

**BALUCHISTAN WATER SECURITY AND  
PRODUCTIVITY IMPROVEMENT PROJECT  
(BWSPIP)**

**ENVIRONMENTAL AND SOCIAL  
MANAGEMENT FRAMEWORK (ESMF)**

**NOVEMBER, 2023**

**ISLAMIC REPUBLIC OF PAKISTAN**

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**ABBREVIATIONS AND ACRONYMS**

BEPA	Balochistan Environmental Protection Agency
BIWRMDP	Balochistan Integrated Water Resource Management and Development
BLEP	Balochistan Livelihood and Entrepreneurship Project
BWSPIP	Balochistan Water Security and Productivity Improvement Project
BOQ	Bill of Quantity
ESMP	Environmental and Social Management Plan
EPA	Environmental Protection Agency
ESIA	Environmental and Social Impact Assessment
ESHS	Environmental, Social, Health and Safety
ESMF	Environmental and Social Management Framework
WB-ESSs	World Bank Environmental and Social Standards
GBV	Gender Base Violence
GDP	Gross Domestic Product
GIS	Geographic Information System
GoB	Government of Balochistan
GRM	Grievance Redress Mechanism
HEIS	High Efficiency Irrigation System
IMIS	Integrated Management Information System
IUCN	International Union for Conservation of Nature
LMP	Labor Management Plan
M&E	Monitoring and Evaluation
MGD	Million Gallons Per Day
NOC	No Objection Certificate
OHS	Occupational Health and Safety
O&M	Operation and Maintenance
PDNA	Post-Disaster Needs Assessment
PDO	Project Development Objective
PHED	Public Health Engineering Department
PIM	Project Implementation Manual
PIU	Environmental and Social Impact Assessments
PDO	project development objective
PMU	Project Management Unit
PPC	Public Complaints Centre
PPE	Proper Personal Protective Equipment
PSC	Project Steering Committee
PDSC	Project Design and Supervision Consultant
SCADA	Supervisory Control and Data Acquisition
SEA	Sexual Exploitation and Abuse
SH	Sexual Harassment
SEP	Stakeholder Engagement Plan
SWMPs	Solid Waste Management Plans
TMP	Traffic Management Plan
UoF	Utility of the Future
WaSH	Water, Sanitation, and Hygiene
WASA	Quetta Water and Sanitation Agency
WB	World Bank
WUA	Water User Association

## EXECUTIVE SUMMARY

The provincial Government of Balochistan (GoB), through Balochistan Irrigation Department (BID)<sup>1</sup> and Public Health Engineering Department (PHED)<sup>2</sup> is planning to undertake **Balochistan Water Security and Productivity Improvement Project (BWSPIP)**<sup>3</sup>. With the proposed support of the World Bank (WB). The proposed Project is to be implemented in three river basins of Nari, Talli and Lehri across the Kachhi plains<sup>4</sup> and in and around the Quetta Valley with focus on urban area. This Environmental and Social Management Framework (ESMF)<sup>5</sup> is developed to support the environmental and social due diligence provisions for activities financed by the World Bank in the proposed project. This ESMF follows the World Bank Environmental and Social Framework (ESF) as well as prevailing legislation in the country (National/Provincial), in particular Balochistan Environmental Protection Act 2012. This ESMF will use as a guideline document to prepare site specific Environmental and Social (E&S) instruments during project implementation stage.

**Project Background:** Water is critical to Balochistan's economy and contributes an essential public health service. The total cultivated area in Balochistan is 3.19 million ha while an additional 3.86 million ha is characterized as 'cultivable wasteland' because lack of access to water prevents it from being farmed. For expansion of cultivated area, the Kachhi plains hold great potential. The province has a semi-arid climate compounded by rugged topography, insecurity, and sparse irrigation/flood control schemes rendering the delivery of development interventions, particularly challenging. Balochistan is the country's driest province, receiving an average annual precipitation of only 210 mm, thus making it vital that the province increase its resilience to droughts.. Unsurprisingly, Balochistan tends to experience a severe drought every 4–5 years. The rural poor are the most vulnerable to water scarcity in Balochistan. Inefficient water management practices and excessive groundwater use have created severe economic, social, and environmental challenges for the province. Quetta city's drinking water demand is estimated at 63 million gallons per day (MGD), but only 24.5 MGD to 34.8 MGD are delivered by public agencies responsible for water supply and sanitation. Water quality is also an issue and 65 percent of drinking water almost exclusively sourced from groundwater is deemed unsafe for human consumption due to biological contamination, poor management of infrastructure, improper disposal of wastes etc. In Quetta, about 48 percent of children under 5 are stunted and an underlying cause is frequent exposure to fecal pathogens due to poor water, sanitation, and Hygiene (WaSH) services. The last major concerning aspect of Quetta's water insecurity is poor institutional performance, which is a window into larger water governance issues in Balochistan<sup>6</sup>.

### Project Development Objective:

The proposed Project Development Objective (PDO) is to increase access to water for productive and domestic use and to improve protection from floods in selected areas of Balochistan.

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<sup>1</sup> Implementing Agency for component A

<sup>2</sup> Implementing Agency for Component B.

<sup>3</sup> Proposed Project

<sup>4</sup> Including Kachhi and Sibi districts.

<sup>5</sup> Since, the design of proposed interventions have not been not been prepared yet (by appraisal) therefore, a framework approach has been adopted through this ESMF.

<sup>6</sup> PAD-BWSPIP, October, 2023.

**Project Components:** The proposed Project has three components<sup>7</sup>;

**Component A: Flood Protection, Agricultural Water and Watershed Management:** This component has three sub-components: **Sub-component A1: Water Infrastructure:** The activities under this sub-component will include: (i) Construction of flood dispersal structures; (ii) Embankment Protection Works; and (iii) auxiliary infrastructure including canals, gauges, regulation and measurement systems. This set of “grey infrastructure” will be complemented by nature-based solutions described in sub-component A2. **Sub-component A2: Watershed Management:** This sub-component includes the activities related to: (i) afforestation; (ii) erosion check and control structures; (iii) land leveling; (iv) water detention structures/ponds; and (v) water and soil conservation. The sub-component will also finance a technical assistance enabling participatory approach to the watershed management. **Sub-component A3: Improvements of On-Farm Water Productivity:** The sub-component will finance activities to improve on-farm water management to increase productivity of agriculture, horticulture, livestock, and fisheries. It will support on-farm infrastructure, climate-smart agricultural water use technologies, and technical assistance. **Sub-component A4: Project Management & Technical Assistance:** This sub-component will finance the project management, monitoring and evaluation and studies for component A.

**Component B: Improvement of Quetta Water Supply and Sanitation:** This component has following three sub-components: **Sub-component B1: Bulk Water Supply and Municipal Wastewater Infrastructure Investments:** This sub-component will increase bulk water available for supply through QWASA’s distribution network, support technical and commercial improvements to the Sabzal Sewage Treatment Plant (STP), and expand coverage of the sewerage network. Investments through this sub-component will ensure that there is adequate physical infrastructure and water to help QWASA translate institutional and network improvements (sub-components B2 and B3) into substantially improved water and sanitation services to residents of Quetta. **Sub-component B2: Improving Water Supply and Sanitation Systems and Services:** This subcomponent focuses on enhancing the technical and commercial efficiency of QWASA’s as a service provider through a combination of technical assistance to improve customer services and utility operations technology adoption and related capacity building, and physical rehabilitation of segments of the water supply network.. **Sub-component B3: Support for Project Management and Further Studies:** This subcomponent will support the PIU for Component B in improving core project management competencies

**Component C: Contingent Emergency Response Component (CERC):** This component will support preparedness for, and rapid response to climate and natural disasters, emergency, and/or catastrophic event as needed. The provisional zero cost for this component will allow for rapid reallocation of credit proceeds from other components under streamlined procurement and disbursement procedures. A CERC annex will be included in the project operations manual

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<sup>7</sup> PAD-BWSPIP, October, 2023.



outlining the process for activation, criteria for eligible crisis, implementation arrangements, fiduciary and safeguards aspects and a positive list of activities that may be financed.

**Project Beneficiaries:** The project will directly benefit approximately 690,000 people. Around 500,000 people in Quetta city will benefit from improved water supply and sanitation services and around 390,000 households will benefit from improved flood protection as well as improved water availability for agricultural uses in the Kachhi Plains.

**Environmental and Social Policies, Regulations and Laws:** This ESMF has been prepared to address the requirements detailed in the WB ESF addressing environmental and social aspects and considerations. The Environmental and Social Standards (ESSs) relevant to the proposed Project are **ESS-1: Assessment and Management of Environmental and Social Risks and Impacts, ESS-2: Labor and Working Conditions, ESS-3: Resource Efficiency and Pollution Prevention, ESS-4: Community Health and Safety, ESS5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement, ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources ESS8: Cultural Heritage and ESS-10: Stakeholder Engagement and Information Disclosure.** In addition, the ESMF addresses the requirements defined WB Group General Environmental, Health and Safety Guidelines and in the national and provincial regulations, most importantly, The **Balochistan Environmental Protection Act, 2012.** In the same context a number of other relevant laws, guidelines and policies have been discussed in Chapter 3.

**Stakeholder Engagement, Disclosure and Consultations:** The project has prepared a separate Stakeholder Engagement Plan (SEP) to describe objectives, process and outcome of the stakeholder engagement carried out during the project preparation and to be carried out during the project implementation – in accordance with the World Bank ESS 10 (Stakeholder Engagement and Information Disclosure). The SEP, being a live document is to be updated throughout the life of the project to ensure effective, robust and transparent stakeholder engagement. Two separate consultations for the proposed Project (BWSPIP) were organized by these from January to October 2023. Consultations were carried out with the representatives of the communities, potential vulnerable and marginalized groups and departments. Consultations mainly in the form of “Focus Group Discussions” (FGD) with all the Stakeholders at public places or offices especially in those communities that are within the project area or nearby with it are done. Participants were first briefed about the Project objectives and major interventions associated with the Project implementation. Afterward, participants were asked to express their views regarding the proposed Project. In general participants appreciated the Project and presented comments & suggestions to enhance the expected environmental and social benefits and to mitigate the adverse impacts. The PIU provided responses to the stakeholders during these consultation meetings and made part of this report.

**Grievance Redress Mechanism:** The project will have two separate GRMs for Component A and Component B, established in PIU BID and PIU PHED, respectively and the GRMs will be culturally appropriate, effective, accessible and should be known to the affected population. The PIUs and its partners’ organizations will involve and conduct awareness raising sessions for the affected persons and communities about the presence of the GRM and inform their right to file any concerns, complaints and issues they have related to the project and its interventions. The existing Grievance Redress Mechanism (GRM) of the BIWRMDP serves as the foundation upon

which we are building and improving for the BWSPIP. Grievances are acknowledged and resolved within a clear 20-day timeframe, managed by a Grievance Redress Committee (GRC) at the PMU level, and escalated appeals are addressed by the Project Steering Committee. Building upon the well-established and functional GRM of the BIWRMDP, the BWSPIP will enhance this existing system while introducing two separate GRMs for each PIU- one for the Irrigation Department (BID) and another for the Public Health Engineering Department (PHED). Each PIU will independently manage their complaints, maintaining clear and effective channels for grievance submission, and reporting to the World Bank.

The GRM will also be responsive to GBV/SEA/SH complaints and will follow necessary protocols to ensure that complaints are made anonymously with a high degree of discretion. A detailed procedure for GBV/SEAH complaints will also be prepared as part of the GBV Action Plan and the GRM will be updated accordingly. Each PIU will have a separate GRM for workers. Contractors and consultant firms will also be required to establish workers GRMs as per the requirements of the project.

**Potential Environmental and Social Impacts and Mitigations:** Based on environmental assessment (EA) as per the WB ESF and relevant standards, the environmental and social risk of the project is classified as “Substantial”. The potential environmental and social risks for project include: but not limited to:, soil erosion and contamination , generation of spoil from excavation activities, public utilities, flooding, seismicity, waste generation, deterioration of air quality, noise pollution, water contamination, flora and fauna, occupational health and safety, community health and safety, water sharing issues, labor influx, gender based violence/sexual exploitation and abuse/sexual harassment, , forced labor and child labor, elite capture, exploitation and exclusion disadvantaged or vulnerable groups, chance findings of important physical and cultural, land acquisition and involuntary resettlement, gender inclusion, and security risks, enhanced use of pesticides and maintenance of water supply lines, reduction of surface water flow during the rainy season for lower riparian areas. Most of the above-stated risks and impacts are temporary site-specific, largely reversible in nature and manageable by adopting mitigation measures provided in this ESMF, in accordance with the mitigation hierarchy under the relevant ESSs.

**Environmental and Social Risks and Impacts Management:** The Balochistan Irrigation Department will be the Implementing Agency for component A while the Balochistan PHED will be the Implementing Agency for component B. The Balochistan ID will rely on the existing PMU of the BIWRMDP for project management. For the PHED, a new project implementing unit will be created and staffed with QWASA staff and relevant specialists.

The BIWRMDP PMU at BID currently has Environmental and Social Development Specialists (ES&SDS) with demonstrated knowledge and experience in implementing WB safeguard policies and instruments. However, BID has not implemented any project under ESF, while this project, BWSPIP will follow WB ESF. The PMU does not have a Gender Specialist. The ES & SD Specialists in PMU of BIWRMDP have received ESF training provided by the WB under ESF capacity development program. PHED, responsible PIU for implementing Component B, has no experience with World Bank funded projects and the E&S requirements. Currently PHED and Q-WASA do not have adequate E&S staff to ensure compliance with E&S instruments during project implementation. Considering the current staff strength in PIU Component A and scale of activities to be implemented by BID and PHED; additional E&S staff would be required to implement and

oversee the E&S requirements. Each PIU will be required to have one Environment Specialist, one Social Development Specialist and one Gender Specialist.

Apart from this regular E&S set-up, “Project Design and Supervision Consultants (PSDC)” planned to be hired for overall project will also be responsible for E&S implementation, compliance monitoring in the field and reporting; as being successfully done for implementing BIWRMDP. Additionally, the effectiveness of safeguards implementation and compliance would be regularly validated and assessed by the “Monitoring and Evaluation Consultants”; as an independent/third party monitor.

The E&S Specialists of the project, upon completion of the project, will monitor activities with regard to site restoration and landscaping in the affected areas to ensure that the activities are done to an appropriate and acceptable standard before closing the contracts, in accordance with measures identified in the ESMPs and other plans. Throughout the Project implementation stage, training and awareness raising will be provided to relevant stakeholders, such as project staff, selected contractors, and communities, to support the implementation of the environmental and social risk management mitigation measures. Third Party will be recruited to monitor compliance including compliance of E&S instruments of the project on annual basis throughout the project duration. The third party will have E&S Specialists to carryout intermittent monitoring of the project. Contractors will be required to comply with the Project’s E&S risk management documents and procedures including the ESMP, LMP, and local legislation. This provision will be specified in the Contractor’s agreements.

Reports covering E&S implementation status from the field levels will be submitted to the WB on a quarterly basis. The PIUs become aware of a serious incident in connection with the project, which may have significant adverse effects on the environment, the affected communities, the public, or workers, it should notify the World Bank within 48 hours of becoming aware of such incident.

The E&S instruments including the ESMF, LMP, GBV/SEA SH Action Plan, GRM SEP and E&S screening checklists will be disclosed on the official website of the BWSPIP after necessary approvals. Once finalized, Urdu translation of Executive Summary, will also be disclosed. Hard copies of these documents will also be maintained at all Sub/field offices. In addition, these documents will be disclosed on WB image bank. All the E&S instruments must be completed and cleared by World Bank before the submission of bidding documents for approval.

**ESMF Implementation Budget:** The tentative cost estimates to implement ESMF is estimated as **271.4** Million. This tentative cost will be included in the overall project cost. This cost will be reviewed and firmed up periodically when the project footprints will be finalized at subproject level to ensure realism. Additional costs could be included in the subproject specific ESMPs that will become part of each bidding/BOQ documents.

## 1 INTRODUCTION

The provincial Government of Balochistan (GoB), through Balochistan Irrigation Department<sup>8</sup> is planning to undertake **Balochistan Water Security and Productivity Improvement Project (BWSPIP)**<sup>9</sup>. The proposed Project is to be implemented in three river basins of Nari, Talli and Lehri across the Kachhi plains<sup>10</sup> and in and around the Quetta Valley with focus on urban area.

