;
- ix. With regard to children (under the age of 18):
 - x. Not invite unaccompanied children into my home, unless they are at immediate risk of injury or in physical danger.
 - xi. Not sleep close to unsupervised children unless absolutely necessary, in which case I must obtain my supervisor's permission, and ensure that another adult is present if possible.
 - xii. Refrain from physical punishment or discipline of children.
 - xiii. Refrain from hiring children for domestic or other labor, which is inappropriate given their age, or developmental stage, which interferes with their time available for education and recreational activities, or which places them at significant risk of injury.
 - xiv. Comply with all relevant local legislation, including labor laws in relation to child labor.
 - xv. Refrain from any form of theft for assets and facilities including from surrounding communities.
 - xvi. Remain in designated working area during working hours;



- xvii. Refrain from possession of alcohol and illegal drugs and other controlled substances in the workplace and being under influence of these substances on the job and during working hours;
- xviii. Wear mandatory PPE at all times during work;
- xix. Follow prescribed environmental occupation health and safety standards
- xx. Channel grievances through the established grievance redress mechanism.

I understand that the onus is on me to use common sense and avoid actions or behaviors that could be construed as misconduct or breach this code of conduct.

I acknowledge that I have read and understand this Code of Conduct, and the implications have been explained with regard to sanctions on-going employment should I not comply.

Signed by: _____

Signature: _____

Date: _____

FOR THE EMPLOYER

Signed by: _____

Signature: _____ Date: _____



Annexure 4: Training Plan

S/N	Training Title	Description	Timing	Who to Deliver the Training
1	Sensitization on the HSE Manual	To train all workers on all the provisions in the HSE Manual and the company's HSE Policy (use local language as necessary) including the right use of PPEs	Upon mobilization of every worker to site	HSE Expert
			Refresher on a monthly basis	Contractor HSE Officer
2	First Aid administration/ Use of First Aid Box	To train selected officers (Contractor HSE Officer, Site Manager, Yard Manager, Team leaders, Female workers representative) on the right first aid administration for different scenarios including demonstrations	Upon mobilization to site and after every 6 months	First Aid Care Giver
3	Protocol for construction site, staging areas, borrow pits and campsite	To ensure all workers understand the protocol to adopt at the construction site, staging areas, borrow pits and campsite	Upon mobilization to site Refresher every 3 months	Site Manager
4	General Training on site work	Right procedures for: manual handling, electrical safety, emergency procedures, work at height, confined spaces, underground construction, cofferdams etc.	Upon mobilization to site Refresher every 2 months	Site Manager/ Project Manager/ Engineer/ HSE Officer
5	Daily HSE Pep Talks	To provide daily reminder on safety precautions and acceptable environmental and social protection including dos and don'ts for all workers	Daily	Contractor HSE Officer
6	Community Health and Safety Training	To train all workers and project management on: <ul style="list-style-type: none">• Sexual Exploitation and Abuse/ Gender Base Violence Training• Code of Conduct Training• Sensitization on STDs/STIs• Grievance Redress Mechanism	Upon mobilization of every worker to site Refresher every 3 months	Social Safeguard Expert
7	Drivers Training	To train all project drivers on safety and acceptable conduct	Upon employment Daily Monitoring Monthly Refresher	Site In charge



Annexure-VI Emergency Action Plan



Annexure VI Emergency Action Plan

Introduction

This Emergency Action Plan (EAP) establishes guidelines for all reasonably foreseeable workplace emergencies. Because each emergency situation involves unique circumstances, the guidelines provide general guidance only. Thoughtful actions based on situation assessment are always required when responding to an emergency. It is also important to note that emergency guidelines do not necessarily represent sequential series of steps.

The actions taken in the initial minutes of an emergency are critical. A prompt warning to employees to evacuate, shelter or lockdown can save lives. A call for help to public emergency services that provides full and accurate information will help the dispatcher send the right responders and equipment. An employee trained to administer first aid can be lifesaving. Action by employees with knowledge of building and process systems can help control a leak and minimize damage to the facility and the environment.

When an emergency occurs, the first priority is always life safety. The second priority is the stabilization of the incident. There are many actions that can be taken to stabilize an incident and minimize potential damage. First aid by trained employees can save lives. Use of fire extinguishers by trained employees can extinguish a small fire. Supervision of building utilities and systems can minimize damage to a building and help prevent environmental damage.

Special Note: *Safety and health are the overriding priorities in all emergency situations. Think before you act and... if you see something, say something!*

General Information (Refer to “EAP Position and Personnel Roster”)

Emergencies can be identified as Medical, Fire, Severe Weather, Bomb Threats, Chemical Spills, Terrorist Attacks, Criminal Acts, Extended Power Loss, etc. Personnel should identify these emergencies and report them to the Emergency Coordinator and **CALL** to alert Police. The local Emergency Services respond to emergencies.

Expansion of Emergency Rescue 1122 Stations in Nine (09) Districts of Sindh Province

S. No.	Name of the Sub-Project	Location
1	Expansion of Emergency Rescue 1122 Station	Dadu
2	Expansion of Emergency Rescue 1122 Station	Kambar Shahdadkot
3	Expansion of Emergency Rescue 1122 Station	Ghotki

S. No.	Name of the Sub-Project	Location
4	Expansion of Emergency Rescue 1122 Station	Badin
5	Expansion of Emergency Rescue 1122 Station	Jacobabad
6	Expansion of Emergency Rescue 1122 Station	Jamshoro
7	Expansion of Emergency Rescue 1122 Station	Tharparkar
8	Expansion of Emergency Rescue 1122 Station	Thatta
9	Expansion of Emergency Rescue 1122 Station	Sujawal

Purpose

The purpose of this Emergency Evacuation Plan is to ensure the safe and orderly evacuation of all personnel from the rescue station in the event of an emergency.

Scope

This plan applies to all personnel who are present at the rescue station at the time of an emergency.

Definitions

- Emergency: An event that poses a significant threat to the safety of personnel at the rescue station.
- Evacuation: The process of moving personnel from the rescue station to a safe location.
- Evacuation route: A designated path that personnel should use to evacuate the rescue station.
- Evacuation warden: A person who is responsible for ensuring that a group of personnel evacuates the rescue station safely.

Procedures

In the event of an emergency, the following procedures should be followed:

1. The alarm system will be activated to notify personnel of the emergency.
2. Evacuation wardens will be assigned to each group of personnel.
3. Evacuation wardens will lead their groups to the designated evacuation routes.



4. Personnel should evacuate the rescue station in an orderly and calm manner.
5. Personnel should not attempt to re-enter the rescue station until the all-clear signal has been given.

Responsibilities

The following personnel are responsible for the implementation of this emergency evacuation plan:

- Rescue station manager: The rescue station manager is responsible for ensuring that the plan is in place and that it is regularly reviewed and updated.
- Evacuation wardens: Evacuation wardens are responsible for leading their groups of personnel to the designated evacuation routes in the event of an emergency.
- All personnel: All personnel are responsible for familiarizing themselves with the evacuation plan and for following the procedures in the event of an emergency.

Training

All personnel will be trained on the emergency evacuation plan on an annual basis.

Review and updating

The emergency evacuation plan will be reviewed and updated on an annual basis to ensure that it remains current and effective.

Contact information

The following contact information is provided for the purpose of reporting emergencies:

- Rescue station manager: [Name]
- Phone number: [Phone number]
- Email address: [Email address]

Conclusion

This emergency evacuation plan is designed to ensure the safe and orderly evacuation of all personnel from the rescue station in the event of an emergency. By following the procedures in this plan, personnel can help to ensure their own safety and the safety of others.

Alerting Personnel



The following apply during fires and other workplace emergencies requiring evacuation:

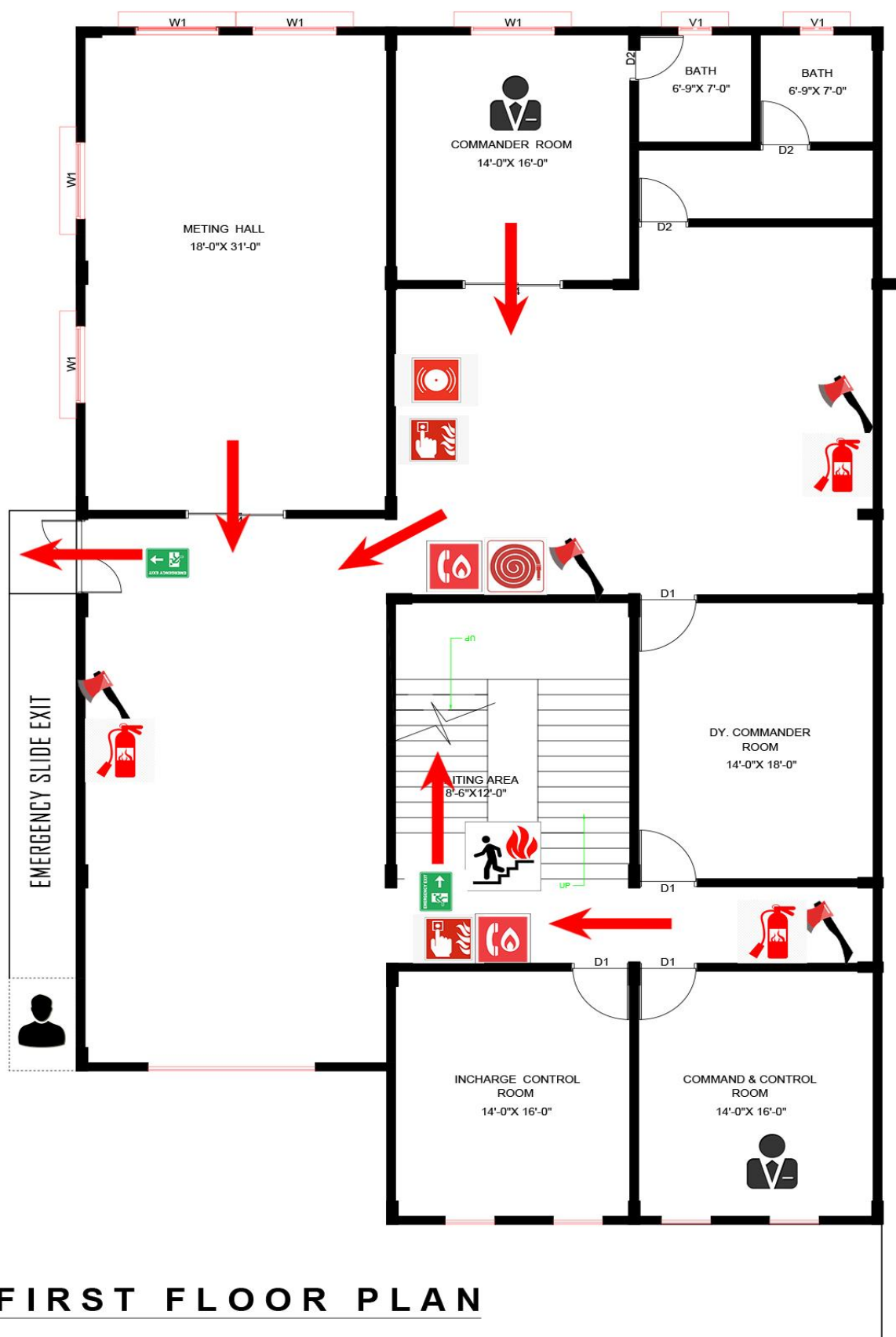
- The fire alarm will be activated and personnel will calmly evacuate using designated escape routes giving vocal alarms of “FIRE”, etc.
- Personnel will look into rooms as they leave the suite and notify personnel to exit; do not delay your evacuation for this purpose.
- Personnel will assemble and remain in the evacuation Assembly Area. Leaving the group or failing to report to the evacuation Assembly Area can cause unnecessary effort locating personnel believed to be missing.
- Immediately notify your Floor Captain or the Emergency Coordinator of missing or unaccounted for personnel.
- Stay alert and listen for instructions.
- Await guidance to disperse, return to the building or take additional measures.
- In the event of a Medical or other emergency that does NOT require evacuation,