This Environmental and Social Management Framework (ESMF)<sup>11</sup> is developed to support the environmental and social due diligence provisions for activities financed by the World Bank in the proposed project. This ESMF follows the World Bank Environmental and Social Framework (ESF) as well as prevailing legislation in the country (National/Provincial), in particular Balochistan Environmental Protection Act 2012. This ESMF will use as a guideline document to prepare site specific Environmental and Social (E&S) instruments during project implementation stage.

### 1.1. PROJECT BACKGROUND

Water is critical to Balochistan's economy and contributes an essential public health service. Agriculture, livestock, and industries that depend on water account for at least 52 percent of the provincial GDP, and agriculture remains the primary source of employment for 67 percent of the province's 21.7 million population. Further, Balochistan faces several water-borne diseases due to recurrent floods, inadequate access to clean and safe drinking water. The total cultivated area in Balochistan is 3.19 million ha while an additional 3.86 million ha is characterized as 'cultivable wasteland' because lack of access to water prevents it from being farmed. For expansion of cultivated area, the Kachhi plains hold great potential. Balochistan is experiencing a water crisis because of decades of underinvestment in water infrastructure in water services and weak sector institutions. The province has a semi-arid climate compounded by rugged topography, insecurity, and sparse irrigation/flood control schemes rendering the delivery of development interventions, particularly challenging. Balochistan is the country's driest province, receiving an average annual precipitation of only 210 mm, thus making it vital that the province increase its resilience to droughts. Unsurprisingly, Balochistan tends to experience a severe drought every 4–5 years. The rural poor are the most vulnerable to water scarcity in Balochistan. Furthermore, heavy reliance on, seasonal spate irrigation and inadequate creates vulnerability to extreme floods. The groundwater in Balochistan's aquifers provides a buffer against drought for crop production and for livestock and human needs. However, inefficient water management practices and excessive groundwater use have created severe economic, social, and environmental challenges for the province.

Quetta is already facing a water crisis, and the demographic, hydroclimatic, and water management trends suggest it will worsen in a business-as-usual scenario. Between 2010 and 2021, the average depth to the water table in Quetta increased by about 90 meters due

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<sup>8</sup> Lead Implementing Agency.

<sup>9</sup> Proposed Project

<sup>10</sup> Including Kachhi and Sibi districts.

<sup>11</sup> Since, the design of proposed interventions have not been not been prepared yet therefore, a framework approach has been adopted through this ESMF.

to groundwater over pumping in Quetta Valley. The city's domestic water demand is estimated at 63 million gallons per day (MGD), but only 24.5 MGD to 34.8 MGD are delivered by public agencies responsible for water supply and sanitation. Groundwater irrigated orchards in the Quetta Valley are a major driver of depletion which affects Quetta's water supply. Water quality is also an issue and 65 percent of drinking water almost exclusively sourced from groundwater is deemed unsafe for human consumption. In Quetta, about 48 percent of children under 5 are stunted and an underlying cause is frequent exposure to fecal pathogens due to poor water, sanitation, and Hygiene (WaSH) services. The last major concerning aspect of Quetta's water insecurity is poor institutional performance, which is a window into larger water governance issues in Balochistan<sup>12</sup>.

Harnessing Balochistan's water resources is crucial to its development and livelihood. The proposed project will support in addressing pressing irrigation, flood management, and water supply and sanitation issues in priority areas that undermine water security in the province.

## **1.2. PURPOSE OF THE ESMF**

The objective of the ESMF is to assess and mitigate potential negative environmental and social risks and impacts of the Project consistent with the Environmental and Social Standards (ESSs) of the World Bank ESF and national requirements. More specifically, the ESMF aims to (a) assess the potential environmental and social risks and impacts of the proposed Project and propose mitigation measures; (b) establish procedures for the environmental and social screening, review, approval, and implementation of activities; (c) specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social issues related to the activities; (d) identify the staffing requirements, as well as the training and capacity building needed to successfully implement the provisions of the ESMF; (e) address mechanisms for public consultation and disclosure of project documents as well as redress of possible grievances; and (f) establish the budget requirements for implementation of the ESMF.

This ESMF should be read together with other plans prepared for the project, including the Stakeholder Engagement Plan (SEP), the Environmental and Social Commitment Plan (ESCP) and Labor Management Plan (LMP).

## **1.3. ESMF PREPARATION METHODOLOGY**

- Review of project details and description to understand project activities likely to impact socio-economic environment.
- Review of relevant legislations, policies, standards and guidelines to determine the policy, legal and institutional environment for the Project based on World Bank ESF, national and provisional level.
- Review of secondary literature to understand project area, primary available data, sample safeguards documents to guide this assessment; and different published

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<sup>12</sup> PAD-BWSPIP, October 2023.

development reports for taking stock of environmental and socioeconomic baseline conditions.

- Conducting consultation with project stakeholders.
- Scoping, screening and impact assessment while developing interaction between project activities and key environmental aspects to screen out the significance of adverse environmental, biological and social impact and proposing generic mitigation measures.
- Procedures for environmental and social management, to manage and monitor the environmental and social aspects of the project.
- Estimation of budget to ensure the effective implementation of all the mitigation measures/ actions proposed in the ESMF.

## 2 PROJECT DESCRIPTION

This chapter describes the salient features of the Project including development objectives, components and implementation arrangement.

### 2.1. PROJECT DEVELOPMENT OBJECTIVE

The proposed Project Development Objective (PDO) is to increase access to water for productive and domestic use and to improve protection from floods in selected areas of Balochistan.

### 2.2. PROJECT AREA

The area comprises three (03) districts Kachhi and Sibi Districts (Component A) and Quetta District (Component B).

#### **Component A: Flood Protection, Agricultural Water and Watershed Management:**

The project area under this component covers the basins of Nari, Talli and Lehri Rivers across the Kachhi plains. The northern side touches the foot Marri-Bugti hills whereas the southern limit is the under-construction alignment of the Kachhi canal. Together, the three river basins cover an area of 6,179 km<sup>2</sup> with overlap against administrative boundaries of Sibi, Bolan and Jhal Magsi districts. Approximately 65% of total Kachhi Plain (9500 km<sup>2</sup>) is part of the project.

**Component B: Improvement of Quetta Water Supply and Sanitation:** The project area of this component is situated in and around Quetta Valley with focus on the urban area. The project area stretches between latitude 30°20' & 30° 03' N and longitude 66°52' & 67° 01' E at an average elevation of 1,680 m above the mean sea level.

### 2.3. PROJECT COMPONENTS

The proposed Project has three components; the brief description of each component is given below:

#### **Component A: Flood Protection, Agricultural Water and Watershed Management**

This component aims at improving water security in the Kachhi plains by protecting populations from floods and by improving access to water for productive use thereby reducing water security challenges. The component will achieve this objective through a combination of structural and non-structural solutions. The structural solutions will include a mix of grey infrastructure (flood dispersal structures and associated canals) and green infrastructure (targeted revegetation of the watershed). The non-structural solutions will include adequate planning especially at community level, and strengthening the capacity of local water management and government institutions. By doing so, this component will significantly contribute to strengthening the climate resilience and sustainability through multiple pathways (i) enhanced opportunities for productive farming activities through access to multiple sources of water throughout the year (as soil moisture, groundwater and ponds); (ii) diversification of farming activities to enable both crop farming and livestock breeding; and (iii) a combination of larger and smaller structures ensuring better sediment management and improved flood

risk mitigation. The component includes three sub-components (i) *Sub-component A1: Water Infrastructure*; (ii) *Sub-component A2: Watershed Management* and (iii) *Sub-component A3: Improvements of on-farm water productivity*. The project will engage with local NGOs and Women Water Network such as Aurat Foundation in Quetta to ensure female participation in consultations and ensure women's voice is heard for the flood protection, agriculture productivity and watershed management activities.

***Sub-component A1: Water Infrastructure:*** This sub-component will finance the development of priority flood protection and water utilization infrastructure to protect people and properties from floods and ensure year-round water availability for agriculture and limited domestic uses. Moreover, the infrastructure itself will be made resilient to floods, droughts, and high winds.<sup>13</sup> The activities under this sub-component will include: (i) Construction of flood dispersal structures; (ii) Embankment Protection Works; and (iii) auxiliary infrastructure including canals, gauges, regulation and measurement systems. This set of "grey infrastructure" will be complemented by nature-based solutions described in sub-component A2.

***Sub-component A2: Watershed Management:*** This sub-component will finance a combination of watershed management and conservation interventions aimed at limiting erosion, promoting groundwater recharge, increasing carbon stock and providing increased feed and fodder supply for livestock. This sub-component includes the activities related to: (i) afforestation; (ii) erosion check and control structures; (iii) land leveling; (iv) water detention structures/ponds; and (v) water and soil conservation. The sub-component will also finance a technical assistance enabling participatory approach to the watershed management.

***Sub-component A3: Improvements of On-Farm Water Productivity:*** The sub-component will finance activities to improve on-farm water management to increase productivity of agriculture, horticulture, livestock, and fisheries. It will support on-farm infrastructure, climate-smart agricultural water use technologies, and technical assistance. On-farm infrastructure will include the construction/rehabilitation of small water channels, small rainwater harvesting structures and access roads. Climate-smart agricultural water use technologies will include improved irrigation efficiency and climate resilient technologies (including contour bunds) enabled through matching grants to eligible beneficiaries. The technical assistance will offer training to farmers for on-farm water management techniques and practices and support the creation of water user associations` (WUAs) that will have responsibility in the O&M of infrastructure. The project will ensure women's representation and leadership in the WUAs by establishing a quota of X% for decision-making positions held by women and providing women in these positions, and more broadly female members in WUAs, with training in leadership and negotiation, as well as in technical skills such as financial management and O&M. Separate trainings will also provided to women on agricultural productivity, climate smart agriculture, horticulture, livestock, and kitchen gardening and income generation activities to improve their resilience to climatic shocks.

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<sup>13</sup> The World Bank's [Resilient Water Infrastructure Design Brief](#), published in 2020, guides users on how resilience can be built into the engineering design of their project. It focuses on the three natural hazards most likely to affect water and sanitation infrastructure—droughts, floods, and high winds.



**Sub-component A4: Project Management & Technical Assistance:** This sub-component will finance the project management, monitoring and evaluation and studies for component A. The component will also finance expenditures associated with the component implementation, including incremental costs associated with the Project Implementation Unit (PIU), Project Supervision and Implementation Assistance (PSIA) consultants, M&E consultants, and implementation of Management Plans and Strategic Studies including the Environmental Management Plan (EMP), the Social Mitigation Plan and the Gender Action Plan (GAP). Study tours will also be included with piloting of new technologies and others that may be identified during project implementation, as well as feasibility studies for other river basins (that do not include international waterways as defined in OP7.50).

## **Component B: Improvement of Quetta Water Supply and Sanitation**

This component aims to improve water security in Quetta by improving water supply and sanitation services delivered by QWASA and increasing sustainability of groundwater use through increased recharge. This will be achieved through a combination of priority infrastructure investments, strengthening of QWASA, and application of circular economy principles to water supply and sanitation systems. The project will finance a diverse set of activities that are all aligned with the objective of enhancing the efficiency, resilience, and sustainability of QWASA's operations to deliver improved, safe, reliable, and inclusive services. These interventions are well aligned with the priorities identified in the diagnostic and plans developed for QWASA through the Utility of the Future (UoF) Program and through UNICEF Climate Resilient WASH Roadmap.

**Sub-component B1: Bulk Water Supply and Municipal Wastewater Infrastructure Investments:** This sub-component will increase bulk water available for supply through QWASA's distribution network, support technical and commercial improvements to the Sabzal Sewage Treatment Plant (STP), and expand coverage of the sewerage network. Investments through this sub-component will ensure that there is adequate physical infrastructure and water to help QWASA translate institutional and network improvements (sub-components B2 and B3) into substantially improved water and sanitation services to residents of Quetta. Bulk water augmentation will include rehabilitation of the conveyance system that brings water from the Urak Headworks to Quetta city, construction of bulk supply lines to bring water from up to three operational dams around Quetta Valley, development and implementation of a comprehensive groundwater recharge program, rehabilitation of selected non-functional groundwater pumping stations, and construction of public water points with a focus on Kacchi Abadis. The water and sanitation facilities will be designed that is inclusive and easily accessible to people with disabilities.

Sanitation investments under B1 are concentrated in the Sabzal STP and its service area. The objectives are to (a) achieve public health and environmental outcomes from past investments that were never completed and/or are not operational, (b) develop a working institutional and operational model for wastewater management to be scaled in the future, and (c) provide operational opportunity to implement sanitation management practices that are supported by technical assistance under subcomponent B2. The scale of investment is small and the outcomes are concentrated in one locality of Quetta City, but the objective is to lay the groundwork for rapid scaling up of wastewater investments in the future. The performance and reliability of the Sabzal STP, which is currently non-operational partly due to QWASA's

inability to cover energy costs, will be bolstered by converting the energy supply to solar energy to make the plant operations more cost-efficient. Other on-site improvements will include rehabilitation of STP inlet, solid waste separation system, and restoration of settling tank. The STP is equipped with a sludge drying and pressing unit and a facility for filling tankers with treated wastewater, which will be restored through minor upgrades. The on-site water quality monitoring lab will also be modernized to increase frequency and transparency of quality testing. Sewerage network investments will cover parts of the Sabzal STP's catchment area, currently served by open drains that also carry non-sewage drainage water and solid waste. Investments through this sub-component will ensure that there is adequate physical infrastructure and water to help QWASA translate institutional and network improvements (sub-components B2 and B3) into substantially improved water and sanitation services to residents of Quetta.

***Sub-component B2: Improving Water Supply and Sanitation Systems and Services:***

This subcomponent focuses on enhancing the technical and commercial efficiency of QWASA as a service provider through a combination of technical assistance to improve customer services and utility operations, technology adoption and related capacity building, and physical rehabilitation of segments of the water supply network. The activities under this subcomponent will enable QWASA to reduce non-revenue water (NRW), increase energy efficiency, improve utility service parameters such as 'hours of service', and expand services to the most underserved localities. A detailed utility modernization program will be developed in the first year of project implementation, building upon the work undertaken already through the UoF Program. This will inform the specific technical assistance activities of the project, including support for a communication and public outreach campaign to enable demand management and increase tariff-based revenue. Technical assistance will also include: (a) establishment of a dedicated wastewater management unit to manage existing and planned wastewater investments (see subcomponent B1); (b) establishment of a kacchi abadi unit to expand QWASA services to the poorest settlements; and (c) development and implementation of a Gender Action Plan to increase the number of women in technical and decision-making positions. Constraints on women's recruitment and promotion into decision making/management positions will be identified through the EQUAL AQUA HR survey, and addressed through relevant measures, which may include introduction of incentives on hiring of women into new and existing unfilled positions at management level; review of current hiring and promotion practices and introduction of affirmative HR policies and procedures; launch of training and mentorship opportunities for existing women employees; and support for university-to-work transition schemes. Technology improvement, system rehabilitation, and related capacity building activities will include: (i) installation of a Supervisory Control and Data Acquisition (SCADA) system, Geographic Information System (GIS) and hydraulic network modeling of the QWASA's water distribution networks; (ii) network repair, and rehabilitation (or construction) of storage reservoirs within the city; (iii) rehabilitation of community water filtration plants; (iv) hardware and software support for network zoning, leakage management, and pressure management; (v) installation of bulk and consumer meters and (vi) solarization and rehabilitation of pumping stations and installation of electric generators.

***Subcomponent B3: Support for Project Management and Further Studies:*** This subcomponent will support the PIU for Component B in improving core project management competencies – procurement, financial management, monitoring and evaluation, E&S

safeguards -; hiring of consultants for M&E, supervision and implementation support, and needs-based technical support; and setup of a project specific Management Information System (MIS) and a WASH MIS housed at the PHED; and financing of costs associated with the PIU, which will be housed at the PHED and include substantial representation from QWASA (see Implementation Arrangements). This component will also support studies to inform future investments and interventions.

### **Component C: Contingent Emergency Response Component (CERC)**

This component will support preparedness for, and rapid response to climate and natural disasters, emergency, and/or catastrophic event as needed. The provisional zero cost for this component will allow for rapid reallocation of credit proceeds from other components under streamlined procurement and disbursement procedures. A CERC annex will be included in the project operations manual outlining the process for activation, criteria for eligible crisis, implementation arrangements, fiduciary and safeguards aspects and a positive list of activities that may be financed.

The key interventions illustrated by A & B components are provided in **Annex-A**

## **2.4. PROJECT BENEFICIARIES**

The project will directly benefit approximately 690,000 people. Around 500,000 people in Quetta city will benefit from improved water supply and sanitation services and around 390,000 households will benefit from improved flood protection as well as improved water availability for agricultural uses in the Kachhi Plains.

## **2.5. PROJECT IMPLEMENTATION ARRANGEMENT**

The Balochistan Irrigation Department (BID) will be Implementation Agency for Component A while the Balochistan PHED will be the Implementation Agency for Component B. The Balochistan ID will rely on the existing PMU of the BIWRMDP for project management, with enhancements in capacities as required. For the PHE Department, a new project implementing unit will be created and staffed with QWASA staff and relevant specialists.

For both PIUs, project management functions will include staffing, procurement, contract management, monitoring and evaluation, environment, social safeguard, project supervision, and financial management. While the PIUs will also be responsible for collaboration with the communities, customers, community organizations and the farmers' organizations, and for sub-project implementation. The PIUs will benefit from capacity strengthening during project preparation and implementation. The project design will include a robust Monitoring, Evaluation and Learning system. The PIUs will have the overall responsibility for project monitoring and evaluation in their respective domains and locations but will outsource an M&E consultant for support. They will both benefit from a robust technical assistance through project design and supervision consultants.

The PIUs will be responsible for collaboration with the communities, community organizations and the farmers' organizations, as well as for sub-project implementation. The PIUs shall be headed by independent Project Directors.

The BID and PHED PIUs will be responsible for the implementation of the SEP activities independently.

### **2.3.1 Project Steering Committee (PSC)**

A Steering Committee will be established to provide planning and strategic guidance, and to facilitate inter-agency coordination. The Project Steering Committee will be responsible for the projects overall management, policies and supervision. The Steering Committee will meet as a minimum on a quarterly basis, or more often if necessary. The Steering Committee will be chaired by the Additional Chief Secretary (Development) of the Department of Planning and Development and the Project Director will be an ex-officio member and Secretary (of the PSC) with the following members:

- Secretary Irrigation Department;
- Secretary Agriculture Department;
- Secretary Forestry Department;
- Secretary Public Health Engineering Department;
- MD QWASA

### **2.3.2 Results Monitoring and Evaluation Arrangements**

The project design will include a robust Monitoring, Evaluation and Learning system. The PIUs will have the overall responsibility for project monitoring and evaluation (M&E) and regular reporting to the Bank. They will be supported in this function by a dedicated M&E consultancy staffed with relevant expertise. The PIUs will: (i) collect and report on project performance data (including physical and financial progress); and (ii) provide periodic information on intermediate project results and progress toward PDO. The Project will also finance the gathering of relevant baseline data.

The Project will establish a MIS for both PIUs to facilitate project management and reporting. The MIS will integrate all key functions of project management including procurement, financial management, E&S safeguards compliance. The project will also support the creation of a dedicated WMIS system adapted for QWASA operations. The QWASA WMIS will include a customer database, monitoring systems and a QWASA specific customer Grievance Redress Mechanisms (GRM).

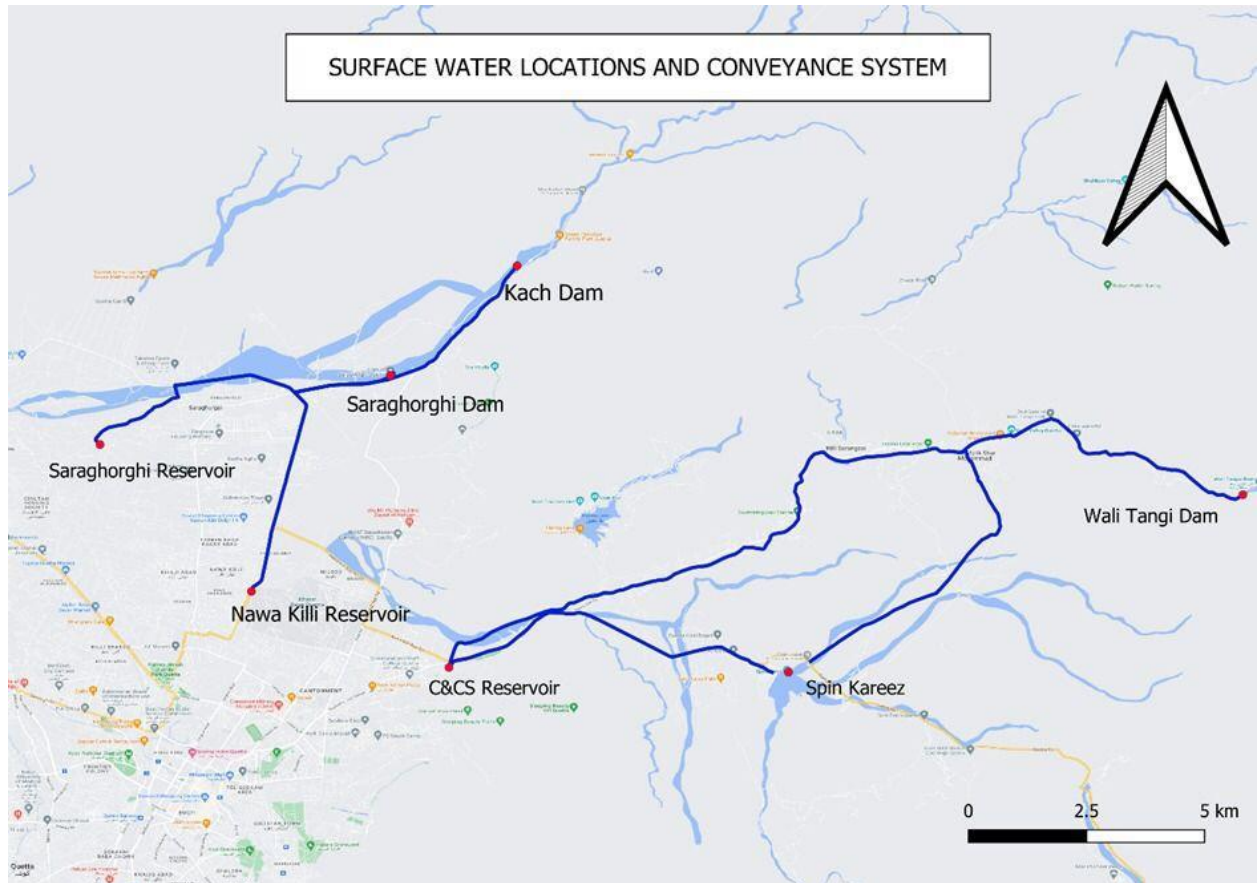
## **2.6. ASSOCIATED FACILITY**

The proposed project, under component B, involves the construction and rehabilitation of conveyance pipelines from surface water sources (Wali Tangi Dam, Spin Karez, Kach Dam, Saraghorghai reservoir, Saraghorghai Reservoir) to the reservoirs (refer **Figure 2.1**) so that committed water quota for the Quetta city will be made available.

The following conditions, as per WB's ESF, must be fulfilled if the surface water sources are considered Associated Facilities of the proposed project. The assessment is provided below:

<b>Condition</b>	<b>Yes/No</b>
<i>Directly and significantly related to project?</i>	Yes
<i>Carried out or planned to be carried out contemporaneously with the project?</i>	No
<i>Necessary for the project to be viable and would not have been constructed, expanded or conducted if the project did not exist?</i>	Yes

Since all three conditions have not been satisfied, it is concluded that the surface water sources are not to the Associated Facilities of the proposed project.



**Figure 2-1: Surface Water Locations and Conveyance System**

### **3 ENVIRONMENTAL AND SOCIAL POLICIES, REGULATIONS AND LAWS**

This section deals with the current legal and administrative framework required to prepare the ESMF of the proposed Project. Applicable WB Environmental and Social Standards (ESSs) and guidelines and Environmental and Social (E&S) Policies, laws, regulations laid out by the GoP, GoB have been duly discussed and the Project proponent will be required to adhere to these regulations throughout the course of the proposed Project.

#### **3.1. WORLD BANK STANDARDS AND KEY GAPS WITH NATIONAL/PROVINCIAL FRAMEWORK**

The project will follow the World Bank Environmental and Social Standards (ESSs), as well as the World Bank Group Environmental, Health and Safety Guidelines. Overall environmental and social risk classification of the project is assessed to be Substantial. The identified gaps between ESSs and national and provincial laws for E&S management and how these gaps are addressed in the ESMF are provided in Table 3.1 Where gaps exist between national laws vis-a-vis ESF, the most stringent requirements will prevail and will be followed during the implementation of proposed project.

**Table 3-1: Relevant World Bank ESS and Key Gaps with the National Framework**

Environmental and Social Standards (ESS)	Project Relevance	Relevant National Provincial Regulations and Laws	Gaps Identified in the Context of Local Laws	Gaps Addressed in ESMF
<p><b>ESS1:</b> Assessment and Management of Environmental and Social Risks and Impacts</p>	<p><b>Relevant:</b> The Project activities will involve a wide range of civil works which could have potential environmental and social risks and impacts<sup>14</sup>. The ESMF and the related site-specific E&amp;S instruments will be implemented throughout the project to comply with ESS1.</p>	<ul style="list-style-type: none"> <li>• Balochistan Environmental Protection Act, 2012</li> <li>• Guidelines for Environmental Assessment, Pakistan EPA</li> <li>• Review of IEE and EIA Regulations, 2020</li> </ul>	<p>The criteria mentioned in the Act for classifying environmental and social impact/risk is different than in the ESF. This categorizes the risk level of a project indirectly – mostly by project type and size. Furthermore, it does require commitment from the proponents for E&amp;S measures implementation but not in the form of a separate environmental and social commitment plan. The different methods and tools (ESIA, environmental and social audit, cumulative impact assessment, ESMP, ESMF, regional and sectoral ESIA, SESA etc.) for environmental and social impact assessments, referenced in the ESF, are not part of the National and Provincial legislation. The ESF highlight to consider the environmental and social risks and impacts associated with primary suppliers and disadvantaged or vulnerable groups while the local relevant laws do not.</p>	<p>E&amp;S risk categorization has been done on the basis of ESS-1 guidelines but also aligned with the BEPA requirements. The E&amp;S assessment will be/is carried out as per ESS-1 for the proposed Project.</p> <p>In addition, Resettlement Policy Framework (RPF), Labor Management Procedures (LMP) and Stakeholder Engagement Plan (SEP) have been prepared as part of this Project. Mitigations proposed in this ESMF and the other E&amp;S tools (e.g. RPF, LMP and SEP) have taken into</p>

<sup>14</sup> including generation of spoil from excavation activities, dust generation caused by excavation and running of project vehicles on unpaved roads/tracks, air emissions released by construction machinery and vehicles, soil and ground/surface water contamination caused by release of contaminants at the worksites and discharge of domestic sewage and other wastewaters from temporary facilities, solid waste generation, clearing of natural vegetation and trees. CHS risks associated with movement of heavy machinery, dump trucks, and deep excavations; OHS risks associated with the construction works, security of workers and equipment, concerns related to river water quantity and quality, reduction of surface water flow during the rainy season for lower riparian areas, unequitable project benefits, traffic congestion in urban setting, temporary disruption on supply and quantity of water to the communities and related health and safety risks during implementation. Impacts on land, labor management, risks of temporary economic and physical displacement of people and businesses (including informal settlers) during civil works, risks of equity in water supply, water quality, and ensuring access to increased water, risk of exclusion of women. Other social risks include the risk of GBV/SEA/SH across project activities.

Environmental and Social Standards (ESS)	Project Relevance	Relevant National Provincial Regulations and Laws	Gaps Identified in the Context of Local Laws	Gaps Addressed in ESMF
			ESS-1 specifically mentions disadvantaged or vulnerable groups, the Act does not touch upon this theme directly.	consideration the marginalized and vulnerable groups.
<b>ESS2 – Labor and Working Conditions</b>	<b>Relevant:</b> The Project will involve direct workers, contracted workers and primary supply workers. The primary labor risks during moderate to large scale construction and rehabilitation activities under Components A and B may include personal injury due to construction activities, risk of personal injury due to operating or working in close proximity to heavy machinery, chemical exposure, inappropriate storage, handling, and disposal of hazardous materials, risk of drowning in rivers during flash floods, risk of injury or death by being caught in tribal conflicts, and exposure to water-borne diseases, child labor and forced labor, labor influx and GBV/SEA/SH. All such categories have been explained in the LMP and mitigation measures suggested.	<ul style="list-style-type: none"> <li>• Balochistan Occupational Safety and Health Act, 2022</li> <li>• Employment of Child Act 1991</li> <li>• Balochistan Employment of Children (Prohibition &amp; Regulation) Act, 2021</li> <li>• The Balochistan Bonded Labour System (Abolition) Act, 2021</li> <li>• Factories Act 1934</li> <li>• Balochistan Factories Act, 2021</li> <li>• Workmen Compensation Act 1923 and Rules 1961.</li> <li>• Balochistan Payment of Wages Act, 2021</li> <li>• The Balochistan Minimum Wages Act, 2021</li> <li>• The Balochistan Shops and Establishment (Amendment) Act, 2022</li> <li>• The Balochistan Industrial and Commercial Employment (Standing Orders) Act, 2021</li> <li>• The Balochistan Employees' Social Security Act, 2022</li> </ul>	<p>National and Provincial laws regarding labour rights address most of the requirements of the ESS2. However, the implementation of these laws and the management of certain issues addressed under ESS-2, such as OHS, GBV/SEA and Violence Against Children (VAC), prohibition of children in hazardous work and child labor in general and protection against discrimination of religious minorities (many formal sector workers belong to religious minority groups) are not done effectively as detailed coverage of certain requirements is partial.</p> <p>There is no specific requirement for employers to establish a workers' grievance mechanism except grievance redress mechanisms are available within relevant government departments for citizens to lodge complaints i.e., chief minister complaint cell and citizen portal.</p>	All the relevant risks and measures have been considered in this ESMF. Labor Management Procedures (LMP) have been developed for the proposed Project to mitigate the risks related to OHS issues. The LMP will be noted in the legal agreement and in the Environmental and Social Commitment Plan (ESCP). All of this has been done in accordance with the provincial and national laws and ESS-2 requirements.



Environmental and Social Standards (ESS)	Project Relevance	Relevant National Provincial Regulations and Laws	Gaps Identified in the Context of Local Laws	Gaps Addressed in ESMF
		<ul style="list-style-type: none"> <li>• The Balochistan Maternity Benefits Act, 2022</li> <li>• Road Transport Workers Ordinance, 1961</li> <li>• The Balochistan Industrial Relations Act, 2022</li> </ul>		
<b>ESS3</b> – Resource Efficiency and Pollution Prevention and Management	<p><b>Relevant:</b> The project's interventions will also contribute towards resource efficiency. The project civil works will generate dust, air emissions, noise, solid and construction waste, and can contaminate and pollute soil, ground and surface water. During the rehabilitation of water distribution pipelines, the quality of water may deteriorate due to infiltration owing to negative pressures in the empty lines. As the Component-A activities will promote climate smart agricultural techniques and will improve on-farm and field irrigation water efficiency and farm productivity; as a result increased use of synthetic pesticides is likely. The project is not anticipating procurement of any pesticides but will focus on delivering targeted training on IPM, sustainable use of fertilizers, safe disposal of empty containers; and not using the restricted pesticides identified by WHO. The ESMF adequately proposes the mitigation measures against the risks involved for water, air and land pollution. Further the site specific ESMPs prepared as per outcome of the E&amp;S screening will integrate the mitigation</p>	<ul style="list-style-type: none"> <li>• National Energy Efficiency and Conservation Act, 2015</li> <li>• Balochistan Environmental Protection Act, 2012</li> <li>• Pakistan Climate Change Act, 2017</li> <li>• National Environmental Policy, 2005</li> </ul>	National and provincial laws address most of the requirements of ESS3, particularly on pollution prevention	Resource efficiency and pollution prevention measures have been included in the ESMF to comply with requirements of ESS3.