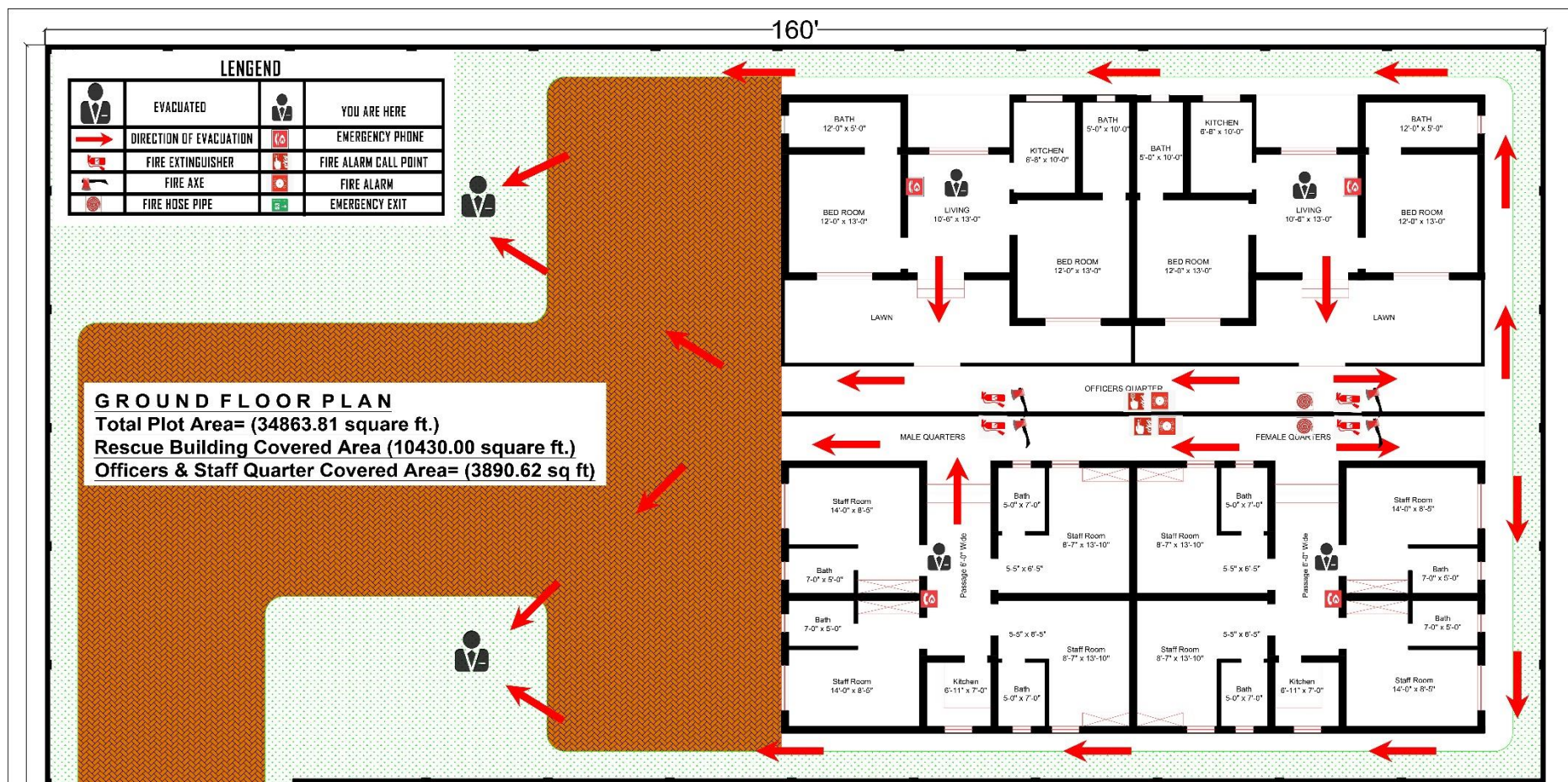
CALL at Hotline to alert Police and notify the Emergency Coordinator.



Emergency Exit







ROLES & RESPONSIBILITIES ERGENCIES

Refer to “EAP Position and Personnel Roster”

Authority: Emergency Coordinator, Floor Captain, and Aides for Persons with Disabilities are responsible only for evacuating personnel out of the suite and assisting personnel to the Assembly Area. Building Managers assume responsibility once our personnel exit (insert office information). Upon their arrival, Emergency Services (Incident Commander) will assume command.

A. Emergency Coordinator (EC)

Non-Emergency Responsibilities:

- Ensure the dissemination, implementation and updating of the EAP.
- Review and update EAP annually.
- Ensure personnel are assigned to all EAP positions.
- Conduct exercises as needed to optimize our personnel emergency response.
- Conduct and document an After-Action Review following any emergency event and provide a copy to the organization’s Director.
- The EAP will be maintained in accordance with and shall include:
 - Emergency escape procedures and emergency escape route assignments.
 - Procedures to be followed by personnel who remain behind to operate/conduct critical operational requirements before they evacuate.
 - Procedures to account for all personnel following evacuation.

Duties/Responsibility during an Emergency:

- Ensure Floor Captains initiate and complete accountability and/or evacuation.
- Coordinate the orderly evacuation of personnel when needed.
- Obtain accountability for our personnel following the incident and/or evacuation.
- Provide Emergency Response personnel with necessary facility information.
- Notify Building Management & Emergency Response of unaccounted for personnel.

B. In charge

A minimum of one floor captain will be assigned to each zone (see **Attachment 1**).

Non-Emergency Responsibilities:

- Understand the building's emergency procedures and be prepared to assume his/her responsibilities promptly and calmly in an emergency.
- Maintain an accurate roster of all members assigned to his/her zone, which will be update at least twice a year and upon the arrival of any new personnel. Provide updated information on personnel in your zone to the EC within 2 business days.

Duties/Responsibilities during an Emergency:

- Put on a vest, take your cellphone and copy of the EAP Position and Personnel Roster and ensure accountability for all personnel in your zone.
- During an evacuation, direct people out of your zone and exit via the stairwells; remind employees NOT to use the elevators, as they will be taken out of service.
- Upon arrival at the Assembly Area, confirm all personnel are present or are otherwise accounted for (e.g., illness, travel, vacation, meetings).
- Immediately notify Emergency Coordinator of unaccounted for/missing personnel.

C. Aide for Persons with Disabilities (APD)

Non-Emergency Responsibilities:

- Understand the building's emergency procedures and be prepared to assume his/her responsibilities promptly and calmly in an emergency.

Duties/Responsibilities during an Emergency:

- Put on vest, take your cellphone and copy of the EAP Position and Personnel Roster.
- Locate the Mobility Impaired Person(s) and assist them in getting to the designated mobility impaired location—the stairwell landing.
- Contact the Emergency Coordinator via the contact information located on your recall roster and let them know what stairwell you are located in and that you have arrived there safely with the person needing assistance.
- Continue to wait on stairwell landing until flashing strobes/alarms have been silenced. Once the alarm has been shut off, assist the person back to their work station.

D. All other Personnel

- Understand all information in the EAP.
- Read updates to the EAP when provided.
- Know the names and contact info for personnel serving as EC/FC/APD, where to find the AED, evacuation routes and procedures, Assembly Area location.



GENERAL INSTRUCTIONS FOR REPORTING EMERGENCIES

Emergency assistance will be summoned by **CALLING**

Following information will be provided

- Name and location.
- Phone number from where the call is being made.
- Location of the emergency, including facility name, Bldg. #, suite #, full address.
- Type of emergency:
 - Medical
 - Fire
 - Confined Space Rescue
 - Hazardous Material
 - Criminal Act
 - Bomb Threat
- Other important Information:
 - Number and condition of victims.
 - Location and extent of situation, hazard, fire, etc.
 - Involvement of Hazardous Materials (as available, give product name and/or describe any markings, labels or placards).
- What is needed

DO NOT HANG UP FIRST. Let emergency personnel hang up first.

After the call, station someone to direct Emergency Response personnel to the scene of the emergency.



MEDICAL EMERGENCIES

A medical emergency response plan is a roadmap for how to transport a patient from their point of injury or illness to a definitive care facility. Creating a response plan can be a daunting task, one that takes many hours to put together correctly.

For Coping with Medical Emergency at Project Site, following measures will be brought into account.

1. Provision of First Aid Box will be ensured.
 2. Trained employees will remain alert to respond to the victim's location and bring a first aid kit
 3. Availability of Ambulance will be ensured at site round the Clock. In case of non-availability, contact numbers will be kept.
 4. In case of critical condition, victim will be transferred to DHQs immediately.
 5. Following record will be maintained.
- Number and location of victim(s)
 - Nature of injury or illness
 - Hazards involved
 - Nearest entrance (emergency access point)

Location of First Aid Kits and Automated External Defibrillator(s)

First Aid Kit	(INSERT LOCATION)
Automated External Defibrillator	(INSERT LOCATION)

Procedures

- Only trained responders will provide first aid assistance.
- Do not move the victim unless the victim's location is unsafe.
- Take "universal precautions" to prevent contact with body fluids and exposure to blood borne pathogens.
- Meet the ambulance at the nearest entrance or emergency access point; direct them to victim(s).



FIRES

Fire Emergency Plan

Here are some safety tips for fire emergencies:

- Keep fire extinguishers in easily accessible places.
- Have a fire escape plan and practice it regularly.
- Keep flammable materials away from heat sources.
- Do not overload electrical outlets.
- Have smoke detectors and carbon monoxide detectors installed in your home.
- Test your smoke detectors and carbon monoxide detectors monthly.
- Change the batteries in your smoke detectors and carbon monoxide detectors yearly.

If a fire is reported, pull the fire alarm, (if available and not already activated) to warn occupants to evacuate. Then call to alert Fire Department. Following information will be provided:

- Business name and street address
- Nature of fire
- Fire location (building and floor)
- Type of fire alarm (detector, pull station, sprinkler waterflow)
- Location of fire alarm (building and floor)
- Name of person reporting fire
- Telephone number for return call

****Emergency Coordinator and Floor Captains to direct evacuation of personnel****

Evacuation Procedures

- Evacuate building along evacuation routes to primary assembly areas outside.
- Redirect building occupants to stairs and exits away from the fire.
- Prohibit use of elevators.
- Evacuation team to account for all employees and visitors at the Assembly Area.

ACTIVE SHOOTER AND WORKPLACE VIOLENCE



Profile of an Active Shooter

An Active Shooter is an individual actively engaged in killing or attempting to kill people in a confined and populated area, typically through the use of firearms.

How to respond when an Active Shooter is in your vicinity

1. Evacuate	2. Hide Out	3. Take Action
<ul style="list-style-type: none"> Have an escape route and plan in mind Leave your belongings behind Keep your hands visible 	<ul style="list-style-type: none"> Hide in an area out of the active shooter's view Block entry to your hiding place and lock doors. 	<ul style="list-style-type: none"> As a last resort and only when your life is in imminent danger. Attempt to incapacitate the active shooter Act with physical aggression and throw items at the active shooter
<p>*****CALL WHEN IT IS SAFE TO DO SO*****</p>		

How to respond when Law Enforcement arrives on the scene

Reaction when Law Enforcement Arrives	
<ul style="list-style-type: none"> Remain calm and follow officers' instructions Immediately raise hands and spread fingers Avoid making quick movements towards officers such as attempting to hold on to them for safety 	<ul style="list-style-type: none"> Avoid pointing, screaming, and/or yelling Do not stop to ask officers for help or directions when evacuating. Just proceed in the direction from which the officers entered the premises.

Information must be provided to Law Enforcement	
<ul style="list-style-type: none"> Location of active shooter Number of shooters, if more than one Physical description of shooter(s) 	<ul style="list-style-type: none"> Number and type of weapon(s) Number of potential victims at the location



BOMB THREATS

Here are some safety tips for bomb threats:

- Be aware of your surroundings and report any suspicious activity to the authorities.
- Do not leave unattended packages or luggage in public places.
- If you see something suspicious, do not touch it. Report it to the authorities immediately.
- Be familiar with the evacuation procedures for your workplace and school.
- Have a plan in place for what to do in the event of a bomb threat.

Phone Bomb Threat

- Stay calm – do not alarm others.
- Notify your supervisor who will report the threat to law enforcement by **CALLING**. If supervisor is not present, you make the call.
- Fill out the *Bomb Threat Card* to assist responding agency.
- Decision to evacuate the building will be made by law enforcement personnel.
- Take the Bomb Threat Card with you if the building is evacuated.

Written Bomb Threat

- Remain calm and leave the message where it is found.
- Do not handle the document any more than necessary to preserve fingerprints and other evidence.
- Do not alarm others.
- Notify your supervisor who will report the threat to law enforcement by **CALLING**. If supervisor is not present, you make the call.
- Do not give information to anyone except supervisor and law enforcement personnel.

SEVERE WEATHER AND NATURAL DISASTERS

Tornado:

- When a warning is issued by sirens or other means, seek shelter inside. The following are recommended locations for shelter:
- Small interior rooms on the lowest floor and without windows,
- Hallways on the lowest floor away from doors and windows, and
- Rooms constructed with reinforced concrete, brick, or block with no windows.
- When a warning is issued by sirens or other means, seek shelter inside.
- Stay away from outside walls and windows.
- Use arms to protect head and neck.
- Remain sheltered until the tornado threat is announced to be over.

Earthquake:

- Stay calm and await instructions from the Emergency Coordinator.
- Keep away from overhead fixtures, windows, filing cabinets, and electrical power.
- Assist people with disabilities in finding a safe place.
- Evacuate as instructed by the Emergency Coordinator or the designated official.

Flood:

- Be ready to evacuate as directed by the Emergency Coordinator.
- Follow the recommended primary or secondary evacuation routes.
- Climb to high ground and stay there.
- Avoid walking or driving through flood water.
- If car stalls, abandon it immediately and climb to a higher ground.

Blizzard:

- Stay calm and await instructions from the Emergency Coordinator.
- Stay indoors!
- If there is no heat:
- Close off unneeded rooms or areas.
- Stuff towels or rags in cracks under doors.
- Cover windows at night.
- Eat and drink. Food provides the body with energy and heat, and fluids prevent dehydration.



EXTENDED POWER LOSS

In the event of extended power loss to a facility certain precautionary measure will be taken depending on the geographical location and environment of the facility:

- Unnecessary electrical equipment and appliances will be turned off in the event that power restoration would surge causing damage to electronics and effecting sensitive equipment.
- Facilities with freezing temperatures will be turned off and drain the following lines in the event of a long-term power loss.
 - Fire sprinkler system
 - Standpipes
 - Potable water lines
 - Toilets
- Equipment that contains fluids that may freeze due to long term exposure to freezing temperatures will be moved to heated areas, drained of liquids, or provided with auxiliary heat sources.

Upon Restoration of heat and power:

- Electronic equipment will be brought up to ambient temperatures before energizing to prevent condensation from forming on circuitry.
- Fire and potable water piping should be checked for leaks from freeze damage after the heat has been restored to the facility and water turned back on.



PERSONS WITH DISABILITIES

Employee and Supervisor Responsibilities

If an employee is disabled, critical steps will be taken to help ensure that he is safe during an emergency. First supervisor will be informed if require assistance in the event of an evacuation. Second, work with your supervisor to develop a plan to ensure your safe evacuation in the event of an emergency. If you do not wish to share your needs with your supervisor you should review the procedures to be followed in an emergency situation affecting your assigned facility and familiarize yourself with your evacuation route and assembly area.

Supervisor will be responsible for reviewing facility's EEP with all employees under his supervision, including those with disabilities, to ensure that each employee clearly understands procedures that must be followed during an emergency event. Be proactive in developing emergency plans to meet the needs of employees with a disability. The employees with disabilities in the decision-making process when selecting special equipment and developing evacuation procedures in collaboration with building managers. Ensure the "Aide for Persons with Disabilities" will be notified of any employee that may require special assistance in the event of evacuation or emergency.

Procedures

Options for disability evacuation include:

- **Shelter in Place**—Take immediate shelter at the designated location.
- **Evacuation Chair or Other Assistive Device**—An evacuation chair or escape chair is a lightweight wheelchair used to evacuate a physically disabled person from an area of danger, such as a burning building. The chair is designed to allow an attendant to transfer the person down stairs more safely than could be done with a normal wheelchair. Such chairs may be folded to a small size and stowed in much the same manner as other firefighting equipment such as fire hoses and fire extinguishers.
- **Two-person Carry**—This is a way to carry a person to safety with the assistance of a partner. The two assistants link arms to form a backrest and grip wrists to form a seat.

Please remember, when making decisions regarding the best way to evacuate individuals with disabilities from building, workers will work closely with local emergency response personnel and their safety specialists.



ATTACHMENT 1

Bomb Threat Card

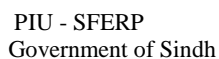
BOMB THREAT CALL PROCEDURES	BOMB THREAT CHECKLIST																		
<p>Most bomb threats are received by phone. Bomb threats are serious until proven otherwise. Act quickly, but remain calm and obtain information with the checklist on the reverse of this card.</p> <p>If a bomb threat is received by phone:</p> <ol style="list-style-type: none"> 1. Remain calm. Keep the caller on the line for as long as possible. DO NOT HANG UP, even if the caller does. 2. Listen carefully. Be polite and show interest. 3. Try to keep the caller talking to learn more information. 4. If possible, write a note to a colleague to call the authorities or, as soon as the caller hangs up, immediately notify them yourself. 5. If your phone has a display, copy the number and/or letters on the window display. 6. Complete the Bomb Threat Checklist (reverse side) immediately. Write down as much detail as you can remember. Try to get exact words. 7. Immediately upon termination of the call, do not hang up, but from a different phone, contact FPS immediately with information and await instructions. <p>If a bomb threat is received by handwritten note:</p> <ul style="list-style-type: none"> • Call _____ • Handle note as minimally as possible. <p>If a bomb threat is received by email:</p> <ul style="list-style-type: none"> • Call _____ • Do not delete the message. <p>Signs of a suspicious package:</p> <table style="width: 100%;"> <tr> <td>• No return address</td> <td>• Poorly handwritten</td> </tr> <tr> <td>• Excessive postage</td> <td>• Misspelled words</td> </tr> <tr> <td>• Stains</td> <td>• Incorrect titles</td> </tr> <tr> <td>• Strange odor</td> <td>• Foreign postage</td> </tr> <tr> <td>• Strange sounds</td> <td>• Restrictive notes</td> </tr> <tr> <td>• Unexpected delivery</td> <td></td> </tr> </table> <p>DO NOT:</p> <ul style="list-style-type: none"> • Use two-way radios or cellular phone; radio signals have the potential to detonate a bomb. • Evacuate the building until police arrive and evaluate the threat. • Activate the fire alarm. • Touch or move a suspicious package. 	• No return address	• Poorly handwritten	• Excessive postage	• Misspelled words	• Stains	• Incorrect titles	• Strange odor	• Foreign postage	• Strange sounds	• Restrictive notes	• Unexpected delivery		<p>Date: <input style="width: 100px;" type="text"/> Time: <input style="width: 100px;" type="text"/></p> <p>Time Caller Hung Up: <input style="width: 100px;" type="text"/> Phone Number Where Call Received: <input style="width: 100px;" type="text"/></p> <p style="background-color: #0056b3; color: white; text-align: center; padding: 2px;">Ask Caller:</p> <ul style="list-style-type: none"> • Where is the bomb located? (Building, Floor, Room, etc.) _____ • When will it go off? _____ • What does it look like? _____ • What kind of bomb is it? _____ • What will make it explode? _____ • Did you place the bomb? Yes No _____ • Why? _____ • What is your name? _____ <p style="background-color: #0056b3; color: white; text-align: center; padding: 2px;">Exact Words of Threat:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p style="background-color: #0056b3; color: white; text-align: center; padding: 2px;">Information About Caller:</p> <ul style="list-style-type: none"> • Where is the caller located? (Background and level of noise) _____ • Estimated age: _____ • Is voice familiar? If so, who does it sound like? _____ • Other points: _____ <table style="width: 100%;"> <tr> <th style="text-align: left;">Caller's Voice</th> <th style="text-align: left;">Background Sounds:</th> <th style="text-align: left;">Threat Language:</th> </tr> <tr> <td> <input type="checkbox"/> Accent <input type="checkbox"/> Angry <input type="checkbox"/> Calm <input type="checkbox"/> Clearing throat <input type="checkbox"/> Coughing <input type="checkbox"/> Cracking voice <input type="checkbox"/> Crying <input type="checkbox"/> Deep <input type="checkbox"/> Deep breathing <input type="checkbox"/> Disguised <input type="checkbox"/> Distinct <input type="checkbox"/> Excited <input type="checkbox"/> Female <input type="checkbox"/> Laughter <input type="checkbox"/> Lisp <input type="checkbox"/> Loud <input type="checkbox"/> Male <input type="checkbox"/> Nasal <input type="checkbox"/> Normal <input type="checkbox"/> Ragged <input type="checkbox"/> Rapid <input type="checkbox"/> Raspy <input type="checkbox"/> Slow <input type="checkbox"/> Slurred <input type="checkbox"/> Soft <input type="checkbox"/> Stutter </td> <td> <input type="checkbox"/> Animal Noises <input type="checkbox"/> House Noises <input type="checkbox"/> Kitchen Noises <input type="checkbox"/> Street Noises <input type="checkbox"/> Booth <input type="checkbox"/> PA system <input type="checkbox"/> Conversation <input type="checkbox"/> Music <input type="checkbox"/> Motor <input type="checkbox"/> Clear <input type="checkbox"/> Static <input type="checkbox"/> Office machinery <input type="checkbox"/> Factory machinery <input type="checkbox"/> Local <input type="checkbox"/> Long distance </td> <td> <input type="checkbox"/> Incoherent <input type="checkbox"/> Message read <input type="checkbox"/> Taped <input type="checkbox"/> Irrational <input type="checkbox"/> Profane <input type="checkbox"/> Well-spoken </td> </tr> </table> <p>Other Information: _____</p> <p>_____</p> <p>_____</p>	Caller's Voice	Background Sounds:	Threat Language:	<input type="checkbox"/> Accent <input type="checkbox"/> Angry <input type="checkbox"/> Calm <input type="checkbox"/> Clearing throat <input type="checkbox"/> Coughing <input type="checkbox"/> Cracking voice <input type="checkbox"/> Crying <input type="checkbox"/> Deep <input type="checkbox"/> Deep breathing <input type="checkbox"/> Disguised <input type="checkbox"/> Distinct <input type="checkbox"/> Excited <input type="checkbox"/> Female <input type="checkbox"/> Laughter <input type="checkbox"/> Lisp <input type="checkbox"/> Loud <input type="checkbox"/> Male <input type="checkbox"/> Nasal <input type="checkbox"/> Normal <input type="checkbox"/> Ragged <input type="checkbox"/> Rapid <input type="checkbox"/> Raspy <input type="checkbox"/> Slow <input type="checkbox"/> Slurred <input type="checkbox"/> Soft <input type="checkbox"/> Stutter	<input type="checkbox"/> Animal Noises <input type="checkbox"/> House Noises <input type="checkbox"/> Kitchen Noises <input type="checkbox"/> Street Noises <input type="checkbox"/> Booth <input type="checkbox"/> PA system <input type="checkbox"/> Conversation <input type="checkbox"/> Music <input type="checkbox"/> Motor <input type="checkbox"/> Clear <input type="checkbox"/> Static <input type="checkbox"/> Office machinery <input type="checkbox"/> Factory machinery <input type="checkbox"/> Local <input type="checkbox"/> Long distance	<input type="checkbox"/> Incoherent <input type="checkbox"/> Message read <input type="checkbox"/> Taped <input type="checkbox"/> Irrational <input type="checkbox"/> Profane <input type="checkbox"/> Well-spoken
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ATTACHMENT 2

SAMPLE Position Matrix



Position	Name	Office Room #	Mobile Phone	Office Phone
Emergency Coordinator				
Alternate #1 Emergency Coordinator				
Alternate #2 Emergency Coordinator				
Zone A Floor Captain				
Alternate Zone A Floor Captain				
Zone B Floor Captain				
Alternate Zone B Floor Captain				
Zone C Floor Captain				
Alternate Zone C Floor Captain				
Aide for Persons with Disabilities				
Aide for Persons with Disabilities				
Alternate Aide for Persons with Disabilities				
Alternate Aide for Persons with Disabilities				