Environmental and Social Standards (ESS)	Project Relevance	Relevant National Provincial Regulations and Laws	Gaps Identified in the Context of Local Laws	Gaps Addressed in ESMF
	measures for risks involving provisions, installation, operations and maintenance (O&M) of solar panels for waste treatment plant (WTP).			
<b>ESS4</b> – Community Health and Safety	<b>Relevant:</b> These civil works under the project will include digging of roads and streets, therefore carrying a risk of injury, GBV, SEA/SH and disruption to people and businesses. Other CHS risks include health issues related to exposure to air and noise pollution, inappropriate disposal of solid waste, and risks related to increased traffic of heavy machinery and construction vehicles. Component A will involve significant contact between Project workers and beneficiary communities, particularly in the case of agreeing on scheme designs, water sharing, inter and intra tribal shares, etc. Such contact may result in the exploitation of economically disadvantaged, flood affected, or otherwise vulnerable community members. Ill-planned community/tribal engagements can lead to conflicts which can be violent for the communities and the Project workers. Project may also result in transmission of infectious diseases, GBV, SEA and SH during civil works. Other risks include physical harm to communities due to accidents, traffic incidents and security. A security management plan developed for BIWRMDP will be extended to the Project to deal with security risks. The security measures identified in this plan will be part of work contracts in sensitive areas. Site specific CHS risks will be managed through the development of ESMPs during project implementation. Additionally, the Project	<ul style="list-style-type: none"> <li>• Balochistan Occupational Safety and Health Act, 2022</li> <li>• Pakistan Penal Code, 1860</li> <li>• National Disaster Management Act, 2010</li> <li>• Balochistan Environmental Protection Act, 2012</li> </ul>	Local laws address most of the requirements of the ESS-4. However, detailed coverage has not been provided in the local laws (national and provincial) in comparison to ESS-4.	Relevant measures have been included in the ESMF to ensure the compliance with ESS4 that community health and safety is adequately protected.

Environmental and Social Standards (ESS)	Project Relevance	Relevant National Provincial Regulations and Laws	Gaps Identified in the Context of Local Laws	Gaps Addressed in ESMF
	will develop a standalone GBV/SEA/SH Assessment and Action Plan to assess in detail and manage the risks related to GBV/SEA/SH.			
<b>ESS5</b> – Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	<p><b>Relevant:</b> There is no expected large scale acquisition of private lands under the project. Following the mitigation hierarchy, the project will prioritize the use of existing government lands if required for civil works. Under Component A, the rehabilitation/construction of on-farm community water infrastructure may require community lands through Voluntary Land Donation (VLD) where government lands are not available and VLD is acceptable as per requirements of ESS5. Activities under Component B carry a risk of temporary economic and physical displacement of people and businesses and removal of informal settlers (encroachers) during the rehabilitation of water supply and sewage infrastructure in the densely populated and congested areas of Quetta city including 'kachi abadis' (slums). Public lands in Quetta city and Balochistan as a whole are loosely documented, and hence may be encroached.</p> <p>A Resettlement Framework (RF) has been prepared for the project, and Resettlement Plans (RPs) will be prepared during implementation after identification of site-specific impacts. The RF focuses on mitigating land taking impacts through negotiated agreement, expropriation and compensation and includes annexures with protocols for acceptance of VLD where circumstances meet requirements under ESS5.</p>	<ul style="list-style-type: none"> <li>• Land Acquisition Act 1894</li> <li>• The Land Acquisition (Amendment) Act, 2009</li> </ul>	<p>Screening is limited to physical survey of land, there is no consideration of social risks in the LAA</p> <p>No formal stakeholder consultations required by the LAA, or in host communities in case of resettlement</p> <p>No provisions are made for vulnerable groups in the LAA</p> <p>No provisions for livelihood restoration and improvement, and no additional assistance beyond compensation for land acquired and loss of livelihood in the LAA</p> <p>Land assets and structures are valued at market value in the LAA, instead of replacement cost in the ESS</p> <p>No compensation for non-titleholders in the LAA, while ESS5 requires all parties affected by land acquisition to be compensated.</p>	<p>RPF has been prepared as a part of this project, to address the issues related to land acquisition, voluntary land donation, restrictions on land use and involuntary resettlement (if any).</p>

Environmental and Social Standards (ESS)	Project Relevance	Relevant National Provincial Regulations and Laws	Gaps Identified in the Context of Local Laws	Gaps Addressed in ESMF
<b>ESS6</b> – Biodiversity Conservation and Sustainable Management of Living Natural Resources	<b>Relevant:</b> Project is not likely to have a significant impact on the biodiversity and forests as most of the construction/rehabilitation activities will be carried out in the built environment. Clearing of vegetation and cutting of trees is expected for construction works. Furthermore, the project will not introduce any alien or non-native species of flora or fauna in the project area and only selective native species of trees and shrubs will be planted as part of rangeland management. The potential impacts on biodiversity due to water harvesting is not anticipated at this stage as only part of seasonal flood water will be utilized in the project. The water will not be extracted from rivers and no flow modification of perennial rivers is expected additional water will come from reductions in non-revenue water (mainly leakages), rainwater harvesting and recharge of aquifers.	<ul style="list-style-type: none"> <li>• National Forest Policy, 2015</li> <li>• The Forest Act, 1927</li> <li>• Balochistan Wildlife preservation protection conservation and management Act 2014 (BWPPCMA)</li> <li>• The Balochistan Forest Act 2022</li> </ul>	Local laws address most of the requirements of the ESS-6 except the categorization of habitats (natural, critical and modified).	Relevant measures have been included in the ESMF including plantation of trees.  This ESMF ensures that no construction and rehabilitation activity will be carried out in or near the vicinity of natural and critical habitats.
<b>ESS7</b> – Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	<b>Not-relevant:</b> No indigenous people meeting the ESS7 criteria are present in the Balochistan province.	NA	There is no law, national or provincial, dealing with the rights and protection of Indigenous Peoples	This ESS is not relevant as no indigenous people are found in the Project Area.  Pakistan's only recognized Indigenous Peoples, the Kalash, live in 3 valleys in Chitral district of KP province,

Environmental and Social Standards (ESS)	Project Relevance	Relevant National Provincial Regulations and Laws	Gaps Identified in the Context of Local Laws	Gaps Addressed in ESMF
				and Chitral is not included in the Project districts.
<b>ESS8</b> – Cultural Heritage	<b>Relevant:</b> Project districts in Kacchi Plains and Quetta valley have culturally significant sites and resources. As the specific information on exact location and scale of project activities are not known at appraisal; and accordingly resulting impacts on these resources are unknown. The ESMF, however, has developed “Chance Find Procedure” to be followed during project implementation in case of any chance find for physical culture resource. Also all the subprojects would be screened for the presence of physical cultural resources prior to commencement of construction and rehabilitation works. In addition, in case there are impacts recorded on a notified cultural heritage within the project implementation, a Cultural Heritage Management Plan (CHMP) will be prepared accordingly.	<ul style="list-style-type: none"> <li>• Antiquities Act, 1975</li> <li>• The Antiquities Act, 1975 (amended in 1990)</li> <li>• Balochistan Antiquity Act, 2014</li> </ul>	The provincial legislation is silent regarding the Development of Physical Cultural Resource Management Plan. There is no provision related to tangible and intangible cultural properties. The provincial legislation is silent about the disclosure of information regarding cultural heritage due to the safety or integrity of the cultural heritage or would endanger sources of sensitive information from public disclosure.	This ESMF however, has developed “Chance Find Procedure” to be followed during project implementation in case of any chance find physical culture resource.  In addition, in case there are impacts recorded on a notified cultural heritage within the project implementation, a Cultural Heritage Management Plan (CHMP) will be prepared accordingly.
<b>ESS 9-</b> Financial Intermediaries	<b>Not relevant:</b> This standard is not relevant, as Financial Intermediaries will not be used.	NA	NA	NA
<b>ESS10</b> – Stakeholder Engagement and Disclosure	<b>Relevant:</b> Effective stakeholder engagement and information disclosure will be crucial to the project. This ESMF follows a structured approach to stakeholder engagement and public outreach that is based upon meaningful consultation and disclosure of appropriate information. A standalone SEP has been prepared, which will be periodically updated throughout the Project life. The SEP also includes a	<ul style="list-style-type: none"> <li>• Review of IEE and EIA Regulations, 2000</li> <li>• Balochistan Environmental Protection Act, 2012</li> <li>• Guideline for Public Consultation, 1997</li> </ul>	Stakeholder engagement in public sector development projects is not done effectively. The regulations do not demand continued stakeholder engagement after the NOC has been granted, leading to a potential disconnect between the project and the affected people during construction and operations phases. Also, there is no proper mechanism to record the grievances.	The SEP and GRM have been developed as per the requirements of ESS10. The SEP outlines the process and frequency of stakeholder engagement at all project stages, and also establishes the contours of an effective GRM.

Environmental and Social Standards (ESS)	Project Relevance	Relevant National Provincial Regulations and Laws	Gaps Identified in the Context of Local Laws	Gaps Addressed in ESMF
	grievance redress mechanism (GRM) to receive and facilitate the resolution of concerns and grievances including SEA/SH incidents.			

The relevant policies to project other than ESSs are described in **Table 3.2.**

**Table 3-2: Applicability of World Bank Policies**

Sr. No.	WB Safeguard Policies Triggered by the Subproject	Triggered		Explanation
		Yes	No	
1.	The World Bank OP 7.50 Projects on International Waterways	[ ]	[√]	NA
2.	The World Bank OP 7.60 Projects in Disputed Areas	[ ]	[√]	NA

### 3.2. RELEVANT NATIONAL POLICIES AND REGULATIONS

This section briefly describes the national and provincial laws and policies, relevant to the project and stipulates the various requirements that have been or will be complied with during the planning and implementation stages of the project. The summary of major relevant policies, acts and legislation are briefly described in **Table 3.3.**

**Table 3-3: National and Provincial Policies Legal Framework and Laws**

National & Provincial Policies, Rules and Regulation	Description	Project Relevance
Pakistan Climate Change Act, 2017	This Act aims to promote climate resilience, mitigation, and sustainable development. Its main features include setting up the legal and institutional framework for addressing climate change-related issues in the country.	This Act is relevant. The Project activities will involve a wide range of civil works, which would contribute to the significant use of natural resources, and generation of waste. The proposed project will ensure efficient use of resources through implementation of measures provided in this ESMF.
National Conservation Strategy, 1992	NCS sets forth the beginnings of a plan to integrate environmental concerns into virtually every aspect of Pakistani economic life. The Strategy has three overriding objectives: conservation of natural resources, sustainable development, and improved efficiency in the use and management of resources.	The NCS has 68 specific programs in 14 core areas in which policy intervention is considered crucial for the preservation of natural and physical environment. The core areas that are relevant in the context of the proposed project are pollution prevention and abatement, restoration of rangelands, conserving biodiversity, supporting plantations, and the preservation of cultural heritage.
National Environmental Policy, 2005	The National Environment Policy provides an overarching framework for addressing the environmental issues facing Pakistan, particularly pollution of fresh water bodies and coastal waters, air pollution, lack of proper waste management, deforestation, loss of	The NEP identifies a set of sectoral and cross-sectoral guidelines to achieve its goal of sustainable development. Section 5 of the policy commits for integration of environment into development planning as instrument for achieving the objectives of National Environmental Policy. Management of proposed project will ensure that the project will not add to the aggravation of the environmental issues identified in NEP and mitigation measures would be adopted to minimize or avoid any contribution of the project in these areas.

National & Provincial Policies, Rules and Regulation	Description	Project Relevance
	biodiversity, desertification, natural disasters and climate.	
Balochistan Environmental Protection Act (2012)	BEPA provides the framework for implementation of environmental reforms, protection and conservation of species, conservation of renewable resources, and establishment of Environmental Tribunals, appointment of Environmental Magistrates, and submission of Environmental Assessment in case of new development. It also provides details on prevention and control of pollution, and promotion of sustainable development in the province.	The Project activities will involve a wide range of civil works which could have potential environmental and social risks. The proposed project will respect the provisions of this Act and prepare the EIA/IEE study, where required, as per Balochistan Environmental Protection Agency (Review of IEE and EIA) Regulations, 2020) to obtain the No Objection Certificate (NOC)/ Environmental Approval.
Land Acquisition Act, 1894 and later amendments	The Land Acquisition Act, 1894, is a "law for the acquisition of land needed for public purposes and for companies and for determining the amount of compensation to be paid on account of such acquisition". The exercise of the power of acquisition has been limited to public purposes.	There is no expected large scale acquisition of private lands under the project. Under Component A, the rehabilitation/construction of on-farm community water infrastructure may require community lands through Voluntary Land Donation (VLD) where government lands are not available. Activities under Component B carry a risk of temporary economic and physical displacement of people and businesses and removal of informal settlers (encroachers). A Resettlement Framework (RF) has been prepared for the project, and Resettlement Plans (RPs) will be prepared during implementation after identification of site-specific impacts. The RF focuses on mitigating land taking impacts through negotiated agreement, expropriation and compensation
Balochistan Occupational Safety and Health Act, 2022	This act have provisions for the occupational safety and health conditions at all workplaces for the protection of persons at work against risk of injury arising out of the activities at work places and for the promotion of safe, healthy and decent working environment adapted to the physical, physiological and psychological needs of all persons at work.	The project may create some labor related risks and impacts, which may include risk of personal injury due to operating or working in close proximity to heavy machinery, chemical exposure, inappropriate storage, handling, and disposal of hazardous materials, risk of drowning in rivers during flash floods, risk of injury or death by being caught in tribal conflicts, and exposure to water-borne diseases, child labor and forced labor, labor influx and GBV/SEA/SH. Therefore, this law is applicable and the project will ensure the compliance with the relevant sections during the implementation. Necessary mitigation measures have been provided in this ESMF to manage these risks. Moreover, a separate LMP has been prepared as a part of this Project.



National & Provincial Policies, Rules and Regulation	Description	Project Relevance
Balochistan Wildlife preservation protection conservation and management Act 2014 (BWPPCMA)	This Act is enacted to provide protection, preservation, conservation, sustainable and management to the wildlife, and establishment and management of protected areas in the Province of Balochistan.	Direct impacts on the biodiversity and natural resources are not anticipated as most of the construction/rehabilitation activities will be carried out within the existing built environment. However, clearing of vegetation and cutting of trees is expected for construction works. As part of rangeland management, the project will not introduce any alien or non-native species of flora or fauna in the project area and only selective native species of trees and shrubs will be planted. This ESMF ensures that no construction and rehabilitation activity will be carried out in or near the vicinity of natural and critical habitats.
Balochistan Forest Act 2022	This Act consolidates and amend the laws relating to protection, conservation, management and sustainable development of forests, rangelands and other renewable natural resources in the Balochistan Province.	This ESMF ensures that no construction and rehabilitation activity will be carried out in or near the vicinity of natural and critical habitats.
Balochistan Antiquity Act, 2014	This Act provides the preservation and protection of antiquities in the Province of Balochistan and for the matters connected therewith or ancillary thereto.	This Act will be applicable, as the project investments include significant amount of civil works which includes excavation, this ESMF will include chance find procedures which will guide the handling of cultural heritage discovered during commencement of Project activities. In addition, in case there are impacts recorded on a notified cultural heritage within the project implementation, a Cultural Heritage Management Plan (CHMP) will be prepared accordingly.
Balochistan Factories Act, 2021	An Act to re-enact the existing law relating to the regulation of labour in factories with regard to its application to the province of Balochistan.	This project shall involve in multi-dimensional works and the workers (direct workers, contracted workers, primary supply workers and community workers) which may involve in occupational and health related risks, therefore this act shall be applicable to the proposed project to cover and protect their rights.
Balochistan Payment of Wages Act, 2021	This Act regulates the payment of wages to workers employed in all factories, and commercial establishments and other organizations to whom wages/payment for work are owed by corresponding employer, in the Province of Balochistan.	Applicable as different types of workers (direct workers, contracted workers, primary supply workers and community workers) would be involved in this project. The project will respect the provision of relevant sections of this act.
Balochistan Employment of Children (Prohibition & Regulation) Act, 2021	This Act prohibits and regulates the employment of children to eliminate child abuse in the Province keeping with the provisions as contained in the Constitution of Islamic Republic of Pakistan an ILO Conventions concerning admissible age for the employment and worst for, of child labour.	Project interventions would involve different Contractors and sub-contractors (if any) for the execution of the project; however, children may involve in direct or indirect employment, therefore this act is applicable in the proposed project to cover such type of issues.

National & Provincial Policies, Rules and Regulation	Description	Project Relevance
The Protection against Harassment of Women at the Workplace Act, 2010	The Protection against Harassment of Women at the Workplace Act 2010 provides legal protection to women against harassment at the workplace, and reforms the existing legislation regarding women's right to work in Pakistan.	This Act will be applicable to the project if women are employed for the proposed project. The project shall respect the relevant requirements of this act.
Canal and Drainage Act, 1873	This is an act to regulate Irrigation, navigation and drainage. The Provincial Government is entitled to use and control for public purposes the water of all rivers and streams flowing in natural channels, and of all lakes, sub-soil water and other natural collections of still water. This Act prohibits corruption or fouling of water in canals (defined to include channels, tube wells, reservoirs and watercourses), or obstruction of drainage.	The project will look into the requirements of this Act during implementation of the proposed project, particularly for the construction and rehabilitation works for irrigation structures.