List Updated as of XX Jan 20XX FLOOR CAPTAIN

Name	Office Room #	Mobile Phone	Office Phone
Primary			
Alternate			

PERSONNEL

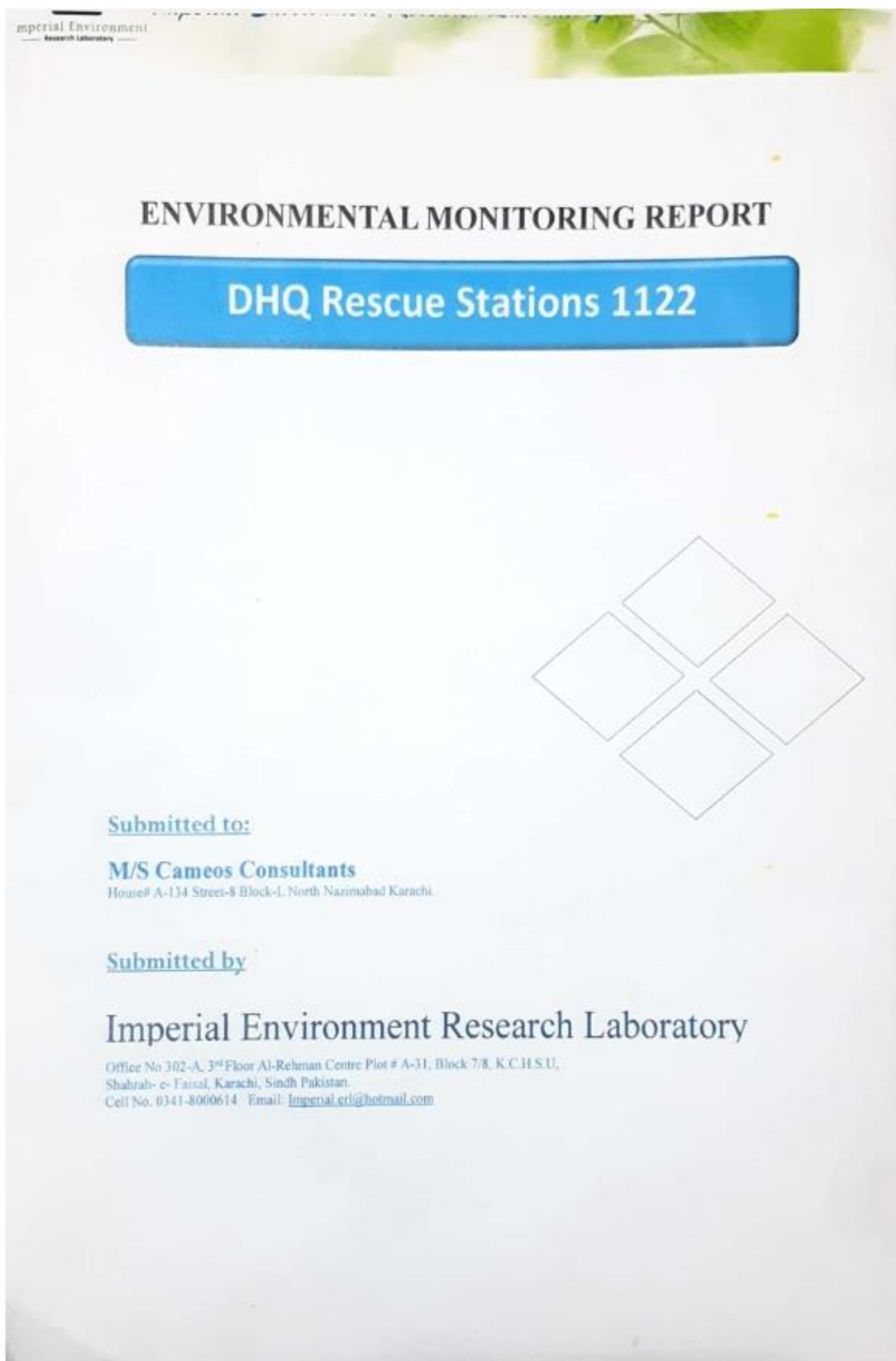
[illegible]



Annexure-VII Environmental Analysis Report



Annexure VII Environmental Analysis Report







Imperial Environment
Research Laboratory

IERL-SEPA License No	101/2023	Invoice No.	IERL/RS/06/2023
Reference No.	IERL/CC/DHQ/07/2023	Site ID/ Station	Station 01 (DHQ Qambar Shahdadkot)
Report to.	Mr. Syed Ali Razwan Team Leader M/S Camcos Consultants	Sample Collection Time	01:00 PM
Sample Collection Date	02-08-2023	Reporting Date	03-08-2023
Sample receiving Date	02-08-2023	Sample Type & Source	Drinking Water (Tap Water)
Sample Collected/Submitted by:	IERL Representative	Location	DHQ Qambar Shahdadkot (Taluka Hospital Miro Khan)

Analytical Test Report of Drinking Water Monitoring

S.No.	Parameter	Method	Unit	SEQS Limit	WHO Limits	Result	Remarks
1.	pH @ 25°C	APHA 4500 H ⁺ B	-	6.5-8.5	8.2 - 8.8	5.80	Out of Limit
2.	Odour	Organoleptic	-	Acceptable	----	Acceptable	Within Limit
3.	Color	Pt-Co Method	TCU	15	<5	<5	Within Limit
4.	Taste	Organoleptic	-	Acceptable	Acceptable	Acceptable	Within Limit
5.	Total Hardness	ASTM D-1126	mg/l	500	----	160	Within Limit
6.	Total Dissolved Solids	APHA 2540 C	mg/l	1000	----	4760	Out of limit
7.	Turbidity	Nephelometric	NTU	<5	<1.5	4.8	Within Limit
8.	Chloride	ASTM-D512	mg/l	<250	----	214	Within Limit
9.	Chlorine, Residual	HACH-8021	mg/l	0.2 - 0.5	0.5 - 1.5	0.06	Within Limit
10.	Aluminium	Lovibond-40	mg/l	0.2	<0.10	ND	Within Limit
11.	Antimony	ASTM D-3697	mg/l	0.005	0.02	ND	Within Limit
12.	Barium (Ba)	ASTM D-4382	mg/l	0.7	0.7	0.32	Within Limit
13.	Boron	Lovibond-85	mg/l	0.3	2.4	ND	Within Limit
14.	Fluoride	HACH-8029	mg/l	1.5	1.5	ND	Within Limit
15.	Nitrate	HACH-8019	mg/l	0.5	----	6.8	Out of Limit
16.	Nitrite	HACH-8507	mg/l	3	<3	12	Out of Limit
17.	Arsenic	Palintest-Kit	mg/l	<0.05	0.01 (A,T)	ND	Within Limit
18.	Cadmium	Lovibond-87	mg/l	0.01	0.001	ND	Within Limit
19.	Chromium	HACH-8024	mg/l	<0.05	0.05 (P)	ND	Within Limit
20.	Copper	Lovibond-149	mg/l	2	2	0.05	Within Limit
21.	Cyanide	Lovibond-156	mg/l	0.05	----	ND	Within Limit
22.	Lead	Lovibond-232	mg/l	<0.05	0.01 (A, T)	ND	Within Limit
23.	Manganese	Lovibond-242	mg/l	0.5	0.4 (C)	0.7	Out of Limit
24.	Mercury	Kit-Method	mg/l	0.001	0.006	ND	Within Limit
25.	Nickel	Lovibond-255	mg/l	<0.02	0.07	ND	Within Limit
26.	Zinc	Lovibond-400	mg/l	5	----	3.7	Within Limit
27.	Total Coliform	APHA 9222 B	cfu	0/100ml	----	49	Out of Limit
28.	E-Coli	APHA 9222 D	cfu	0/100ml	----	14	Out of Limit

SEQS* = Sindh Environmental Quality Standards
Methods* = EPA United State Environmental Protection Agency Methods


Sample Analyzed by


Head of Imperial Environment Research Lab



Terms & Condition

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IERL-SEPA License No	101/2023	Invoice No.	IERL/RS/06/2023
Lab Reference No.	IERL/CC/DHQ2/07/2023	Site ID/ Station	Station 01 (DHQ Qambar Shahdadkot)
Report to.	Mr. Syed Ali Rizwan Team Leader M/S Cameos Consultants	Sample Time	01:00 PM
Sample Collection Date	02-08-2023	Reporting Date	03-08-2023
Sample Collected/Submitted by:	IERL Representative	Sample Description:	Ambient Air
Location	DHQ Qambar Shahdadkot (Taluka Hospital Miro Khan)	Coordinates:	27°50'45.9"N 67°53'58.6"E

Analytical Test Report of Ambient Air Quality

Parameters	Unit	SEQS Limit	WHO Limits	Results	Remarks
SO ₂	µg/m ³	120	20	9.235	Within Limit
NO	µg/m ³	40	N/A	15.375	Within Limit
NO ₂	µg/m ³	80	N/A	26.845	Within Limit
CO	mg/m ³	10	N/A	5.41	Within Limit
O ₃	µg/m ³	130	N/A	8.455	Within Limit
PM _{2.5}	µg/m ³	75	25	28.22	Within Limit
PM ₁₀	µg/m ³	150	50	126.33	Within Limit
SPM	µg/m ³	500	N/A	160.92	Within Limit
Lead	µg/m ³	1.5	N/A	ND	Within Limit

 Sample Analyzed by	 Head of Imperial Environment Research Lab
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IERL-SEPA License No	101/2023	Invoice No.	IERL / RS/06/2023
Lab Reference No.	IERL/CC/DHQ2/07/2023	Site ID/ Station	Station 01 (DHQ Qambar Shahdadkot)
Report to.	Mr. Syed Ali Rizwan Team Leader M/S Camcos Consultants	Sample Collection Time	01:10 Pm
Sample Collection Date	02-08-2023	Reporting Date	03-08-2023
Sample Type	Ambient Noise	Location	Qambar Shahdadkot (Taluka Hospital Miro Khan)
Sample Collected/Submitted by:	IERL Representative		
Coordinates:	27°50'45.9"N 67°53'58.6"E		

Analytical Test Report of Ambient Noise Monitoring

Sr. #	Location	Method*	SEQS Limit*	WHO Limit	Unit	Results	Remarks
1.	Qambar Shahdadkot (Taluka Hospital Miro Khan)	Sound Meter	75	70	dB (A)	64	Within Limit

SEQS= Sindh Environmental Quality Standards.
Methods = EPA United State Environmental Protection Agency Methods.

 Sample Analyzed by	 Head of Imperial Environment Research Lab
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Terms & Condition:

Report is valid for current batch (sample).
This Report is not valid for any other certification, or court matters.



Imperial Environmental
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Environmental Monitoring Pictures



Ambient Air Quality Monitoring



Ambient Noise Quality



Drinking Water Sample Collection





Station 2: Ghotki
D.C Office Mirpur Mathelo



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IERL-SEPA License No	101/2023	Invoice No.	IERL/ RS/06/2023
Reference No.	IERL/CC/DHQ/07/2023	Site ID/Station	Station 02 (DHQ Ghotki)
Report to.	Mr. Syed Rizwan Ali Team Leader M/S Cameos Consultants	Sample Collection Time	11:00 AM
Sample Collection Date	02-08-2023	Reporting Date	03-08-2023
Sample receiving Date	02-08-2023	Sample Type & Source	Drinking Water(Hand Pump)
Sample Collected/Submitted by:	IERL Representative	Location	DHQ Ghotki (DC Office Mirpur Mathelo)

Analytical Test Report of Drinking Water Monitoring

S.No.	Parameter	Method	Unit	SEQS Limit	WHO Limits	Result	Remarks
1.	pH @ 25°C	APHA 4500 H ⁺ B	-	6.5-8.5	8.2-8.8	6.3	Out of Limit
2.	Odour	Organoleptic	-	Acceptable	....	Acceptable	Within Limit
3.	Color	Pt-Co Method	TCU	15	<5	<5	Within Limit
4.	Taste	Organoleptic	-	Acceptable	Acceptable	Acceptable	Within Limit
5.	Total Hardness	ASTM D-1126	mg/l	500	....	260	Within Limit
6.	Total Dissolved Solids	APHA 2540 C	mg/l	1000	....	2160	Out of limit
7.	Turbidity	Nephelometric	NTU	<5	<1.5	4.8	Within Limit
8.	Chloride	ASTM-D512	mg/l	<250	....	223	Within Limit
9.	Chlorine, Residual	HACH-8021	mg/l	0.2 - 0.5	0.5 - 1.5	0.07	Within Limit
10.	Aluminium	Lovibond-40	mg/l	0.2	<0.10	ND	Within Limit
11.	Antimony	ASTM D-3697	mg/l	0.005	0.02	ND	Within Limit
12.	Barium (Ba)	ASTM D-4182	mg/l	0.7	0.7	0.23	Within Limit
13.	Boron	Lovibond-85	mg/l	0.3	2.4	ND	Within Limit
14.	Fluoride	HACH-8029	mg/l	1.5	1.5	0.96	Within Limit
15.	Nitrate	HACH-8019	mg/l	0.5	....	4.2	Out of Limit
16.	Nitrite	HACH-8507	mg/l	3	<3	4.1	Out of Limit
17.	Arsenic	Palintest-Kit	mg/l	<0.05	0.01 (A, T)	ND	Within Limit
18.	Cadmium	Lovibond-87	mg/l	0.01	0.003	ND	Within Limit
19.	Chromium	HACH-8024	mg/l	<0.05	0.05 (P)	ND	Within Limit
20.	Copper	Lovibond-149	mg/l	2	2	0.06	Within Limit
21.	Cyanide	Lovibond-156	mg/l	0.05	....	ND	Within Limit
22.	Lead	Lovibond-232	mg/l	<0.05	0.01 (A, T)	ND	Within Limit
23.	Manganese	Lovibond-242	mg/l	0.5	0.4 (C)	0.4	Within Limit
24.	Mercury	Kit-Method	mg/l	0.001	0.006	ND	Within Limit
25.	Nickel	Lovibond-255	mg/l	<0.02	0.07	ND	Within Limit
26.	Zinc	Lovibond-400	mg/l	5	....	2.8	Within Limit
27.	Total Coliform	APHA 9222 B	cfu	0/100ml	....	23	Out of Limit
28.	E-Coli	APHA 9222 D	cfu	0/100ml	....	11	Out of Limit

Sample Analyzed by: Head of Imperial Environment Research Lab

SEQS* = Sindh Environmental Quality Standards
Methods* = EPA United State Environmental Protection Agency Methods





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IERL-SEPA License No	101/2023	Invoice No.	IERL/ RS/06/2023
Lab Reference No.	IERL/CC/DHQ3/07/2023	Site ID/Station	Station 02 (DHQ Ghotki)
Report to.	Mr. Syed Ali Rizwan Team Leader M/S Cameos Consultants	Sample Time	08:10 AM
Sample Collection Date	03-08-2023	Reporting Date	03-08-2023
Sample Collected/Submitted by:	IERL Representative	Sample Description:	Ambient Air
Coordinates:	28°15'06.7"N 69°34'52.8"E		

Analytical Test Report of Ambient Air Quality

Parameters	Unit	SEQS Limit	WHO Limits	Results	Remarks
SO ₂	µg/m ³	120	20	9.18	Within Limit
NO	µg/m ³	40	N/A	14.9	Within Limit
NO ₂	µg/m ³	80	N/A	25.46	Within Limit
CO	mg/m ³	10	N/A	10.344	Out of Limit
O ₃	µg/m ³	130	N/A	5.96	Within Limit
PM _{2.5}	µg/m ³	75	25	29.84	Within Limit
PM ₁₀	µg/m ³	150	50	117.87	Within Limit
SPM	µg/m ³	500	N/A	163.21	Within Limit
Lead	µg/m ³	1.5	N/A	ND	Within Limit

 Sample Analyzed by	 Head of Imperial Environment Research Lab
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Terms & Condition:

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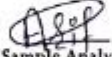

IERL-SEPA License No	101/2023	Invoice No.	IERL/ RS/06/2023
Lab Reference No.	IERL/CC/DHQ3/07/2023	Site ID/Station	Station 02 (DHQ Ghotki)
Report to.	Mr. Syed Ali Rizwan Team Leader M/S Cameros Consultants	Sample Collection Time	08:20 AM
Sample Collection Date	03-08-2023	Reporting Date	03-08-2023
Sample Type	Ambient Noise	Location	Ghotki (DC Office Mirpur Mathelo)
Sample Collected/Submitted by:	IERL Representative		
Coordinates:	28°15'06.7"N 69°34'52.8"E		

Analytical Test Report of Ambient Noise Monitoring

Sr. #	Location	Method*	SEQS Limit*	WHO Limit	Unit	Results	Remarks
1.	Ghotki (DC Office Mirpur Mathelo)	Sound Meter	75	70	dB (A)	65	Within Limit

SEQS= Sindh Environmental Quality Standards.
Methods = EPA United State Environmental Protection Agency Methods.



 Sample Analyzed by	 Head of Imperial Environment Research Lab
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Terms & Condition:

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Environmental Monitoring Pictures



Ambient Air Quality Monitoring



Ambient Noise Quality



Drinking Water Sample Collection





Imperial Environment
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Station 3: Badin
PPHI District Office Civil Hospital Road





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IERL-SEPA License No	101/2023	Invoice No.	IERL/RS/06/2023
Reference No.	IERL/CC/DHQ/07/2023	Site ID/Station	Station 03 (DHQ Badin)
Report to.	Mr. Syed Ali Rizwan Team Leader M/S Cameos Consultants	Sample Collection Time	06:40 PM
Sample Collection Date	30-07-2023	Reporting Date	01-08-2023
Sample receiving Date	31-07-2023	Sample Type and Source	Drinking Water (Tap Water)
Sample Collected/Submitted by:	IERL Representative	Location	DHQ Badin (Near PPHI District Office Civil Hospital Road)

Analytical Test Report of Drinking Water Monitoring

S.No.	Parameter	Method	Unit	SEQS Limit	WHO Limits	Result	Remarks
1.	pH @ 25°C	APHA 4800 H*B	-	6.5-8.5	6.5 - 8.5	6.1	Out of Limit
2.	Odour	Organoleptic	-	Acceptable	---	Acceptable	Within Limit
3.	Colour	Pt-Co Method	TCU	15	<5	<1	Within Limit
4.	Taste	Organoleptic	-	Acceptable	Acceptable	Acceptable	Within Limit
5.	Total Hardness	ASTM D-1126	mg/l	500	---	192	Within Limit
6.	Total Dissolved Solids	APHA 2540 C	mg/l	1000	---	815	Within limit
7.	Turbidity	Nephelometric	NTU	<5	<1.5	2.1	Within Limit
8.	Chloride	ASTM-D512	mg/l	<250	---	94	Within Limit
9.	Chlorine, Residual	HACH-8021	mg/l	0.2 - 0.5	0.5 - 1.5	0.06	Within Limit
10.	Aluminium	Lovibond-40	mg/l	0.2	<0.10	ND	Within Limit
11.	Antimony	ASTM D-3697	mg/l	0.005	0.02	ND	Within Limit
12.	Barium (Ba)	ASTM D-4382	mg/l	0.7	0.7	0.21	Within Limit
13.	Boron	Lovibond-85	mg/l	0.3	2.4	ND	Within Limit
14.	Fluoride	HACH-8029	mg/l	1.5	1.5	0.07	Within Limit
15.	Nitrate	HACH-8039	mg/l	0.5	---	ND	Within Limit
16.	Nitrite	HACH-8507	mg/l	3	<3	4.0	Out of Limit
17.	Arsenic	Palintest-Kit	mg/l	<0.05	0.01 (A,T)	ND	Within Limit
18.	Cadmium	Lovibond-57	mg/l	0.01	0.001	ND	Within Limit
19.	Chromium	HACH-8024	mg/l	<0.05	0.05 (P)	ND	Within Limit
20.	Copper	Lovibond-149	mg/l	2	2	0.05	Within Limit
21.	Cyanide	Lovibond-156	mg/l	0.05	---	ND	Within Limit
22.	Lead	Lovibond-232	mg/l	<0.05	0.01 (A, T)	ND	Within Limit
23.	Manganese	Lovibond-242	mg/l	0.5	0.4 (C)	0.05	Within Limit
24.	Mercury	Kit-Method	mg/l	0.001	0.006	ND	Within Limit
25.	Nickel	Lovibond-255	mg/l	<0.02	0.07	ND	Within Limit
26.	Zinc	Lovibond-400	mg/l	5	---	0.16	Within Limit
27.	Total Coliform	APHA 9222 B	cfu	0/100ml	---	29	Out of Limit
28.	E-Coli	APHA 9222 D	cfu	0/100ml	---	16	Out of Limit

 Sample Analyzed by	 Head of Imperial Environmental Research Lab
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ND= Not detected

SEQS* = Sindh Environmental Quality Standards

Methods* = EPA United State Environmental Protection Agency Methods








Imperial Environment Research Laboratory


IERL-SEPA License No	101/2023	Invoice No.	IERL/RS/06/2023
Lab Reference No.	IERL/CC/DHQ4/07/2023	Site ID/Station	Station 03 (DHO Radin)
Report to.	Mr. Syed Ali Riewan Team Leader M/S Camco Consultants	Sample Time	06:50 PM
Sample Collection Date	30-07-2023	Reporting Date	31-07-2023
Sample Collected/Submitted by:	IERL Representative	Sample Description:	Ambient Air
Coordinates:	24°18'48.3"N 68°49'50.9"E		

Analytical Test Report of Ambient Air Quality


Parameters	Unit	SEQS Limit	WHO Limits	Results	Remarks
SO ₂	µg/m ³	120	20	7.53	Within Limit
NO	µg/m ³	40	N/A	16.61	Within Limit
NO ₂	µg/m ³	80	N/A	26.04	Within Limit
CO	mg/m ³	10	N/A	9.40	Within Limit
O ₃	µg/m ³	130	N/A	5.54	Within Limit
PM _{2.5}	µg/m ³	75	25	30.19	Within Limit
PM ₁₀	µg/m ³	150	50	114.69	Within Limit
SPM	µg/m ³	500	N/A	161.90	Within Limit
Lead	µg/m ³	1.5	N/A	ND	Within Limit



Sample Analyzed by



Head of Imperial Environment Research Lab



Terms & Condition:

Report is valid for current batch (sample).

This Report is not valid for any other certification, or court matters.

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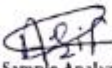

IERL-SEPA License No	101/2023	Invoice No.	IERL/RS/06/2023
Lab Reference No.	IERL/CC/DHQ4/07/2023	Site ID/Station	Station 03 (DHQ Badin)
Report to.	Mr. Syed Ali Rizwan	Sample Collection Time	07:00 PM
Sample Collection Date	30-07-2023	Reporting Date	31-07-2023
Sample Type	Ambient Noise	Location	Badin (Near PPHI District Office Civil Hospital Road)
Sample Collected/Submitted by:	IERL Representative		
Coordinates:	24°38'48.3"N 68°49'50.9"E		

Analytical Test Report of Ambient Noise Monitoring

Sr. #	Location	Method*	SEQS Limit*	WHO Limit	Unit	Results	Remarks
1.	Badin (Near PPHI District Office Civil Hospital Road)	Sound Meter	75	70	dB (A)	70	Within Limit

SEQS= Sindh Environmental Quality Standards.
Methods = EPA United State Environmental Protection Agency Methods.



 Sample Analyzed by	 Head of Imperial Environment Research Lab
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Terms & Condition:

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Imperial Environment Research Laboratory

Environmental Monitoring Pictures



Ambient Air Quality Monitoring



Ambient Noise Quality



Drinking Water Sample Collection



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Imperial Environment Research Laboratory

Station 4: Jacobabad
Near Poly Technical Institute

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Karachi, Sindh Pakistan
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IERL-SEPA License No	101/2023	Invoice No.	IERL/ RS/06/2023
Reference No.	IERL/CC/DHQ/07/2023	Site ID/ Station	Station 04 (DHQ Jacobabad)
Report to.	Mr. Syed Ali Rizwan Team Leader M/S Cameos Consultants	Sample Collection Time	05:05 PM
Sample Collection Date	02-08-2023	Reporting Date	03-08-2023
Sample receiving Date	02-08-2023	Sample Type And Source	Drinking Water (Tap Water)
Sample Collected/Submitted by:	IERL Representative	Location	DHQ Jacobabad (Near Poly Technical Institute)

Analytical Test Report of Drinking Water Monitoring

S.No.	Parameter	Method	Unit	SEQS Limit	WHO Limits	Result	Remarks
1.	pH @ 25°C	APHA 4500 H ⁺ B	-	6.5-8.5	6.5 - 8.5	4.90	Out of Limit
2.	Odour	Organoleptic	-	Acceptable	Acceptable	Acceptable	Within Limit
3.	Colour	Pt-Co Method	TCU	15	<5	<5	Within Limit
4.	Taste	Organoleptic	-	Acceptable	Acceptable	Acceptable	Within Limit
5.	Total Hardness	ASTM D-1126	mg/l	500	---	152	Within Limit
6.	Total Dissolved Solids	APHA 2540 C	mg/l	1000	---	2990	Out of limit
7.	Turbidity	Nephelometric	NTU	<5	<1.5	3.1	Within Limit
8.	Chloride	ASTM D512	mg/l	<250	---	68	Within Limit
9.	Chlorine, Residual	HACH-8021	mg/l	0.2 - 0.5	0.5 - 1.5	0.09	Within Limit
10.	Aluminium	Lovibond-40	mg/l	0.2	<0.10	0.001	Within Limit
11.	Antimony	ASTM D-1697	mg/l	0.005	0.02	ND	Within Limit
12.	Barium (Ba)	ASTM D-4382	mg/l	0.2	0.2	0.2	Within Limit
13.	Boron	Lovibond-85	mg/l	0.1	2.4	ND	Within Limit
14.	Fluoride	HACH-8029	mg/l	1.5	1.5	0.92	Within Limit
15.	Nitrate	HACH-8019	mg/l	0.5	---	7.0	Out of Limit
16.	Nitrite	HACH-8502	mg/l	1	<3	11	Out of Limit
17.	Arsenic	Palintest-Kit	mg/l	<0.05	0.01 (A, I)	ND	Within Limit
18.	Cadmium	Lovibond-87	mg/l	0.01	0.001	ND	Within Limit
19.	Chromium	HACH-8024	mg/l	<0.05	0.05 (P)	ND	Within Limit
20.	Copper	Lovibond-149	mg/l	2	2	0.07	Within Limit
21.	Cyanide	Lovibond-136	mg/l	0.05	---	ND	Within Limit
22.	Lead	Lovibond-232	mg/l	<0.05	0.01 (A, I)	ND	Within Limit
23.	Manganese	Lovibond-242	mg/l	0.5	0.4 (C)	ND	Within Limit
24.	Mercury	Kit-Method	mg/l	0.001	0.006	ND	Within Limit
25.	Nickel	Lovibond-255	mg/l	<0.02	0.02	ND	Within Limit
26.	Zinc	Lovibond-400	mg/l	5	---	2.8	Within Limit
27.	Total Coliform	APHA 9222 B	cfu	0/100ml	---	39	Out of Limit
28.	E-Coli	APHA 9222 D	cfu	0/100ml	---	20	Out of Limit