### 3.3. OBLIGATIONS UNDER INTERNATIONAL TREATIES

Pakistan is signatory to several multilateral environmental and social agreements. The proposed Project is obliged to respect the applicable agreements, which are provided in the following sections.

#### Environmental Obligations

- Paris Agreement, 2015.
- Stockholm Convention on Persistent Organic Pollutants, 2004.
- Vienna Convention, 1985.
- Convention on Conservation of Migratory Species of Wild Animals, 1979.
- UNESCO Convention on the Protection of the World's Cultural and Natural Heritage, 1972.
- Convention on Biological Diversity (CBD), 1994.
- United Nations Framework Convention on Climate Change (UNFCCC), 1992.
- Kyoto Protocol, 1992.
- The Rio Declaration, 1992.
- Montreal Protocol 1987.
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1975.

### 3.4. SOCIAL OBLIGATIONS

- Convention for Safeguarding the Intangible Cultural Heritage, 2003.

- Convention on the Rights of the Child, 1989.
- Convention on the Elimination of all Forms of Discrimination against Women, 1979.
- International Covenant on Civil and Political Rights, 1966.
- International Covenant on Economic, Social and Cultural Rights, 1956.
- International Labor Organization (ILO) Conventions – Ratified by Pakistan<sup>15</sup>
- C138 - Minimum Age Convention, 1973 (No. 138).
- C111 - Discrimination (Employment and Occupation) Convention, 1958 (No. 111).
- C107 - Indigenous and Tribal Populations Convention, 1957 (No. 107).
- C029 - Forced Labor Convention, 1930 (No. 29).
- C001 – Hours of Work (Industry) Convention, 1919 (No. 1)

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<sup>15</sup> *The Pakistan has ratified 36 ILO's conventions (At present, 31 are enforced) including its eight Core Conventions covering four areas, namely; child labor, forced labor, discrimination, right of freedom of association and to bargain collectively - (All ILO Conventions are available at ILO's website at <https://www.ilo.org/global/lang--en/index.htm>)*

## 4 ENVIRONMENTAL AND SOCIAL BASELINE

This chapter provides an overview of the baseline environmental and socioeconomic conditions the project areas. An environmental baseline study is intended to establish a database against which potential impacts can be predicted and managed later.

The baseline situation will be described here under two distinct project areas including Kachhi Plain (Kachhi and Sibi districts) and district Quetta for component A and B respectively.

### 4.1. PHYSICAL ENVIRONMENT<sup>16</sup>

#### 4.1.1 Geology

##### ***Kachhi Plains***

The project area of Component A (district Kachhi and Sibi) lies in sedimentary sequence which is composed of calcareous rocks. Most of the sedimentary rocks stem from marine environment and others particularly in the south and south-western parts are fluvial, deltaic, littoral or paludal (swamp). No sedimentary rocks of deep origin are known and perhaps all the marine sediments in project area were deposited in shallow water. Deposits of Aeolian origin are confined to surficial accumulation of Sub-recent to recent age represented by the dunes and sandy tracts of the deserts. Glaciation is not marked in either the Pleistocene deposits or in the older strata.

##### ***Quetta***

The project area of Component B (Quetta Valley) in Pishin Lora Basin comprised of alluvial aquifers in the valley and bedrock aquifers in the surrounding mountains. Beneath the earth surface the alluvial aquifer has a depth of 30-900 m in the main valley. Cross sectional examination of the East western Pishin lora basin shows that the Quetta and Karkhazan valley are situated between Murdar Ghar and Chiltan Mountains.

#### 4.1.2 Topography

##### ***Kachhi Plains***

The project area of Kachhi Plain is an arid, dry, and hot temperate zone stretches across an area between the two mountain ranges, the Sulaiman Range to the east and the Kirthar Range to the west. The Plain extends from the foothills of Marri-Bugti through the river basins of Talli, Lehri, and Nari and are bordered by the downstream command areas of Pat Feeder Canal and under-completion Kachhi Canal. The area is constituted by rangelands, agricultural, forested, barren, and unproductive mountain slopes.

The topography of the Quetta Valley is characterized by a flat, sandy plain that is dissected by a network of streams and rivers. The valley is drained by the Dasht River, which flows from east to west, and the Hana River. The valley is surrounded by several mountain ranges. The hill ranges are fairly uniform in character consisting of long central ridges from which frequent spurs descend.

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<sup>16</sup> Feasibility Study BWSP, 2023.

### 4.1.3 Seismology

According to the seismic zoning map of Pakistan proposed by the Building Code of Pakistan (BCP; 2007), Pakistan is divided into five seismic zones (Zones 1, 2A, 2B, 3, and 4) considering the severity of seismic hazard; zone 1 is the lowest, and zone 4 is the highest seismic zone. The Quetta district falls in zone 4 while Sibi and Kachhi districts, of Kachhi Plain, in zone 3.

### 4.1.4 Land Use

#### ***Kachhi Plains***

The components A (district Sibi and Kachhi) of the project falls in three River Basins Nari River, Lehri River and Talli river basin. The land-use within these river basins is given in the **Table 4-1**.

#### ***Quetta***

The present land use of district Quetta, where Component B falls, is predominately residential area, commercial, industrial, public buildings; orchards, green areas, utilities, road and, graveyards.

**Table 4-1: Land use Pattern for Nari River, Lehri River and Talli River Basin**

<b>Project Basin</b>	<b>Open Space (ha)</b>	<b>Cultivated Tracts (ha)</b>	<b>Ponds (ha)</b>	<b>Settlements (ha)</b>	<b>Drainage (km)</b>
Nari	108,070	166,672	195	4676	950
Lehri	98,160	55,937	164	1067	487
Talli	32,558	39,755	27	365	260

### 4.1.5 Soil

#### ***Kachhi Plains***

The soils of the Kachhi plain project area (district Sibi and Kachhi) are unstable and subject to active water erosion. The intensity, however, depends upon the vegetation cover and the slope gradient. The Mountains on both sides of the river have steep slopes and hold very little vegetation. Alluvium fan deposits are formed because of glaciated materials carried by stream flows or where these streams create space due to meandering within the valley. Soils could be subdivided into two sub-landforms namely; the late Pleistocene/Subrecent Piedmont plain and the Recent Piedmont plain.

#### ***Quetta***

The soil of Quetta valley is sparsely covered with the vegetation. The central part of the Quetta valley is covered by a soil that ranges from sandy loam to silt loam. This type of soil is good for crop production. At the margin of the valley near foothills, the soil consists of sandy loam, mixed with pebbles and rock fragments and is suitable for vegetation.

#### 4.1.6 Water Resources

##### ***Kachhi Plains***

In Kachhi plain (Sibi and Kachhi districts), surface water sources such as streams and rivers are scarce due to the arid climate. However, during the monsoon season, some rivers and streams flow and people store this water in village ponds and use for drinking and irrigation. The quality of surface water is not ideal as it may contain contaminants such as bacteria, viruses, and parasites. Groundwater is generally saline and not fit for drinking purposes.

About 28% of the households of Sibi District have no water on their premises and have to travel distances to fetch water. The drinking water data presented here only reflects the use of particular type of water source. It does not represent quality or quantity of water, which is also of major concern. Drinking water from improved sources is vulnerable to contaminations (bacteriological and chemical) at various stages from source to final use. 45% population of Kachhi district has access to one or more improved water sources, of which piped water (23%) constitutes the major source followed by rainwater collection (12%) and tube wells or boreholes (7%). In district Sibi and Kachhi, 87% and 59% households are using improved sanitary toilets for human excreta disposal respectively. About 31% have no toilet facility and defecating in the open fields/bushes, raising the risk of disease transmission through air, insects/flies or other means.

The water quality of the project area (Sibi and Kachhi districts) has been determined by sampling ground water, rivers water and ponds water. Results showed that groundwater of the project area is highly brackish whereas rivers and ponds water are comparatively of acceptable quality but does not meet the BEQS for some parameters. The main issue for the area is availability of safe drinking water as rain and floodwater, stored in ponds, is used for drinking and domestic purposes. This polluted water contributes to health issues.

##### ***Quetta<sup>17</sup>***

There is no perennial river in the Quetta District. The whole area is drained by Quetta Lora (Sariab Lora) and its confluents, which has been described as the Hanna stream and the Tirkha or Karanga Lora draining the Aghbarg valley. Around 3 million inhabitants of the area are currently facing a complex issue of water availability due to rapid growth and resultant over exploitation of its major and available source; groundwater. Things are even worse in katchi abadis (slums) in Quetta where none of the many overlapping agencies including WASA provide services. Therefore, access to safe drinking water (quality and quantity of drinking water) and improvement in sanitation, mainly in the city area, remains an issue to be addressed instantly.

Groundwater extraction infrastructure and distribution system for domestic use are being operated mainly by Quetta Water and Sanitation Authority (QWASA) with 430 tube wells out of which around 75% are operational<sup>18</sup>. Few tube wells are equipped with flow meters but they are non-functional. Apart from domestic use, groundwater is also being used significantly for agricultural purpose through 292 tube wells with subsidized electricity tariff.

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<sup>17</sup> PC-I and PAD-BWSP/IP

<sup>18</sup> In addition, Public Health Engineering Department (PHED), Urban Planning & Development Department (UPDD) and public sector have also installed tube wells in the project area.

The city's water demand is estimated at 61 million gallons per day (MGD), but only 24.5 MGD to 34.8 MGD are delivered by public agencies responsible for water supply and sanitation. In the past, around 2 MGD water was being drawn from Wali Tangi Dam, however, due to outlived and non-functional conveyance system, currently around 1 MGD water is being supplied from the Dam and Spin Karaz to the Cantonment Area. Consequently, the agreed share of WASA from this surface water source is also affected and WASA is currently receiving less than 10% of its committed share of 1 MGD. Rehabilitation of the collapsed and outlived water conveyance system from Wali Tangi Dam & Spin Karez Dam will ensure full water supply from the Wali Tangi and Spin Karez Dam and the committed water quota for the city and cantonment will be available.

In absence of any reliable and financially viable surface water source in and around Quetta, the City is mainly dependent on groundwater resources, the average depth to the water table in Quetta increased by about 90 meters<sup>19</sup>. Groundwater irrigated orchards in the Quetta Valley are a major driver of depletion that affects Quetta's water supply. Over exploitation of groundwater due to rapid urbanization and ever-increasing water demand coupled with significant water losses through leakages in water supply network made it necessary to augment the water supplies through surface water resources in conjunction with the groundwater. While exploring the new surface water resources it is also essential to minimize the transmission losses by repairing/replacing the outlived and leaking water distribution network and taking measures to enhance ground water recharging through watershed management. These interventions mainly cover the watershed management, development of new surface water resources and rehabilitation of the collapsed surface water supply infrastructure to restore the water supply from the existing water source. Water quality is also an issue and 65 percent of drinking water sources are deemed unsafe for human consumption due to biological contamination, poor management of infrastructure, improper disposal of wastes etc. There is one functional sewage treatment plant in Quetta but there is no upstream investment to separate sewage from stormwater and other urban wastewater, and the drainage and sewage network are rudimentary and poorly maintained.

WASA also has significant inefficiencies in equipment/infrastructure operations and maintenance (O&M), high energy use and high physical water loss. O&M cost recovery is less than four percent, the rest is only very partially covered through a largely inadequate and unpredictable annual budget allocation of about Pakistan Rupee 3.6 billion. Quetta will remain water insecure unless both the physical and institutional architectures for delivering water and sanitation services are drastically upgraded.

#### **4.1.7 Climate**

##### ***Kachhi Plains***

Climate of Kachhi plain project area (Sibi and Kachhi districts) is classified as arid in nature with high summer temperatures and low rainfall. The area lies in the hottest region of the country and the hottest months are May and June with maximum temperature of 52° C, while the average temperature range varies from 13°C to 52°C. During winters, the mean monthly minimum

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<sup>19</sup> Studies have indicated that extensive groundwater withdrawals in Quetta Valley drive land subsidence.

temperature recorded is 13° C in January and varies considerably across the watershed. The average annual rainfall in project area has been recorded as 4.5 inches (112 mm).

### Quetta

Semi-arid to arid climate prevails in the Quetta valley. Winters are extreme cold and the maximum average temperature ranges from 14 to 18°C. The minimum temperature averages 4.3°C to -1.7°C. The average annual rainfall is about 249 mm. Quetta valley has experienced frequent droughts in the past.

## 4.2. BIOLOGICAL ENVIRONMENT<sup>20</sup>

Balochistan province has the potential of wildernesses for a diverse flora and fauna. The diverse climatic zones have contributed to a set of ecological zones resulting in unique faunal and floral biodiversity. The number of well-known plant species in Balochistan is at least 1,750 and the documented status of animal species richness in Balochistan includes: 71 Mammals 71, 356 Birds, 94 reptiles, 08 amphibians and 61 freshwater fish<sup>21</sup>.

Project is not likely to have a significant impact on the biodiversity and forests as most of the construction/rehabilitation activities will be carried out in the built environment. Clearing of vegetation and cutting of trees is expected for construction works. Furthermore, the project will not introduce any alien or non-native species of flora or fauna in the project area and only selective native species of trees and shrubs will be planted as part of rangeland management. The potential impacts on biodiversity due to water harvesting is not anticipated at this stage as only part of seasonal flood water will be utilized in the project. The water will not be extracted from rivers and no flow modification of perennial rivers is expected additional water will come from reductions in non-revenue water (mainly leakages), rainwater harvesting and recharge of aquifers.

### 4.1.1 Flora

The common flora of Kachhi, Sibi and Quetta districts is provided in **Table 4.2:**

**Table 4-2: Key Floral Species of Project Area**

Sr. No.	District	Local Name	Scientific Name
1	Kachhi Plain (Kachhi and Sibi)	Babul	<i>Acacia nilotica</i>
		Shisham	<i>Dalbergia sissoo</i>
		Ber	<i>Zizyphus nummularia</i>
		Farash	<i>Tamarix aphylla</i>
		Black Siris	<i>Albizzia lebbek</i>
		White Siris	<i>Albizzia procera</i>
		Neem	<i>Azadirachta indica</i> ),
		Tamarisk	<i>Tamarix troupii</i>
		Shrubby Seablite	<i>Suaeda fruticosa</i>
		Karir	<i>Capparis deciduas</i>

<sup>20</sup> Feasibility Study BWSP, 2023.

<sup>21</sup> <https://forestrypedia.com/wildlife-resources-in-balochistan>



Sr. No.	District	Local Name	Scientific Name
		Blue Panicum	<i>Panicum antidotale</i>
		Ghaz	<i>Tamarix dioica</i>
		Poplar	<i>Populus euphratica</i>
		Babul	<i>Acacia nilotica</i>
		Wild Sugar Cane	<i>Saccharum munja</i>
		Cattail	<i>Typha angustifolia</i>
		Bansi	<i>Panicum antidotale</i>
		Kandi	<i>Prosopis cineraria</i>
		Peelu	<i>Salvadora oleoides</i>
		Ber	<i>Zizyphus mauritiana</i>
		Aak	<i>Calotropis procera</i>
		Jangli Zaitoon	<i>Olea ferruginea</i>
		Mazri	<i>Nannorrhops ritchieana</i>
2	Quetta	Pistachio	<i>Pistachia atlantica</i>
		Khinjuk	<i>Pistacia khinjak</i>
		Ash Tree	<i>Fraxinus xanthoxyloides</i>
		Tharkha	<i>Artimesia meritima</i>
		Wild Almond	<i>Prunus ebernea</i>
		Makhi	<i>Caragana ambigua</i>
		Zralg	<i>Berberis lyceum</i>
		Ghuzaira	<i>Sophora griffithii</i>
		Olive	<i>Olea cuspidata</i>
		Athel Pine	<i>Tamarix Spp.</i>

Source: District Development Profile of Sibi and Kachhi 2011 (Prepared by Planning and Development Department government of Balochistan)

#### 4.1.2 Fauna

The common fauna of Kachhi, Sibi and Quetta districts is provided in **Table 4.3**.