Sample Analyzed by: Head of Imperial Environment Research Lab



SEQS* = Sindh Environmental Quality Standards
Methods* = EPA United State Environmental Protection Agency Methods

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Imperial Environment Research Laboratory

IERL-SEPA License No	101/2023	Invoice No.	IERL/RS/06/2023
Lab Reference No.	IERL/CC/DHQ5/07/2023	Site ID/ Station	Station 04 (DHQ Jacobabad)
Report to.	Mr. Syed Ali Rizwan Team Leader M/S Cameos Consultants	Sample Time	05:10 PM
Sample Collection Date	02-08-2023	Reporting Date	03-08-2023
Sample Collected/Submitted by:	IERL Representative	Sample Description:	Ambient Air
Coordinates:	28°16'24.5"N 68°27'04.6"E		

Analytical Test Report of Ambient Air Quality

Parameters	Unit	SEQS Limit	WHO Limits	Results	Remarks
SO ₂	µg/m ³	120	20	10.07	Within Limit
NO	µg/m ³	40	N/A	13.73	Within Limit
NO ₂	µg/m ³	80	N/A	24.54	Within Limit
CO	mg/m ³	10	N/A	5.72	Within Limit
O ₃	µg/m ³	130	N/A	6.91	Within Limit
PM _{2.5}	µg/m ³	75	25	26.17	Within Limit
PM ₁₀	µg/m ³	150	50	118.78	Within Limit
SPM	µg/m ³	500	N/A	153.67	Within Limit
Lead	µg/m ³	1.5	N/A	ND	Within Limit

 Sample Analyzed by:	 Head of Imperial Environment Research Lab
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Terms & Condition:

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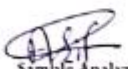

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IERL-SEPA License No	101/2023	Invoice No.	IERL / RS/06/2023
Lab Reference No.	IERL/CC/DHIQ5/07/2023	Site ID/ Station	Station 04 (DHIQ Jacobabad)
Report to.	Mr. Syed Ali Rizwan	Sample Collection Time	05:20 PM
Sample Collection Date	02-08-2023	Reporting Date	01-08-2023
Sample Type	Ambient Noise	Location	Jacobabad (Near Poly Technical Institute)
Sample Collected/Submitted by:	IERL Representative		
Coordinates:	28°16'24.5"N 68°27'04.6"E		

Analytical Test Report of Ambient Noise Monitoring

Sr. #	Location	Method*	SEQS Limit*	WHO Limit	Unit	Results	Remarks
1.	DHIQ Jacobabad (Near Poly Technical Institute)	Sound Meter	75	70	dB (A)	64	Within Limit

SEQS = Sindh Environmental Quality Standards.
Methods = EPA United State Environmental Protection Agency Methods.

 Sample Analyzed by	 Head of Imperial Environment Research Lab
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Terms & Condition:

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Imperial Environment Research Laboratory

Environmental Monitoring Pictures



Ambient Air Quality Monitoring



Ambient Noise Quality



Drinking Water Sample Collection



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Station 5: Jamshoro

N55 near Pak Turk Maarif International School

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IERL-SEPA License No	101/2023	Invoice No.	IERL/RS/06/2023
Reference No.	IERL/CC/DHQ/07/2023	Site ID/ Station	Station 05 DHQ Jamshoro
Report to.	Mr. Syed Ali Rizwan Team Leader M/S Cameos Consultants	Sample Collection Time	06:20 PM
Sample Collection Date	29-07-2023	Reporting Date	31-07-2023
Sample receiving Date	29-07-2023	Sample Type And Source	Drinking Water (Tap Water)
Sample Collected/Submitted by:	IERL Representative	Location	DHQ, N55, Near Pak-Turk Jamshoro

Analytical Test Report of Drinking Water Monitoring

S.No.	Parameter	Method	Unit	SEQS Limit	WHO Limits	Result	Remarks
1.	pH @ 25°C	APHA 4500 H ⁺ B	-	6.5-8.5	6.5 - 8.5	7.2	Within Limit
2.	Odour	Organoleptic	-	Acceptable	----	Acceptable	Within Limit
3.	Color	Pt-Co Method	TCU	15	<5	<5	Within Limit
4.	Taste	Organoleptic	-	Acceptable	Acceptable	Acceptable	Within Limit
5.	Total Hardness	ASTM D-1126	mg/l	500	----	190	Within Limit
6.	Total Dissolved Solids	APHA 2540 C	mg/l	1000	----	625	Within Limit
7.	Turbidity	Nephelometric	NTU	<5	<1.5	7.14	Out of Limit
8.	Chloride	ASTM-D512	mg/l	<250	----	33	Within Limit
9.	Chlorine, Residual	HACH-8021	mg/l	0.2 - 0.5	0.5 - 1.5	0.08	Within Limit
10.	Aluminium	Lovibond-40	mg/l	0.2	<0.10	ND	Within Limit
11.	Antimony	ASTM D-3697	mg/l	0.005	0.02	ND	Within Limit
12.	Barium (Ba)	ASTM D-4182	mg/l	0.7	0.7	0.07	Within Limit
13.	Boron	Lovibond-45	mg/l	0.3	2.4	ND	Within Limit
14.	Fluoride	HACH-8029	mg/l	1.5	1.5	0.13	Within Limit
15.	Nitrate	HACH-8039	mg/l	0.5	----	9.3	Out of Limit
16.	Nitrite	HACH-8507	mg/l	1	<3	1	Marginal
17.	Arsenic	Palintest-Kit	mg/l	<0.05	0.01 (A,T)	ND	Within Limit
18.	Cadmium	Lovibond-87	mg/l	0.01	0.001	ND	Within Limit
19.	Chromium	HACH-8024	mg/l	<0.05	0.05 (P)	ND	Within Limit
20.	Copper	Lovibond-149	mg/l	2	2	0.05	Within Limit
21.	Cyanide	Lovibond-156	mg/l	0.05	----	ND	Within Limit
22.	Lead	Lovibond-232	mg/l	<0.05	0.01 (A, T)	ND	Within Limit
23.	Manganese	Lovibond-242	mg/l	0.5	0.4 (C)	ND	Within Limit
24.	Mercury	Kit-Method	mg/l	0.001	0.006	ND	Within Limit
25.	Nickel	Lovibond-255	mg/l	<0.02	0.07	ND	Within Limit
26.	Zinc	Lovibond-400	mg/l	5	----	2.8	Within Limit
27.	Total Coliform	APHA 9222 B	cfu	0/100ml	----	37	Out of Limit
28.	E-Coli	APHA 9222 D	cfu	0/100ml	----	ND	Within Limit

SEQS* = Sindh Environmental Quality Standards

Methods* = EPA United State Environmental Protection Agency Methods

Sample Analyzed by	Head of Imperial Environment Research Lab
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IERL-SEPA License No	101 / 2023	Invoice No.	IERL / RS / 06 / 2023
Lab Reference No.	IERL / CC / DMQ6 / 07 / 2023	Site ID / Station	Station 03 DMQ Jamshoro
Report to,	Mr. Syed Ali Rirwan Team Leader M. S Camecos Consultants	Sample Time	06:51 PM
Sample Collection Date	29/07/2023	Reporting Date	31/07/2023
Sample Collected/Submitted by:	IERL Representative	Sample Description:	Ambient Air
Coordinates:	25°55'5.9"N 67°46'49.8"E	Location :	DMQ, N55, Near Pak-Turk Maarif School, Jamshoro



Analytical Test Report of Ambient Air Quality

Parameters	Unit	SEQS Limit	WHO Limits	Results	Remarks
SO ₂	µg/m ³	120	20	6.84	Within Limit
NO	µg/m ³	40	N/A	14.50	Within Limit
NO ₂	µg/m ³	80	N/A	23.28	Within Limit
CO	mg/m ³	10	N/A	5.46	Within Limit
O ₃	µg/m ³	130	N/A	6.6	Within Limit
PM _{2.5}	µg/m ³	75	25	27.46	Within Limit
PM ₁₀	µg/m ³	150	50	116.31	Within Limit
SPM	µg/m ³	500	N/A	162.10	Within Limit
Lead	µg/m ³	1.5	N/A	ND	Within Limit

Terms & Condition:

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 Sample Analyzed by:	 Head of Imperial Environment Research Lab
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IERL-SEPA License No	101/2023	Invoice No.	IERL/RS/06/2023
Lab Reference No.	IERL/CC/DHQ6/07/2023	Site ID/ Station	Station 05 DHQ Jamshoro
Report to.	Mr. Syed Ali Rizwan Team Leader M/S Cameos Consultants	Sample Collection Time	06:30 PM
Sample Collection Date	29-07-2023	Reporting Date	31-07-2023
Sample Type	Ambient Noise	Location	DHQ, N55, Near Pak-Turk Maarif School, Jamshoro
Sample Collected/Submitted by:	IERL Representative		
Coordinates:	25°95'5.9"N 67°46'49.8"E		

Analytical Test Report of Ambient Noise Monitoring

Sr. #	Location	Method*	SEQS Limit*	WHO Limits	Unit	Results	Remarks
1.	DHQ, N55, Near Pak-Turk Maarif School, Jamshoro	Sound Meter	75	70	dB (A)	71	Within Limit

SEQS = Sindh Environmental Quality Standards.
Methods = EPA United State Environmental Protection Agency Methods.



 Sample Analyzed by	 Head of Imperial Environment Research Lab
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Terms & Condition:

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Imperial Environment Research Laboratory

Environmental Monitoring Pictures



Ambient Air Quality Monitoring



Ambient Noise Quality



Drinking Water Sample Collection





Station 6: Thatta

Civil Hospital Residency, Near Rescue 1122

Thatta Station



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IERL-SEPA License No	101/2023	Invoice No.	IERL / RS/06/2023
Reference No.	IERL/CU/DHQ7/07/2023	Site ID/ Station	Station 06 DHQ Thatta
Report to.	Mr. Syed Ali Rirwan Team Leader M/S Cameos Consultants	Sample Collection Time	01:00 PM
Sample Collection Date	30-07-2023	Reporting Date	31-07-2023
Sample receiving Date	30-07-2023	Sample Type And Source	Drinking Water (Water Cooler)
Sample Collected/Submitted by:	IERL Representative	Location	Civil hospital Residency Near Rescue 1122, Thatta Station