**Table 4-3: Key Faunal Species of Project Area**

Sr. No.	District	Common Name	Scientific Name	IUCN Conservation Status
1	Kachhi Plain (Kachhi and Sibi)	Hill fox	<i>Vulpes vulpes</i>	Least Concern
		Long-eared Hedgehog	<i>Hemiechinus auritus</i>	Least Concern
		Indian Grey Mongoose	<i>Herpestes edwardsii</i>	Least Concern
		Afghan Pika	<i>Ochotona rufescens</i>	Least Concern
		Desert Cat	<i>Fellis Libyca</i>	Least Concern
		Chinkara	<i>Gazella bennettii</i>	Least Concern
		Five Stripped Palm Squirrel	<i>Funambulus pennant</i>	Least Concern
		Skittering Frog	<i>Euphlyctis cyanophlyctis</i>	Least concern
		Three-toed snake skink	<i>Ophiomorus tridactylus</i>	Least Concern
		Wild Boar	<i>Sus scrofa</i>	Not Assessed
		Marbled toad	<i>Duttaphrynus stomaticus</i>	Least Concern
		Griffon Vulture	<i>Gyps fulvus</i>	Least Concern
		White yellow Wagtail	<i>Motacilla flava</i>	Least Concern
		Cettis Warbler	<i>Cettia cetti</i>	Least Concern
		Plain leaf Warbler	<i>Phylloscopus neglectus</i>	Least Concern
		Fox	<i>Vulpes vulpes</i>	Least Concern
		Jackal	<i>Canis aurous</i>	Least Concern
		Wolf	<i>Canes lupus</i>	Least Concern
		Wild boar	<i>Sues scrota</i>	Least Concern

Sr. No.	District	Common Name	Scientific Name	IUCN Conservation Status
		Wild hare	<i>Lupus spy</i>	Least Concern
		Caracal cat	<i>Felix caracal</i>	Least Concern
		Sparrow	<i>Passer idea</i>	Least Concern
		Green parakeet	<i>Psittarcarahologchlorus</i>	Least Concern
		Garden Lizard	<i>Calotes versicolor</i>	
		Wolf	<i>Canis lupus pallipes</i>	
		Rosey Sterling	<i>Sturnus roseus</i>	Least Concern
		Duck	<i>Amaurionis phoenicurus</i>	Least Concern
		Grey Partridge	<i>Perdix perdix</i>	Least Concern
		Quail	<i>Coturnix coturnix</i>	Least Concern
		Pintail	<i>Anas acuta.</i>	Least Concern
		Black Partridge/ Black Francolin	<i>Francolinus francolinus asiae</i>	Least Concern
		Indian Cobra	<i>Naja naja</i>	Least Concern
		Spider Gecko	<i>Agamura femoralis</i>	Least Concern
		Common frog	<i>Rana tigrina</i>	Least Concern
2	Quetta	Hill fox	<i>Vulpes vulpes</i>	Least Concern
		Long-eared Hedgehog	<i>Hemiechinus auritus</i>	Least Concern
		Indian Grey Mongoose	<i>Herpestes edwardsii</i>	Least Concern
		Eagle	<i>Eurasian Eagle-owl</i>	Least Concern
		Owl	<i>Mountain Owlet</i>	Least Concern
		Saw-scale viper	<i>Echis carinatus</i>	Least Concern
		Levantine viper	<i>Macrovipera lebetina</i>	Least Concern

### 4.1.3 Forest and Protected Areas

#### **Kachhi Plains**

There are six (06) Notified forests, declared as forests by the Forest and Wildlife Department, GoB. These are named Nari Bank, Bakhra, Lehri, Gulu Shahr, Dehphal, and Abdullah Kheli forests. All are conserved as a state Forest (Government owned), and require a permit for clearance by the Forest and Wildlife Department, GoB, under the Balochistan wildlife protection, preservation, conservation, and Management Act (BWPPCM Act 2014). There are no State forests in Kachhi district. There are some irrigated, privately-owned plantations in the district, which include Direnjin, Drazbent and Bamboo (all at Dhadar).

#### **Quetta**

Hydrologically, the Quetta District is falling in Pishin Lora Basin (PLB). In the overall Pishin Lora Basin (PLB), there are 20 protected forest areas covering 294,340 ha and one national park namely Hazargangi-chiltan National Park with covered area 27,400 ha<sup>25</sup>. Chiltan range is rich in floral and faunal biodiversity. It is home for unique Chiltan wild goat (*Capra aegagrus chiltanensis*) and Sulaiman Markhor (*Capra falconeri jerdoni*). Hana Lake is another water body located near Quetta.

There are no notified protected areas falling in the project area. In recent years, for the reintroduction of extinct Chinkara Deer, the Forest & Wildlife Department has developed a deer breeding facility on 200 acres.

## **Wetlands**

Five wetlands in Balochistan are under protection through Ramsar Convention and none of them are present in the project districts. However, Hanna Lake and Spin Karez support migratory bird population during their seasonal migration in Quetta. Similarly, the Bolan and Nari rivers, despite their limited flow, provide a habitat for waterfowl.

Project is not likely to have a significant impact on the biodiversity and forests as most of the construction/rehabilitation activities will be carried out in the built environment. Activities that have the potential to cause any significant loss or degradation of critical natural habitats, whether directly or indirectly, or which would lead to adverse impacts on natural habitat, will be excluded from the project.

### **4.1.4 Fisheries**

Nine fish species viz., *Botia lohachata*, *Cyprinion watsoni*, *Labeo dero*, *Labeo dyocheilus pakistanicus*, *Labeo pungusia*, *Mastacembelus armatus*, *Ompok bimaculatus*, *Rita* and *Salmostoma bacillus* were recorded from Nari River; three species viz., *Barilius vagra*, *Garra gotyla* and *Salmostoma bacillus* were recorded from Lehri River and only one species *Barilius vagra* was observed from Talli River respectively.

*Labeo dero* was most abundant (43.75%) fish species in Nari River followed by *Labeo dyocheilus pakistanicus* (18.74%) and *Salmostoma bacillus* (15.62%). *Barilius vagra* was most abundant (60.4%) fish species in Lehri River followed by *Salmostoma bacillus* (30.2%).

No threatened (near endangered, vulnerable or threatened) fish species have been recorded from any river. The development of storages (bunds, dams and weirs) to store flood water will increase the growth of macroinvertebrate and algae in the water bodies and subsequently enhance the fish production from Nari, Lehri and Talli Rivers. The proposed project interventions therefore have no adverse impacts on the aquatic life of the rivers.

## **4.3. SOCIO-ECONOMIC CONDITIONS<sup>22</sup>**

Socio-economic baseline has been developed with the aim of having information about main socio- economic characteristics prevailing in the project area.

### **4.4.1 Administrative Setup**

#### ***Kachhi Plains***

Under the Local Government Act 2010, Amended in 2011, Sibi district has 1 District Council with 2 Union Councils. There is special representation of women (33%) and of workers and peasants (5% each). At the Federal level, Sibi district is allocated a set number of representatives in both the National Assembly and the Provincial Assembly. Kachhi/Bolan district has one District Council

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<sup>22</sup> Feasibility Study BWSPIP, 2023.

with 19 Union Councils. There is special representation of women (33%) and of workers and peasants (5% each).

### **Quetta**

The district Quetta is divided into two towns. The ratio of male and female population is 53% and 47% respectively.

## **4.4.2 Demographic Status**

### **Kachhi Plains**

Sibi district had a population of 179,751, of which 94,723 were males and 85,009 females. Rural population was 115,077 (64.02%) while the urban population was 64,674 (35.98%). The literacy rate was 45.97% - the male literacy rate was 57.71% while the female literacy rate was 32.85%. Bolan/Kachi had a population of 309,932, of which 164,291 were males and 145,633 females. Rural population was 258,952 (83.55%) while the urban population was 50,980 (16.45%). The literacy rate was 32.98% - the male literacy rate was 42.44% while the female literacy rate was 22.31%. Islam was the predominant religion with 98.83%, while Hindus are 1.04% of the population. District Kachhi has 40,896 households and a population of 309,932, of which 164,291 were males and 145,633 females. Rural population was 258,952 (83.55%). Kachhi had a sex ratio of 886 females per 1000 males and a literacy rate of 32.98% - 42.44% for males and 22.31% for females.

### **Quetta**

The population of district Quetta is reported 2,269,473. The male and female population ratio is 1,190,476 (52.5%) and 1,078,718 (47.5%) and average family size is reported 7.97. The transgender population is reported 27923. As of 2017 census, the rural population in the area amounted to 1,274,494 individuals, while the urban population is 1,001,205 individuals. Quetta had a sex ratio of 906 females per 1000 males and a literacy rate of 58.76% (69.56% for males and 46.74% for females).<sup>24</sup>

As per UNICEF report, approximately 0.7 million people reside in the slums area. A significant portion of slums (57%) are unregistered, making them ineligible for official resource allocations. Additionally, 85% of these areas lack access to government water systems. Waste management is also a significant issue, as 84% slums either do not have any drains or have choked and filthy drains. Only 7% slums have waste pick up facility by the government, while 91% throw waste on empty plots/streets. Furthermore, 47% of these areas lack schools, and most dwellings consist of temporary mud houses with poor infrastructure. Overall, residents in these areas lack access to basic resources<sup>25</sup>.

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<sup>23</sup> Census Report, 2017

<sup>24</sup> Pakistan Bureau of Statistics census, 2017

<sup>25</sup> Profiles of Underserved Areas of Quetta City of Balochistan, Pakistan, July 2020 (UNICEF)

### 4.4.3 Races and Tribes

#### ***Kachhi Plains***

The cultural environment of Sibi depicts a diverse range of ethnic groups. Despite speaking multiple languages, individuals have a common heritage, moral standards, ideas, and rituals. Religion, which offers a foundation for harmony and a shared social structure, acts as a unifying force. The Pashtun, Balochi, and Brahvi tribes are notable for their generosity.

The population of Kachhi presents diverse features of special interest to the ethnologists. Sindhi is the most widely spoken language in the area, followed by Balochi and Brahvi, whereas, Urdu is a medium of education or communication between people with different ethnic backgrounds mostly in the urban areas of district. The principal Baloch tribes of the district are Rind, Shawani, Domki, Syed and Kurd who are native residents of the area. These tribes inhabit in different villages scattered all over the district. Beside these tribes, there is a small population of settlers which includes Saraiki, Punjabi and Pashtu speaking people. The Hindu population of the area is Sindhi and Balochi speaking.

#### ***Quetta***

Quetta District is one of the most developed districts of Balochistan because of being provincial capital. Still, it has its own characteristics of tribal society. However, tribalism is fading away and losing its importance due to urbanization, commercialization, education and the role played by mass media in creating awareness. Majority of the people of this area are Sunni Muslims. Major tribes are Pashtoon, Baloch, Hazara and Punjabi.

### 4.4.4 Culture

The culture of Balochistan or simply Baloch culture is defined in terms of religious values, Balochi and Brahui language, literature and traditional values of mutual respect. It has its roots in the Urdu, Balochi, Brahui, Sindhi and Pashto. Folk music, handicraft, drama and Balochi cinema plays a significant role in Baloch culture. Quetta, the provincial capital of Balochistan, has several beautiful historical monuments such as Pirak, Chaukhandi tombs and Quaid-e-Azam Residency. Balochistan celebrates its culture day every year where people from different villages gather together to organize several types of cultural programs. It marks its historical significances across the provincial state. It includes folk music, dance, craft exhibition and other activities.

The province-wise situation is almost equally applicable to the selected districts (Quetta, Kachhi, Sibi) for the project.

### 4.4.5 Economic Condition

#### ***Kachhi Plains***

The main economic occupations of the district include: Agriculture with its Allied Livestock Breeding & Fishing (26.1%), Community, Social & Personal Services (25%), Construction (19%), Electricity, Gas & Water (16%), Others (13.9%). The main economic occupations of the district Kachhi includes; Agriculture with its Allied Livestock Breeding & Fishing (72.2%), Community, Social & Personal Services (13.1%), Construction (9.1%), Wholesale, Retail, Trade & Hotel/Restaurant (2.7%), Transport, Storage & Communication (1.6%), Manufacturing (0.5%) and Others (0.8%).

### **Quetta**

The main economic occupations of the district Quetta include: Community, Social & Personal services (45.4%) Wholesale, Retail, Hotel/Restaurant (15%) Construction (13%) Manufacturing (10%) Agriculture, Forestry, Fishing & Hunting (7%) and Others (9.6%)

#### **4.4.6 Cultural / Archaeological Sites**

##### ***Kachhi Plains***

There are several well-known shrines and historical buildings in the area, which have historical value, and thus, need to be protected under National Laws. In District Kachhi, Mehargarh is the most important archaeologist site in district Kachhi. In Sibi, one archaeological and cultural heritage site known as Jirga Hall (Victoria Memorial Hall) in Sibi City. This Jirga Hall (Victoria Hall) is now converted into a museum which is known as Sibi Museum.

##### ***Quetta***

Quetta districts also has important archeological sites such as Killi Gul Muhammad, Kechi Beg, Damb Sadaat, Ahmad Khanzai, Quetta Miri and mounds.

It is anticipated that there will be no direct impacts on historical and archaeological sites due to the proposed Project as construction/rehabilitation activities will be carried out in built environment. However, during excavation, there is always a chance of finding artifacts. This ESMF however, has developed "Chance Find Procedure" to be followed during project implementation in case of any chance find physical culture resource.

#### **4.5.1 Irrigation System**

##### ***Kachhi Plains***

Sibi district depends upon the Nari Canal for irrigation. A large area is irrigated through the spate or rod kahi irrigation system. The Bolan/Kachhi district is mostly canal irrigated and is in the Monsoonal belt.

##### ***Quetta***

Two irrigation sources include tube wells and karezes or springs. Most of the tube wells are privately owned and are maintained by community. Whereas, government installed tube wells are maintained by Irrigation Department.

#### **4.5.2 Agriculture Crops**

##### ***Kachhi Plains***

The crops grown in the Kachhi Plains include wheat, barley, rice, jowar, bajra, maize, cotton, guar seed, sunflower etc. The vegetable crops include onions, garlic, potatoes, tomatoes, okra, spinach, turnip, cabbage, carrots, pumpkins, peas, brinjal, cucumber, chilies, coriander etc.

##### ***Quetta***

The crops grown in the district include wheat, barley, fodder, cumin, canola etc. The vegetable crops include onions, potatoes, radish, spinach, turnip, broad beans, cabbage, carrots, pumpkins, cauliflower, peas, brinjal, luffa, cucumber, chilies, okra etc.

### **4.5.3 Livestock**

#### ***Kachhi Plains***

Livestock breeding plays an important role in the economy and is a major source of cash income for most rural women. The indigenous livestock breeds include lohani cattle, bhagnari cattle, dumbi sheep, Balochi sheep, bibrik sheep, lehri goat, khorasani goat, brahui camel, berberi goat, and jhatnasal or raidi breed of camels.

#### ***Quetta***

The major livestock breeds of the district are raigi camel; Koh-i-Suleimani cattle; shinghari, kakari, dumeri or hernai, gosalli or kajalle sheep; and khurasani and Koh-i-Suleimani goat.

### **4.5.4 Transportation**

The project area (component A&B) is connected through road and railway network with the rest of the country.

### **4.5.5 Health Facilities**

#### ***Kachhi Plains***

The primary healthcare system in the project area of Kachhi district is characterized by a three-tiered structure, consisting of Basic Health Units (BHUs), Rural Health Centers (RHCs), and Tehsil Headquarter Hospitals (THQs) but the healthcare situation is extremely poor particularly in remote and rural areas.

#### ***Quetta***

In Quetta district, government and private hospitals are available where good healthcare facilities and qualified doctors are available.

### **4.5.6 Mechanism for Resolving Disputes**

There are two main methods of conflict resolution in the area; one is official and the other is traditional. The official system involves government and the unofficial system is based on the traditional Jirga / Mairh system. The government system functions through civil, criminal, session and Qazi courts and Majlis e Shora. These mechanisms are almost equally applicable to the selected districts (Quetta, Kachhi, Sibi) for the project.

### **4.5.7 Security Issues**

The security condition in Balochistan, particularly in its southern districts, has remained unstable in recent years impeding the efforts for development. Potential threats such as vandalism, intimidation, violence, and landmine explosions pose risk to both the general public and personnel engaged in development initiatives. Social conflicts may also be exacerbated by the project which may put project staff at risk. The current security situation in Balochistan may also restrict and may prevent travel to the project area by the project team.

Several security incidents have been reported in recent times. In the BIWRMDP project, 09 incidents have been reported from January 2021 to the present. Due to recurrent incidents at project sites, there was a compelling need for security management to ensure the safe continuation of civil works. Considering the fragile security conditions in the southern districts of Balochistan and security related challenges in the project areas of BIWRMDP, the PMU conducted a field-based security risk assessment study leading to the development of comprehensive Security Management Plan (SMP). The SMP included relevant forms and checklists e.g. incident reporting guidelines, incident reporting forms, evacuation guides, critical incident management guidelines etc.