Analytical Test Report of Drinking Water Monitoring

S.No.	Parameter	Method	Unit	SEQS Limit	WHO Limits	Result	Remarks
1.	pH at 25°C	APIA 4500 H ⁺ B	-	6.5-8.5	6.5-8.5	7.1	Within Limit
2.	Odour	Organoleptic	-	Acceptable	Acceptable	Acceptable	Within Limit
3.	Color	Pt-Co Method	TCU	15	<5	<5	Within Limit
4.	Taste	Organoleptic	-	Acceptable	Acceptable	Acceptable	Within Limit
5.	Total Hardness	ASTM D-3126	mg/l	500	Acceptable	190	Within Limit
6.	Total Dissolved Solids	APIA 2540 C	mg/l	1000	Acceptable	695	Within Limit
7.	Turbidity	Nephelometric	NTU	<5	<1.5	2.26	Within Limit
8.	Chloride	ASTM-D5512	mg/l	<250	Acceptable	20	Within Limit
9.	Chlorine, Residual	HACH-8021	mg/l	0.2 - 0.5	0.5 - 1.5	ND	Within Limit
10.	Aluminium	Lovibond-40	mg/l	0.2	<0.10	0.001	Within Limit
11.	Antimony	ASTM D-3697	mg/l	0.005	0.02	ND	Within Limit
12.	Barium (Ba)	ASTM D-4382	mg/l	0.7	0.7	0.21	Within Limit
13.	Boron	Lovibond-85	mg/l	0.3	2.4	ND	Within Limit
14.	Fluoride	HACH-8029	mg/l	1.5	1.5	0.64	Within Limit
15.	Nitrate	HACH-8039	mg/l	0.5	Acceptable	0.7	Out of Limit
16.	Nitrite	HACH-8507	mg/l	1	<1	4.0	Out of Limit
17.	Arsenic	Palintest-Kit	mg/l	<0.05	0.01 (A,T)	ND	Within Limit
18.	Cadmium	Lovibond-87	mg/l	0.01	0.001	ND	Within Limit
19.	Chromium	HACH-8024	mg/l	<0.05	0.05 (P)	ND	Within Limit
20.	Copper	Lovibond-149	mg/l	2	2	0.22	Within Limit
21.	Cyanide	Lovibond-356	mg/l	0.05	Acceptable	ND	Within Limit
22.	Lead	Lovibond-232	mg/l	<0.05	0.01 (A, T)	ND	Within Limit
23.	Manganese	Lovibond-242	mg/l	0.5	0.4 (C)	0.6	Out of Limit
24.	Mercury	Kit-Method	mg/l	0.001	0.006	ND	Within Limit
25.	Nickel	Lovibond-255	mg/l	<0.02	0.07	0.014	Within Limit
26.	Zinc	Lovibond-490	mg/l	5	Acceptable	2.8	Within Limit
27.	Total Coliform	APIA 9222 B	cfu	0/100ml	Acceptable	51	Out of Limit
28.	E-Coli	APIA 9222 D	cfu	0/100ml	Acceptable	11	Out of Limit

Sample Analyzed by	Head of Imperial Environment Research Lab
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SEQS* = Sindh Environmental Quality Standards
Methods* = EPA United State Environmental Protection Agency Methods



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IERL-NEPA License No.	101/2021	Invoice No.	IERL/RS/06/2023
Lab Reference No.	IERL/CC/1111Q7/07/2023	Site ID/ Station	Station 06 D11Q Thatta
Report to,	Mr. Syed Ali Rizwan Team Leader M/S Camco Consultants	Sample Time	03:10 PM
Sample Collection Date	10-07-2023	Reporting Date	31-07-2023
Sample Collected/Submitted by:	IERL Representative	Sample Description:	Ambient Air
Coordinates:	24°44'52.8"N 67°53'34.0"E		
Location	Civil Hospital Residency Near Rescue 1122, Thatta Station		

Analytical Test Report of Ambient Air Quality

Parameters	Unit	SEQS Limit	WHO Limits	Results	Remarks
SO ₂	µg/m ³	120	20	9.84	Within Limit
NO	µg/m ³	40	N/A	15.48	Within Limit
NO ₂	µg/m ³	80	N/A	25.603	Within Limit
CO	mg/m ³	10	N/A	4.96	Within Limit
O ₃	µg/m ³	130	N/A	5.4	Within Limit
PM ₁₀	µg/m ³	75	25	29.26	Within Limit
PM _{2.5}	µg/m ³	150	50	124.20	Within Limit
SPM	µg/m ³	500	N/A	175.21	Within Limit
Lead	µg/m ³	1.5	N/A	ND	Within Limit

SEQS = Sindh Environmental Quality Standards.

Methods = EPA United State Environmental Protection Agency Methods.

 Sample Analyzed by	 Head of Imperial Environment Research Lab
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IERL-SEPA License No	101/2023	Invoice No.	IERL/RS/06/2023
Lab Reference No.	IERL/CC/DHQ7/07/2023	Site ID/ Station	Station 06 DHQ Thatta
Report to,	Mr. Syed Ali Rizwan Team Leader M/S Camex Consultants	Sample Collection Time	03:20 PM
Sample Collection Date	30-07-2023	Reporting Date	31-07-2023
Sample Type	Ambient Noise	Location	Civil hospital Residency Near Rescue 1122, Thatta Station
Sample Collected/Submitted by:	IERL Representative		
Coordinates:	24°44'52.8"N 67°53'34.0"E		

Analytical Test Report of Ambient Noise Monitoring

Sr. #	Test Parameter	Method*	SEQS Limit*	WHO Limits	Unit	Results	Remarks
1.	Main Location	Sound Meter	75	70	dB (A)	69	Within Limit

SEQS= Sindh Environmental Quality Standards.

Methods = EPA United State Environmental Protection Agency Methods.

 Sample Analyzed by	 Head of Imperial Environment Research Lab
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Imperial Environment Research Laboratory

Environmental Monitoring Pictures



Ambient Air Quality Monitoring



Ambient Noise Quality



Drinking Water Sample Collection



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Imperial Environment Research Laboratory

Station 7: Sujawal
Near DHO Office, at Sujawal bypass.




Imperial Environment Research Laboratory

IERL-SEPA License No	101/2023	Invoice No.	IERL/RS/06/2023
Reference No.	IERL/CC/DHQ8/07/2023	Site ID/ Station	Station 07 DHQ Sujawal
Report to.	Mr. Syed Ali Rizwan Team Leader M/S Camcos Consultants	Sample Collection Time	04:00 PM
Sample Collection Date	30-07-2023	Reporting Date	01-08-2023
Sample receiving Date	31-07-2023	Sample Type And Source	Drinking Water (Tap Water)
Sample Collected/Submitted by:	IERL Representative	Location	Near DHO Office at Sujawal Bypass

Analytical Test Report of Drinking Water Monitoring

S.No.	Parameter	Method	Unit	SEQS Limit	WHO Limits	Result	Remarks
1.	pH @ 25°C	APHA 4500 H ⁺ B	-	6.5-8.5	8.2 - 8.8	5.8	Out of Limit
2.	Odour	Organoleptic	-	Acceptable	----	Acceptable	Within Limit
3.	Color	Pt-Co Method	TCU	15	<5	<5	Within Limit
4.	Taste	Organoleptic	-	Acceptable	Acceptable	Acceptable	Within Limit
5.	Total Hardness	ASTM D-1126	mg/l	500	----	261	Within Limit
6.	Total Dissolved Solids	APHA 2540 C	mg/l	1000	----	1023	Out of limit
7.	Turbidity	Nephelometric	NTU	<5	<1.5	2.06	Within Limit
8.	Chloride	ASTM-D4112	mg/l	<250	----	149	Within Limit
9.	Chlorine, Residual	HACH-8821	mg/l	0.2 - 0.3	0.5 - 1.5	0.2	Within Limit
10.	Aluminium	Lovibond-40	mg/l	0.2	<0.10	0.002	Within Limit
11.	Antimony	ASTM D-1697	mg/l	0.005	0.02	ND	Within Limit
12.	Barium (Ba)	ASTM D-4382	mg/l	0.7	0.7	0.1	Within Limit
13.	Boron	Lovibond-85	mg/l	0.3	2.4	ND	Within Limit
14.	Fluoride	HACH-8829	mg/l	1.5	1.5	0.62	Within Limit
15.	Nitrate	HACH-8839	mg/l	0.5	----	ND	Not Detected
16.	Nitrite	HACH-8507	mg/l	3	<3	ND	Not Detected
17.	Arsenic	Palintest-Kit	mg/l	<0.05	0.01 (A,T)	ND	Within Limit
18.	Cadmium	Lovibond-87	mg/l	0.01	0.001	ND	Within Limit
19.	Chromium	HACH-8824	mg/l	<0.05	0.05 (F)	ND	Within Limit
20.	Copper	Lovibond-149	mg/l	2	2	0.05	Within Limit
21.	Cyanide	Lovibond-156	mg/l	0.05	----	ND	Within Limit
22.	Lead	Lovibond-232	mg/l	<0.05	0.01 (A, T)	ND	Within Limit
23.	Manganese	Lovibond-242	mg/l	0.5	0.4 (C)	0.1	Within Limit
24.	Mercury	Kit-Method	mg/l	0.001	0.006	ND	Within Limit
25.	Nickel	Lovibond-255	mg/l	<0.02	0.07	ND	Within Limit
26.	Zinc	Lovibond-400	mg/l	5	----	2.8	Within Limit
27.	Total Coliform	APHA 9222 B	cfu	0/100ml	----	78	Out of Limit
28.	E-Coli	APHA 9222 D	cfu	0/100ml	----	42	Out of Limit

Sample Analyzed by:  Head of Imperial Environment Research Lab

SEQS* = Sindh Environmental Quality Standards
Methods* = EPA United State Environmental Protection Agency Methods



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IERL-SEPA License No	101/2023	Invoice No.	IERL/RS/06/2023
Lab Reference No.	IERL/CC/DHQ8/07/2023	Site ID/ Station	Station 07 DHQ Sujawal
Report to.	Mr. Syed Ali Rizwan Team Leader M/S Camcos Consultants	Sample Time	04:10 PM
Sample Collection Date	30-07-2023	Reporting Date	01-08-2023
Sample Collected/Submitted by:	IERL Representative	Sample Description:	Ambient Air
Coordinates:	24°36'27.5"N 68°04'53.6"E		
Location	Near DHO Office at Sujawal Bypass		

Analytical Test Report of Ambient Air Quality

Parameters	Unit	SEQS Limit	WHO Limits	Results	Remarks
SO ₂	µg/m ³	120	20	9.5	Within Limit
NO	µg/m ³	40	N/A	14.89	Within Limit
NO ₂	µg/m ³	80	N/A	27.41	Within Limit
CO	mg/m ³	10	N/A	8.94	Within Limit
O ₃	µg/m ³	130	N/A	6.89	Within Limit
PM _{2.5}	µg/m ³	75	25	30.22	Within Limit
PM ₁₀	µg/m ³	150	50	124.13	Within Limit
SPM	µg/m ³	500	N/A	179.50	Within Limit
Lead	µg/m ³	1.5	N/A	ND	Within Limit

SEQS= Sindh Environmental Quality Standards.

Methods = EPA United State Environmental Protection Agency Methods.

 Sample Analyzed by	 Head of Imperial Environment Research Lab
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Terms & Condition:

Report is valid for current batch (sample).

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IERL-SEPA License No	101/2023	Invoice No.	IERL/ RS/06/2023
Lab Reference No.	IERL/CC/DHQ8/07/2023	Site ID/ Station	Station 07 DHQ Sujawal
Report to.	Mr. Syed Ali Rizwan Team Leader M/S Cameos Consultants	Sample Collection Time	04:50 PM
Sample Collection Date	30-07-2023	Reporting Date	01-08-2023
Sample Type	Ambient Noise	Location	Near DHO Office at Sujawal Bypass
Sample Collected/Submitted by:	IERL Representative		
Coordinates:	24°36'27.5"N 68°04'33.6"E		

Analytical Test Report of Ambient Noise Monitoring

Sr. #	Location	Method*	SEQS Limit*	WHO Limits	Unit	Results	Remarks
1.	Near DHO Office at Sujawal Bypass	Sound Meter	75	70	dB (A)	71	Within Limit

SEQS= Sindh Environmental Quality Standards.

Methods = EPA United State Environmental Protection Agency Methods.

 Sample Analyzed by	 Head of Imperial Environment Research Lab
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Terms & Condition:

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Imperial Environment Research Laboratory

Environmental Monitoring Pictures



Ambient Air Quality Monitoring



Ambient Noise Quality



Drinking Water Sample Collection



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Imperial Environment Research Laboratory

Station 8: Tharparkar
Near DPO, House Matli



Imperial Environment Research Laboratory

IERL-SEPA License No	101/2023	Invoice No.	IERL/RS/06/2023
Reference No.	IERL/CC/DHQ/07/2023	Site ID, / Station	Station 08 (DHQ Tharparkar)
Report to,	Mr. Syed Ali Rizwan Team Leader M/S Camcos Consultants	Sample Collection Time	11:00 AM
Sample Collection Date	31-07-2023	Reporting Date	02-08-2023
Sample receiving Date	01-08-2023	Sample Type and Source	Drinking Water (Water Cooler)
Sample Collected/Submitted by:	IERL Representative	Location	DHQ Centre 09, Tharparkar Near DPO House Mithla

Analytical Test Report of Drinking Water Monitoring

S.No.	Parameter	Method	Unit	SEQS Limit	WHO Limits	Result	Remarks
1.	pH @ 25°C	APIHA 4500 H ⁺ B	-	6.5-8.5	6.5 - 8.5	8.2	Within Limit
2.	Odour	Organoleptic	-	Acceptable	....	Acceptable	Within Limit
3.	Color	Pt-Co Method	YCU	15	<5	<5	Within Limit
4.	Taste	Organoleptic	-	Acceptable	Acceptable	Acceptable	Within Limit
5.	Total Hardness	ASTM D-1126	mg/l	500	....	82	Within Limit
6.	Total Dissolved Solids	APIHA 2540 C	mg/l	1000	....	420	Within Limit
7.	Turbidity	Nephelometric	NTU	<5	<3.5	15	Out of Limit
8.	Chloride	ASTM-D512	mg/l	<250	....	22	Within Limit
9.	Chlorine, Residual	HACH-8021	mg/l	0.2 - 0.5	0.5 - 1.5	0.06	Within Limit
10.	Aluminium	Lovibond-40	mg/l	0.2	<0.10	0.01	Within Limit
11.	Antimony	ASTM D-3692	mg/l	0.005	0.02	ND	Within Limit
12.	Barium (Ba)	ASTM D-4182	mg/l	0.7	0.7	0.01	Within Limit
13.	Boron	Lovibond-85	mg/l	0.1	2.4	ND	Within Limit
14.	Fluoride	HACH-8029	mg/l	1.5	1.5	0.41	Within Limit
15.	Nitrate	HACH-8019	mg/l	0.5	....	8.2	Out of Limit
16.	Nitrite	HACH-8507	mg/l	1	<1	7.0	Out of Limit
17.	Arsenic	Palintest-Kit	mg/l	<0.05	0.01 (A, I)	ND	Within Limit
18.	Cadmium	Lovibond-87	mg/l	0.01	0.001	ND	Within Limit
19.	Chromium	HACH-8024	mg/l	<0.05	0.05 (P)	ND	Within Limit
20.	Copper	Lovibond-149	mg/l	2	2	0.21	Within Limit
21.	Cyanide	Lovibond-156	mg/l	0.05	....	ND	Within Limit
22.	Lead	Lovibond-212	mg/l	<0.05	0.01 (A, T)	ND	Within Limit
23.	Manganese	Lovibond-242	mg/l	0.5	0.4 (C)	0.7	Out of Limit
24.	Mercury	Kit-Method	mg/l	0.001	0.006	ND	Within Limit
25.	Nickel	Lovibond-255	mg/l	<0.02	0.07	ND	Within Limit
26.	Zinc	Lovibond-400	mg/l	5	....	2.8	Within Limit
27.	Total Coliform	APIHA 9222 B	cfu	0/100ml	....	25	Out of Limit
28.	E-Coli	APIHA 9222 D	cfu	0/100ml	11	Out of Limit

Sample Analyzed by	Head of Imperial Environment Research Lab
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SEQS* = Sindh Environmental Quality Standards
Methods* = EPA United State Environmental Protection Agency Methods

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Imperial Environment Research Laboratory

IERL-SEPA License No	101/2023	Invoice No.	IERL/ RS/06/2023
Lab Reference No.	IERL/CC/DHQ9/07/2023	Site ID. / Station	Station 08 (DHQ Tharparkar)
Report to.	Mr. Syed Ali Rizwan Team Leader M/S Cameos Consultants	Sample Time	11:20 AM
Sample Collection Date	31-07-2023	Reporting Date	01-08-2023
Sample Collected/Submitted by:	IERL Representative	Sample Description:	Ambient Air
Coordinates:	24°44'52.08"N 69°53'34.0"E		
Location	DHQ Centre 09, Tharparkar Near DPO House Mithi		

Analytical Test Report of Ambient Air Quality

Parameters	Unit	SEQS Limit	WHO Limits	Results	Remarks
SO ₂	µg/m ³	120	20	8.63	Within Limit
NO	µg/m ³	40	N/A	16.44	Within Limit
NO _x	µg/m ³	80	N/A	25.48	Within Limit
CO	mg/m ³	10	N/A	9.98	Within Limit
O ₃	µg/m ³	130	N/A	9.03	Within Limit
PM _{2.5}	µg/m ³	75	25	31.17	Within Limit
PM ₁₀	µg/m ³	150	50	116.34	Within Limit
SPM	µg/m ³	500	N/A	168.80	Within Limit
Lead	µg/m ³	1.5	N/A	ND	Within Limit

SEQS= Sindh Environmental Quality Standards.

Methods* = EPA United State Environmental Protection Agency Methods

 Sample Analyzed by	 Head of Imperial Environment Research Lab
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Terms & Condition:

Report is valid for current batch (sample).

This Report is not valid for any other certification, or court matters.





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IERL-SEPA License No	101/2023	Invoice No.	IERL/ RS/06/2023
Lab Reference No.	IERL/CC/DHQ9/07/2023	Site ID. / Station	Station 08 (DHQ Tharparkar)
Report to.	Mr. Syed Ali Rizwan Team Leader M/S Cameos Consultants	Sample Collection Time	11:30 AM
Sample Collection Date	31-07-2023	Reporting Date	01-08-2023
Sample Type	Ambient Noise	Location	DHQ Centre 09, Tharparkar Near DPO House Mithi
Sample Collected/Submitted by:	IERL Representative		
Coordinates:	24°44'52.08"N 69°53'34.0"E		

Analytical Test Report of Ambient Noise Monitoring

Sr. #	Location	Method*	SEQS Limit*	WHO Limits	Unit	Results	Remarks
1.	DHQ Centre 09, Tharparkar Near DPO House Mithi	Sound Meter	75	70	dB (A)	70	Within Limit

SEQS= Sindh Environmental Quality Standards.
Methods = EPA United State Environmental Protection Agency Methods.

 Sample Analyzed by	 Head of Imperial Environment Research Lab
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Terms & Condition:

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Environmental Monitoring Pictures



Ambient Air Quality Monitoring



Ambient Noise Quality



Drinking Water Sample Collection





Imperial Environment Research Laboratory

**Station 9: Dadu
DHQ Hospital Area**



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IERL-SEPA License No	101/2023	Invoice No.	IERL/RS/06/2023
Reference No.	IERL/CC/DHQ/07/2023	Site ID, Station	Station 09 (DHQ Dadu)
Report to.	Mr. Syed Ali Rizwan Team Leader M/S Cameos Consultants	Sample Collection Time	09:00 AM
Sample Collection Date	03-08-2023	Reporting Date	04-08-2023
Sample receiving Date	03-08-2023	Sample Type And Source	Drinking Water (Tap Water)
Sample Collected/Submitted by:	IERL Representative	Location	DHQ Hospital Area Dadu

Analytical Test Report of Drinking Water Monitoring

S.No.	Parameter	Method	Unit	SEQS Limit	WHO Limits	Result	Remarks
1.	pH @ 25°C	APIHA 4500 H ⁺ B	-	6.5-8.5	6.5 - 8.5	6.0	Out of Limit
2.	Odour	Organoleptic	-	Acceptable	---	Acceptable	Within Limit
3.	Color	Pt-Co Method	TCU	15	<5	<5	Within Limit
4.	Taste	Organoleptic	-	Acceptable	Acceptable	Acceptable	Within Limit
5.	Total Hardness	ASTM D-1126	mg/l	500	---	82	Within Limit
6.	Total Dissolved Solids	APIHA 2540 C	mg/l	1000	---	464	Within Limit
7.	Turbidity	Nephelometric	NTU	<1	<1.5	3	Within Limit
8.	Chloride	ASTM-D512	mg/l	<250	---	26	Within Limit
9.	Chlorine, Residual	HACH-8021	mg/l	0.2 - 0.5	0.5 - 1.5	0.04	Within Limit
10.	Aluminium	Lovibond-40	mg/l	0.2	<0.10	0.02	Within Limit
11.	Antimony	ASTM D-3697	mg/l	0.005	0.02	ND	Within Limit
12.	Barium (Ba)	ASTM D-4382	mg/l	0.7	0.7	0.03	Within Limit
11.	Boron	Lovibond-41	mg/l	0.1	2.4	ND	Within Limit
14.	Fluoride	HACH-8029	mg/l	1.5	1.5	0.41	Within Limit
15.	Nitrate	HACH-8019	mg/l	0.5	---	0.1	Within Limit
16.	Nitrite	HACH-8507	mg/l	1	<1	0.1	Within Limit
17.	Arsenic	Pala-test-Kit	mg/l	<0.05	0.01 (A, T)	ND	Within Limit
18.	Cadmium	Lovibond-87	mg/l	0.01	0.003	ND	Within Limit
19.	Chromium	HACH-8024	mg/l	<0.05	0.05 (P)	ND	Within Limit
20.	Copper	Lovibond-149	mg/l	2	2	0.12	Within Limit
21.	Cyanide	Lovibond-156	mg/l	0.05	---	ND	Within Limit
22.	Lead	Lovibond-212	mg/l	<0.05	0.01 (A, T)	ND	Within Limit
23.	Manganese	Lovibond-242	mg/l	0.5	0.4 (C)	0.09	Out of Limit
24.	Mercury	Kn-Method	mg/l	0.001	0.006	ND	Within Limit
25.	Nickel	Lovibond-254	mg/l	<0.02	0.07	ND	Within Limit
26.	Zinc	Lovibond-400	mg/l	5	---	1.1	Within Limit
27.	Total Coliform	APIHA 9222 B	cfu	0/100ml	---	21	Out of Limit
28.	E-Coli	APIHA 9222 D	cfu	0/100ml	---	05	Out of Limit

Sample Analyzed by	Head of Imperial Environment Research Lab
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SEQS = Sindh Environmental Quality Standards
Methods = EPA United State Environmental Protection Agency Methods
ND = Not Detected



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IERL-SEPA License No	101/2023	Invoice No.	IERL / RS/06/2023
Lab Reference No.	IERL/CC/DHQ9/07/2023	Site ID. Station	Station 09 (DHQ Dada)
Report to.	Mr. Syed Ali Rizwan Team Leader M/S Cameos Consultants	Sample Time	11:20 AM
Sample Collection Date	03-08-2023	Reporting Date	04-08-2023
Sample Collected/Submitted by:	IERL Representative	Sample Description:	Ambient Air
Coordinates:	26°42'34.2"N 67°46'51.4"E		
Location	DHQ Hospital Area Dada		

Analytical Test Report of Ambient Air Quality

Parameters	Unit	SEQS Limit	WHO Limits	Results	Remarks
SO ₂	µg/m ³	120	20	9.89	Within Limit
NO	µg/m ³	40	N/A	15.19	Within Limit
NO ₂	µg/m ³	80	N/A	28.11	Within Limit
CO	mg/m ³	10	N/A	10	Marginal
O ₃	µg/m ³	130	N/A	7.33	Within Limit
PM _{2.5}	µg/m ³	75	25	31.48	Within Limit
PM ₁₀	µg/m ³	150	50	121.71	Within Limit
SPM	µg/m ³	500	N/A	168.80	Within Limit
Lead	µg/m ³	1.5	N/A	ND	Within Limit

SEQS= Sindh Environmental Quality Standards.
Methods* = EPA United State Environmental Protection Agency Methods

 Sample Analyzed by:	 Head of Imperial Environment Research Lab
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Terms & Condition:

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batch (sample).



IERL-SEPA License No	101/2023	Invoice No.	IERL/ RS/06/2023
Lab Reference No.	IERL/CC/DHQ9/07/2023	Site ID. Station	Station 09 (DHQ Dadu)
Report to.	Mr. Syed Ali Rizwan Team Leader M/S Camcos Consultants	Sample Collection Time	11:30 AM
Sample Collection Date	03-08-2023	Reporting Date	04-08-2023
Sample Type	Ambient Noise	Location	DHQ Hospital Area Dadu
Sample Collected/Submitted by:	IERL Representative		
Coordinates:	26°42'34.2"N 67°46'51.4"E		

This Report is not valid for any other certification, or court matters.

Sr. #	Location	Method*	SEQS Limit*	WHO Limit	Unit	Results	Remarks
I.	DHQ Hospital Area Dadu	Sound Meter	75	70	dB (A)	54	Within Limit

Analytical Test Report of Ambient Noise Monitoring

SEQS= Sindh Environmental Quality Standards.
Methods* = EPA United State Environmental Protection Agency Methods

 Sample Analyzed by	 Head of Imperial Environment Research Lab
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Imperial Environment Research Laboratory

Environmental Monitoring Pictures



Ambient Air Quality Monitoring



Ambient Noise Quality



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Imperial Environment Research Laboratory



Drinking Water Sample Collection



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