The extensive reach of the BWSPIP introduces the possibility of security threats to both the contractor and project staff. Therefore, SMP developed for BIWRMDP will be extended to the Project and will be updated based on the baseline situation and lessons learnt, if required. The security measures identified in this plan will be part of work contracts in sensitive areas. The province-wise situation is almost equally applicable to the selected districts (Quetta, Kachhi, Sibi) for the project.



## 5 STAKEHOLDER ENGAGEMENT, DISCLOSURE AND CONSULTATIONS

The project has prepared a Stakeholder Engagement Plan (SEP) as a separate document to describe objectives, process and outcome of the stakeholder engagement carried out during the project preparation and to be carried out during the project implementation the mode of consultations, frequency and responsibilities – in accordance with the World Bank ESS 10 (Stakeholder Engagement and Information Disclosure).

The SEP recognizes the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation. Stakeholder engagement is an inclusive process conducted throughout the project life cycle. Where properly designed and implemented, it supports the development of strong, constructive, and responsive relationships that are important for successful management of a project's environmental and social risks.

The overall objective of this SEP is to define a plan of action for stakeholder engagement, including technically and culturally appropriate approach to public consultation and information disclosure, throughout the entire project cycle. The SEP outlines ways in which the project team will communicate with stakeholders and includes a mechanism by which people can raise concerns, provide feedback, or make complaints about project activities.

The involvement of different stakeholders, including the local population is essential to the success of the project in order to ensure smooth collaboration between project staff and local communities. This SEP will be reassessed and updated throughout the project life as a live document.

### 5.1. SUMMARY OF STAKEHOLDER CONSULTATIONS CONDUCTED

Two separate consultations for the proposed Project (BWSPPI) were organized from January to October 2023. The Consultations were carried out with the representatives of the communities, potential vulnerable and marginalized groups and departments. Consultations mainly in the form of "Focus Group Discussions" (FGD) with all Primary and Secondary Stakeholders at public places or offices especially in those communities that are within the project area or nearby with it are done. It was helpful to create a strong foundation for long-lasting and trustful relationships between the client and the stakeholders. Representatives of the communities, potential vulnerable groups such as women and youth has been consulted to understand their specific issues and concerns. This has enabled the teams in meaningful participation.

Participants were first briefed about the Project objectives and major interventions associated with the Project implementation. Afterward, participants were asked to express their views regarding the proposed Project. In general participants appreciated the Project and presented comments & suggestions to enhance the expected environmental and social benefits and to mitigate the adverse impacts. The PMU provided responses to the stakeholders during these consultation meetings and made part of this report. List of stakeholders consulted and key findings of the sessions are provided in **Annex-B**.

## 6 GRIEVANCE REDRESSAL MECHANISM (GRM)

A Grievance Mechanism is a system which allows not only grievances, but also queries, suggestions, positive feedback, and concerns of project-affected parties related to all kinds of project related issues, including its environmental and social performance, to be submitted and responded to in a timely manner.

### 6.1. GRM ESTABLISHMENT SYSTEM

The existing Grievance Redress Mechanism (GRM) of the BIWRMDP serves as the foundation upon which we are building and improving for the BWSPIP. The BIWRMDP's GRM is comprehensive and functional, with a four-tiered structure that facilitates grievance submission through various channels, including online forms, written documents, SMS, WhatsApp, and postal services. Grievances are acknowledged and resolved within a clear 20-day timeframe, managed by a Grievance Redress Committee (GRC) at the PMU level, and escalated appeals are addressed by the Project Steering Committee. This well-established system ensures all complaints are recorded promptly, assessed for relevance, and resolved with due diligence, setting a robust precedent for the enhanced GRM system we aim to implement for BWSPIP.

Building upon the well-established and functional GRM of the BIWRMDP, the BWSPIP will enhance this existing system while introducing two separate GRMs for each PIU- one for the Irrigation Department (BID) and another for the Public Health Engineering Department (PHED). Each PIU will independently manage their complaints, maintaining clear and effective channels for grievance submission, and reporting to the World Bank. The GRM will follow the process provided below.

#### A. GRM for Component A- implemented by Balochistan ID

Step	Description of process	Timeframe	Responsibility
GM implementation structure	<p>The structure will be integrated at provincial and local levels with clear reporting lines to the PIU.</p> <p>For Component A, the GRM will be implemented by the Balochistan ID. A Grievance Redress Committee will be formed at the PIU level, including the Project Director, Environmental Compliance Expert, Gender Specialist, Member from District PHE Office, Member from District Forest Office, Member from District Office OFWM, Social Safeguard Specialist, Member Engineer from PISAC and co-opted members from relevant government departments as required. The Social Safeguard Specialist at the PIU will be responsible for the overall operation of the GRM and will be the Grievance Redressal Officer (GRO) of the project.</p>	Continuous	PIU Balochistan ID

Step	Description of process	Timeframe	Responsibility
	<p>At the district level, Grievance Focal Persons will be appointed in each district.</p> <p>Grievances may be recorded through the available GRM channels, the local level GFPs, or directly with the Social Specialist at the PIU.</p>		
Grievance uptake	<p>Grievances can be submitted via the following channels:</p> <ul style="list-style-type: none"> <li>• <b>Toll-free telephone hotline: [include number] operated by [insert]</b></li> <li>• <b>Short Message Service (SMS) to [include number]</b></li> <li>• <b>E-mail to [insert]</b></li> <li>• <b>In-person through the GFPs, or PIU-GRC.</b></li> <li>• <b>Grievance or suggestion boxes located at all project locations</b></li> <li>• <b>Online form on the BID and/or project website</b></li> <li>• <b>Postal services</b></li> <li>• <b>WhatsApp number:</b></li> </ul> <p>Complaints can be submitted in person to the Grievance Focal Persons or via dedicated phone lines, email addresses and suggestion boxes provided at local community centres.</p>	Upon submission	<p>PIU GRC</p> <p>Grievance Focal Persons</p>
Sorting, processing	<p>The PIU GRC will be responsible to receive, log and investigate grievances. However, if the GRC is unable to resolve the grievances, the grievances will be referred to the Project Steering Committee (PSC).</p> <p>Any complaint received is logged in an online complaint registration system at the PIU level. The system will pick up relevant complaints from the website and social media, as well as complaints registered on it directly. Grievances are then categorized into the following complaint types: Low; Medium; and High priority.</p> <p>Low priority: these typically involve minor issues that do not significantly impact the overall project or the complainants' well-being. Examples could include minor administrative errors, delays in non-critical services, or small-scale individual grievances that can be resolved locally, with the GFP, without extensive intervention.</p>	Upon receipt of complaint	PIU GRO

Step	Description of process	Timeframe	Responsibility
	<p>Medium priority: these are more serious than low priority complaints but do not pose immediate or significant risks to the project's success or stakeholders' rights and interests. These might include disputes over employment terms, moderate environmental impacts, or concerns about project implementation aspects that affect a limited number of stakeholders.</p> <p>High priority: these are critical issues that require urgent attention and could significantly impact the project's success and the well-being of stakeholders. Examples could include violation of the law of the land, corruption, GBV, SEAH (sexual exploitation, abuse and harassment), community rights, significant health and safety concerns, allegations of serious environmental harm; complaints regarding minorities, differently abled persons, transgender etc.</p>		
Acknowledgement and follow-up	Receipt of the grievance is acknowledged to the complainant by the Social Safeguard Specialist at the PIU via acknowledgement letter or email. Depending on accessibility, the Specialist may instruct the relevant GFP to convey acknowledgement	Within 5 days of receipt	Social Specialist at PIU
Verification, investigation, action	<p>Low priority grievances may be investigated and resolved directly by the GFP, in consultation with the PIU GRC. If the grievance is unable to be resolved, its priority is upgraded to medium priority.</p> <p>Medium priority grievances are investigated and resolved by the PIU GRC. The GRC may enlist the relevant GFP to assist in verification and investigation. If the grievance remains unresolved, its priority is upgraded to high priority.</p> <p>High priority grievances are investigated by a special committee if required, with resolutions proposed by the PIU-level GRC. The GRC may enlist GFPs to assist in verification and identification.</p>	Within 10 working days for low and medium; and 15 working days for high priority	Grievance Focal Persons, PIU GRC

Step	Description of process	Timeframe	Responsibility
	For all levels of grievance, the proposed resolution is formulated by the overseeing entity (varying depending on the grievance priority), and the resolution is communicated to the complainant by the GRC/GFP where the complaint was first received.		
Monitoring and evaluation	Data on complaints are collected in a dedicated grievance management system at the PIU GRC. Grievance data is reported to the World Bank on a quarterly basis	Quarterly reporting	PIU GRO
Provision of feedback	Feedback from complainants regarding their satisfaction with complaint resolution is collected through follow-up surveys or interviews after the resolution process.	Post-resolution	Grievance Focal Persons
Training	Training needs for staff/consultants in the PIU, Contractors and Supervision Consultants are identified and addressed through regular capacity-building workshops and on-the-job training programs, focusing on grievance redress mechanisms, social engagement and environmental compliance.  Ongoing training for all levels of the GRM structure on handling grievances effectively and sensitively.	Annually or as needed	PIU
Appeals process	The GRM will also include a system for appeals. If a complainant is unsatisfied with the resolution of the grievance, they will be able to lodge an appeal with the Project Steering Committee (PSC).	Within 5 days of appeal	PSC

**B. GRM for Component B- Implemented by Balochistan PHED**

Step	Description of process	Timeframe	Responsibility
GM implementation structure	<p>The structure will be integrated at provincial and local levels with clear reporting lines to the PIU.</p> <p>For Component B, the GRM will be implemented by the Balochistan PHED. A Grievance Redress Committee will be formed at the PIU level, including the Project Director, Environmental Compliance Expert, Gender Specialist, Member from PHE, Social Safeguard Specialist, Member from QWASA, Member Engineer from PSDC and co-opted members from relevant government departments as required. The Social Safeguard Specialist at the PIU will be responsible for the overall operation of the GRM and will be the Grievance Redressal Officer (GRO) of the project.</p> <p>Community Focal Points (CFPs) will be appointed in sub-project areas.</p> <p>Grievances may be recorded through the available GRM channels, the CFPs, or directly with the Social Specialist at the PIU.</p>	Continuous	PIU Balochistan PHED
Grievance uptake	<p>Grievances can be submitted via the following channels:</p> <ul style="list-style-type: none"> <li>• <b>Toll-free telephone hotline: [include number] operated by [insert]</b></li> <li>• <b>Short Message Service (SMS) to [include number]</b></li> <li>• <b>E-mail to [insert]</b></li> <li>• <b>In-person through the CFPs, or PIU-GRC.</b></li> <li>• <b>Grievance or suggestion boxes located at all project locations</b></li> <li>• <b>Online form on the PHED and/or project website</b></li> <li>• <b>Postal services</b></li> <li>• <b>WhatsApp number:</b></li> </ul> <p>Complaints can be submitted in person to the Community Focal Points or via dedicated phone lines, email addresses and suggestion boxes provided at sub-project sites.</p>	Upon submission	PIU GRC  CFPs

Step	Description of process	Timeframe	Responsibility
Sorting, processing	<p>The PIU GRC will be responsible to receive, log and investigate grievances. However, if the GRC is unable to resolve the grievances, the grievances will be referred to the Project Steering Committee (PSC).</p> <p>Any complaint received is logged in an online complaint registration system at the PIU level. The system will pick up relevant complaints from the website and social media, as well as complaints registered on it directly. Grievances are then categorized into the following complaint types: Low; Medium; and High priority.</p> <p>Low priority: these typically involve minor issues that do not significantly impact the overall project or the complainants' well-being. Examples could include minor administrative errors, delays in non-critical services, or small-scale individual grievances that can be resolved locally, with the CFP, without extensive intervention.</p> <p>Medium priority: these are more serious than low priority complaints but do not pose immediate or significant risks to the project's success or stakeholders' rights and interests. These might include disputes over employment terms, moderate environmental impacts, or concerns about project implementation aspects that affect a limited number of stakeholders.</p> <p>High priority: these are critical issues that require urgent attention and could significantly impact the project's success and the well-being of stakeholders. Examples could include violation of the law of the land, corruption, GBV, SEAH (sexual exploitation, abuse and harassment), community rights, significant health and safety concerns, allegations of serious environmental harm; complaints regarding minorities, differently abled persons, transgender etc.</p>	Upon receipt of complaint	PIU GRO

<b>Step</b>	<b>Description of process</b>	<b>Timeframe</b>	<b>Responsibility</b>
Acknowledgement and follow-up	Receipt of the grievance is acknowledged to the complainant by the Social Safeguard Specialist at the PIU via acknowledgement letter or email. Depending on accessibility, the Specialist may instruct the relevant CFP to convey acknowledgement	Within 5 days of receipt	Social Specialist at PIU
Verification, investigation, action	<p>Low priority grievances may be investigated and resolved directly by the CFP, in consultation with the PIU GRC. If the grievance is unable to be resolved, its priority is upgraded to medium priority.</p> <p>Medium priority grievances are investigated and resolved by the PIU GRC. The GRC may enlist the relevant CFP to assist in verification and investigation. If the grievance remains unresolved, its priority is upgraded to high priority.</p> <p>High priority grievances are investigated by a special committee if required, with resolutions proposed by the PIU-level GRC. The GRC may enlist CFPs to assist in verification and identification.</p> <p>For all levels of grievance, the proposed resolution is formulated by the overseeing entity (varying depending on the grievance priority), and the resolution is communicated to the complainant by the GRC/CFP where the complaint was first received.</p>	Within 10 working days for low and medium; and 15 working days for high priority	Community Focal Points, PIU GRC
Monitoring and evaluation	Data on complaints are collected in a dedicated grievance management system at the PIU GRC. Grievance data is reported to the World Bank on a quarterly basis	Quarterly reporting	PIU GRO
Provision of feedback	Feedback from complainants regarding their satisfaction with complaint resolution is collected through follow-up surveys or interviews after the resolution process.	Post-resolution	CFPs



Step	Description of process	Timeframe	Responsibility
Training	<p>Training needs for staff/consultants in the PIU, Contractors and Supervision Consultants are identified and addressed through regular capacity-building workshops and on-the-job training programs, focusing on grievance redress mechanisms, social engagement and environmental compliance.</p> <p>Ongoing training for all levels of the GRM structure on handling grievances effectively and sensitively.</p>	Annually or as needed	PIU
Appeals process	The GRM will also include a system for appeals. If a complainant is unsatisfied with the resolution of the grievance, they will be able to lodge an appeal with the Project Steering Committee (PSC).	Within 5 days of appeal	PSC

The GRM will also be responsive to GBV/SEA/SH complaints and will follow necessary protocols to ensure that complaints are made anonymously with a high degree of discretion. Grievances specifically concerning GBV/SEA/SH will be triaged and referred to GBV/SEA/SH specialists for adequate support and redress. To cater to all the above mentioned policy statements and its proposed Code of Conduct primitively, separate GBV committees will be formed in each administrative set up i.e. in the BID and the PHED PIUs for GBV/SEA/SH specific complaints. Similarly, a detailed procedure for GBV/SEAH complaints will also be prepared as part of the GBV Action Plan and this GRM will be updated accordingly.

ESS2 mandates that borrowers (organizations or entities involved in the project) must establish a GRM for workers. This mechanism is designed to address and resolve the grievances of both direct and contracted workers. Workers need to be informed about the existence of this GRM at the time of their employment entry and also throughout the duration of their employment. This ensures that workers have a proper channel to voice their concerns and seek resolution for any issues they may encounter during their work. Each PIU will have a separate GRM for workers. Contractors and consultant firms will also be required to establish workers GRMs as per the requirements of the project. The workers GRM, roles and responsibilities have been detailed in the project LMP.

## 7 ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

This chapter identifies the potential environmental and social risks and impacts envisaged due to the implementation of proposed Project. The appropriate mitigation and remedial measures of each environmental and social impact are proposed in this chapter keeping in view the mitigation hierarchy (avoid, minimize or reduce; mitigate risks and impacts; or compensate), which will guide the preparation of E&S instruments of the proposed project interventions.

### 7.1 Summary of Environmental & Social Positive Impacts

**Component A** of the project aims to directly benefit poor smallholders and medium-sized farmers in the Kachhi plains by enhancing protection against floods and droughts as well as increasing the productive use of water. The key anticipated development impacts include an expansion of irrigated areas, increased cropping intensity and yields, a shift towards high-value and drought-tolerant crops and expanded flood-protected areas. Constructing water storage structures will yield economic and financial gains at both macro and household levels, particularly benefiting farming and cattle farming communities. Non-quantified benefits under Component A encompass increased employment opportunities, improved health conditions, and environmental and social advantages, contributing to an enhanced quality of life for the local and regional population.

**Component B** of the Project is expected to benefit approximately 500,000 people in the QWASA service area by enhancing water supply and sanitation services. This improvement is anticipated to have a significant positive impact on public health by reducing water-borne disease incidence and providing cost and time savings compared to using water from other alternative sources.

### 7.2 PROJECT ACTIVITIES

The Project activities will involve a wide range of civil works from moderate to relatively large scale which could have potential environmental and social risks, assessed as substantial<sup>26,27</sup>.

Since the design aspects of the sub projects are not cleared yet, it is anticipated that following are the activities under Component A and B which may have adverse E&S impacts:

**Component A:** *Construction of flood dispersal structures; Embankment Protection Works; auxiliary infrastructure including canals, gauges, regulation and measurement systems, afforestation; erosion check and control structures; land leveling; water detention structures/ponds; water and soil conservation; construction/rehabilitation of small water channels, small rainwater harvesting structures and access roads. Climate-smart agricultural*

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<sup>26</sup> Due to moderate to large scale civil works, likely reduction of water availability in lower riparian area, multiple locations of project activities, unstable security situation in the province, institutional capacities, and general implementation challenges.

<sup>27</sup> PAD January, 2023.

water use technologies will include improved irrigation efficiency and climate resilient technologies (including contour bunds).

**Component B:** Rehabilitation of the conveyance system that brings water from the Urak Headworks to Quetta city, construction of bulk supply lines to bring water from up to three operational dams around Quetta Valley, development and implementation of a comprehensive groundwater recharge program, rehabilitation of selected non-functional groundwater pumping stations, and construction of public water points with a focus on Kacchi Abadis. On-site improvements of STP (rehabilitation inlet, solid waste separation system, restoration of settling tank, minor upgrades to sludge drying and pressing unit and a facility for filling tankers with treated wastewater, lab modernization), Solarization of Sabzal STP, Sewerage network investments<sup>28</sup>; establishment of units within QWASA for technical assistance, installation of a SCADA system, network repair, and rehabilitation (or construction) of storage reservoirs within the city; rehabilitation of community water filtration plants; network zoning, leakage management, and pressure management; installation of bulk and consumer meters; public outreach to promote water demand management, solarization and rehabilitation of pumping stations and installation of electric generators.

The ESMF has accordingly assessed the potential impacts for these types of subprojects and suggests the generic mitigation measures in line with the relevant local legislation and WB ESSs. Both PIUs for component A (BID) and Component B (PHED) shall ensure the effective implementation of relevant mitigation measures during the implementation of proposed project. The BID and PHED PIUs will be responsible for the implementation of the ESMF activities independently.

Most of the above-stated risks and impacts are temporary site-specific, largely reversible in nature and manageable by adopting mitigation measures provided in this ESMF, in accordance with the mitigation hierarchy under the relevant ESSs.

Potential adverse impacts envisaged from the implementation of the proposed Project along with their proposed remedial or mitigation measures are detailed in the following sections.

### **7.3 POTENTIAL ENVIRONMENTAL/SOCIAL IMPACTS AND MITIGATION MEASURES – DESIGN PHASE**

#### **7.3.1 Technical Design and Layout Planning**

Incompatible layout plan and engineering design of the project's structures under component A and B may cause reduction of surface water flow during the rainy season for lower riparian areas, temporary impact on supply and quantity of water to the communities during implementation of component-B, deterioration of water quality during rehabilitation works, unnecessary disruption of utilities, seepage issues (if construction, design, siting and material

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<sup>28</sup> will cover parts of the Sabzal STP's catchment area, currently served by open drains that also carry non-sewage drainage water and solid waste.

are inadequate during construction and rehabilitation of works. This impact is medium to substantial adverse in nature.

### **Mitigation Measures**

- All structural, layout and engineering designs of the project shall be in strict accordance with the applicable national and international guidelines/ codes/ standards and engineering practices;
- Meaningful consultations shall be carried out with the identified stakeholders as per SEP (prepared separately for the project) and incorporate their applicable suggestions/ recommendation in the project design;
- The project activities under component B shall specifically target the population of kacchi abadis by delivering safely managed water source;
- The project design shall also ensure that the special needs of people with disabilities
- Site for proposed structures and alignments water supply works shall be carefully selected to minimize disturbance locals and public utilities;
- Water storage structures shall be designed with impermeable and permanent liners like buried geomembranes to prevent seepage and keep soils stable underneath and around the structures, where applicable;
- To conserve the rights of the lower riparian, a provision of regulated flow shall be ensured in the design;
- Ensure the provision of temporary access to entrance to houses and commercial centers during laying of transmission pipelines, wooden or steel pedestrian planks till refilling of the trench and restoration of the approach entrance accesses;
- After competitive bidding process, only shortlisted Contractors shall be hired for the construction/ rehabilitation works and supply of materials including solar panels;
- Lead/acid/cadmium-based batteries will not be procured for solarization;
- Efforts shall be made to carry out the construction and rehabilitation activities during the low water demand periods in the command area;
- Limit the watercourse lining in the areas with fresh groundwater. This will ensure adequate groundwater recharge from the remaining places; and
- The service providers shall be contractually bound to provide after sale services to WUAs/Farmers, particularly for HEIS.

### **7.3.2 Public Utilities**

The implementation of proposed project may involve the damages or relocation of existing public utilities such as water supply, sewerage and gas pipelines, PTCL and electric poles, causing disruption of public services. This impact is moderate to substantial adverse in nature.

### **Mitigation Measures**

- Efforts shall be made to avoid the relocation of damages to public utilities by making certain changes in the design; and
- Relocation of the public utilities, where required, shall be planned and approved in consultation

with relevant departments/authorities/stakeholders before project commencement to avoid inconvenience to the public.

### **7.3.3 Seismic Hazard**

The project area under Component A (districts Sibi and Kachhi) and Component B (district Quetta) falls in Zone 4 (peak horizontal ground acceleration from  $>0.32g$ ) and zone 2B (peak horizontal ground acceleration from 0.24 to 0.32) respectively. A moderate to severe intensity earthquake may impact structures under the proposed project. The impact is high to moderate adverse.

#### **Mitigation Measures**

The proposed infrastructure will be designed and constructed to withstand moderate to severe intensity earthquake. For seismic hazard analysis, updated structural and seismic evaluations will be used accordingly. Ensure the compliance with the Updated Seismic Building Code of Pakistan.

### **7.3.4 Climate Change**

The province is acutely susceptible to floods and droughts, which are becoming increasingly variable, intense, and frequent due to climate change. Kachhi plains, is particularly affected by powerful hill torrents during the monsoon season, triggering inundations yearly. This increase in climate extremes in the form of droughts and floods may disproportionately affect people with low incomes. Poor watershed management and low drainage investment also make Balochistan vulnerable to pluvial flooding. The structures under the project may potentially be impacted if not designed with sufficient resilience specifications to protect against extreme flood events. The impact is high to moderate adverse.

#### **Mitigation Measures**

- Project activities design will take disaster risk reduction into consideration and will employ environment friendly and socially accepted appropriate engineering approaches<sup>29</sup> to improve disaster resilience; and
- Only shortlisted/pre-qualified Contractors shall be hired for the reconstruction, rehabilitation works and supply of construction materials.

### **7.3.5 Water Sharing Issues**

In flood irrigation systems, the water distribution is entirely different from perennial systems. There is no precise distribution of water or a fixed cycle of irrigation on any of the flood streams in selected project site. Water sharing issues may arise among shareholders with the

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<sup>29</sup> Proper Siting, catchment area management, raising platforms, using richer engineering specifications; adjusting cross-sections etc.

construction of new dispersal structures as a result of increase or decrease in irrigation supplies. The impacts are assessed as substantial adverse.

### **Mitigation Measures**

- The sites selection for dispersal structure will be proposed based on the availability of flood water and mostly existing dispersal structures are proposed for new construction.
- The provision of the structures will be finalized after long deliberation with all stakeholders regarding their usefulness according to prevailing site conditions.
- Follow the historical traditions & rights of shareholders regarding distribution of floodwater and avoided such locations where there is any dispute between water users.

## **7.4 POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES – CONSTRUCTION PHASE**

### **7.4.1 Soil Erosion and Contamination**

The construction and rehabilitation activities<sup>30</sup> under both the component (A&B) may potentially involve excavation, quarrying/creation of borrow areas<sup>31</sup>, land clearing, and land leveling. These activities may disturb the surrounding soil, making it more susceptible to erosion due to wind or rain and degrading its quality. Whereas contamination of soil may be caused by solid and liquid waste (also from the construction camps, if established) generated at sites and by accidental leakage of fuel/lubricant. These impacts are expected to be limited to the immediate vicinities of subproject areas. This impact is medium to low adverse in nature.

### **Mitigation Measures**

- Embankments and excavated slopes will not be left untreated/unattended for long durations. Appropriate slope stabilization measures will be taken as per the design. The excavation for the foundation will be carried out only in specified area, as per the approved engineering design and the excavated material will be used for filling and compaction to the maximum extent possible;
- Avoid or minimize vegetation removal/clearing which would accelerate erosion;
- Sites disturbed by construction activities will be restored to their original conditions upon completion of construction work and photographic record will be maintained to ensure pre-post project conditions intact;
- If any contaminated soils are found, it shall be removed and disposed appropriately at designated sites (as per advice of Environmental Specialist). All the waste generated at sites shall be properly disposed at designated sites;

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<sup>30</sup> The term construction and rehabilitation activities refer to the activities which may have E&S impacts as discussed in Section 7.2: Project Activities. This approach has been adopted to avoid the repetition.

<sup>31</sup> Potential sources of mosquito breeding and may health and safety risks for project staff and local communities, livestock and wildlife.

- Vehicles must be properly maintained and regularly checked for possible leak of fuel. Waste oils will be collected in drums and sold to the recycling contractors;
- The Contractor will not leave the borrow pits in such a condition that they are unusable and could be filled with rainwater and cause the problems for the community and project staff;
- The Contractor will ensure that selected borrow areas are clearly demarcated, including the allowable depth of the excavation, before starting any soil removing and unnecessary excavations will be avoided;
- The inert recyclable waste from the site (such as card board, drums, broken/used parts, etc.) will be sold to recycling contractors. The hazardous waste will be kept separate and handled according to the nature of the waste;
- Ensure the training of workforce on resource conservation themes and involve in the storage, handling of materials and waste management. Material Safety Data Sheets (MSDS) will be strictly followed.

The significance of impact is expected to be low after taking the above-mentioned mitigations.

#### **7.4.2 Wastes Generation**

Wastes including discarded construction material, asphalt, steel scrap, oil, fuel, empty containers and bags, excavated material and municipal waste (particularly from the construction camps, if established) will likely be generated during the construction and rehabilitation activities. If waste is not well managed or properly dumped, it may negatively impact on the surrounding area including causing blockages in water channels and soil contamination. Installation of solar systems may also generate small amount of waste such as packing, wiring, broken glass, pieces of metal pipes. Discarded materials and equipment may also pose safety risks for the workers and pedestrians if left on the routes/unattended. The impact is moderate adverse in nature.

#### **Mitigation Measures**

- Construction waste will be routinely collected and safely disposed of in clearly demarcated waste disposal sites located near each proposed project intervention. Waste disposal will ensure that there are no negative impacts on water bodies, existing waste management systems, transport routes, and the aesthetic value of the area;
- Left over construction and demolition waste materials will be reused at other proposed project intervention sites, as far as possible in an effective way to save money while protecting natural resources.
- Site-specific Solid Waste Management Plans (SWMPs) will be developed and implemented by the contractors and workforce will be trained in the handling, storage, and disposal of construction waste. Construction materials and stockpiles of soils will be covered to reduce material loss;
- Stockpiles, lubricants, fuels, and other materials will be located away from steep slopes and water bodies and kept in adequately protected areas;
- Resource conservation themes to be included in awareness raising and training sessions for project staff; and

- Burning of waste material will not be allowed.

The impact significance will likely to be low after taking the above-mentioned mitigations.

### **7.4.3 Ambient Air Quality**

A decline in the ambient air quality within the vicinity of works is expected during the construction and rehabilitation activities due to the movement of construction machinery (operation of concrete batching and concrete mixer, diesel generator,) and activities (excavation, site clearance and leveling, filling of earth material, demolition, loading/unloading of material etc.). The overall impact on air quality is assessed to be temporary and moderate and is unlikely to have lasting impacts after the construction and rehabilitation work is complete. The impact is low to moderate adverse in nature.

#### **Mitigation Measure**

- Vehicles and other equipment (such as generator) used during construction and rehabilitation activities shall be kept in good working condition and be properly tuned and maintained with designated fuel in order to minimize the exhaust emissions and to ensure fuel efficiency;
- All dust raising locations shall be kept wet with water sprinkling. Fugitive dust emissions will be minimized by appropriate methods such as spraying water on material where required and appropriate. It will be ensured that the construction debris is removed on regular basis;
- Construction material such as cement, loose material, sand, or aggregates and spoil materials will be transported in a covered truck. Impose speed limits on all vehicle movement at the worksite to reduce dust emission;
- Road damage caused by project activities will be promptly attended with proper road repair and maintenance work;
- Proper Personal Protective Equipment (PPE) shall be provided to the site workers and staff and make sure the workers wear the PPE properly during working on site;
- Ensure compliance with the BEQS and IFC/WHO guidelines whichever is stringent (as per advice of Environment Specialist).

The impact will likely to be low after taking the above-mentioned mitigations.

### **7.4.4 Noise Pollution**

Since the proposed project involve medium to large scale civil works, therefore an increase in ambient noise and the vibration is predictable due to the operation of construction machinery (such as bulldozers, excavators, pneumatic machinery, etc.), generators and construction activities such as excavation, site clearance and leveling, filling of earth material, demolition, loading/unloading of material. Noise pollution generated by the construction and rehabilitation activities may likely to have impacts on the nearby sensitive receptors (if any), workers, nearby communities and local wildlife. However, the impacts are likely be short-term



in nature and are unlikely to have any lasting effects once the construction work is completed. The impacts are medium adverse in nature.

### **Mitigation Measures**

- Vehicular traffic through the communities shall be avoided as far as possible. Project routes shall be authorized by the Contractor. The main roads will be used by the construction traffic to the maximum extent possible;
- Construction vehicles and machinery shall be kept in good working condition and be properly tuned and maintained throughout construction work to minimize excessive noise/vibration;
- Noisy construction work shall be limited to normal working hours to minimize disturbance to nearby communities, avoid excessive use of horns and vehicle speeds will be kept low;
- PPEs shall be provided and worn by the personnel involved in construction and rehabilitation activities and training them in their use;
- Noisy construction activities will be displaced from the construction sites to a fair distance from the nearest sensitive receptors (if any). Construction schedules shall be disclosed to the nearby communities, where required/as per advice of Environmental Specialist; and
- Ensure the compliance with BEQS and IFC/WHO guidelines whichever is stringent (as advice of Environment Specialist). Ensure the effective implementation of GRM.

The impact will significance will likely to be low after taking the above-mentioned mitigations

### **7.4.5 Water Contamination**

The project may operate in areas containing local water resources (surface and ground) which may be at risk of contamination from construction site runoff<sup>32</sup> and wastes from the worker camps (if established) is not managed properly. Contamination of surface water resources may have adverse impacts on aquatic life (if available) and also pose health and livelihood risks to communities that depend on them for household and agricultural use. The impact is medium adverse in nature.

### **Mitigation Measures**

- Construction camp will not be located within 500m of any water body. The contractor will develop camp layout and waste disposal system, and obtain approval from Supervisory Consultant (as per advice of Environmental Specialist);
- The construction wastewater from the work site will be disposed through a settling tank of appropriate capacity, which will be levelled back after completion of construction work;

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<sup>32</sup> Runoff is likely to contain oil and other automotive/mechanical fluids, as well as chemicals and materials used in the construction process.

- It will be ensured that the wastes are not released into any water bodies, cultivation fields, or critical habitat;
- Ensure the compliance with BEQS and IFC/WHO guidelines whichever is stringent (as advice of Environment Specialist);
- Construction machinery will be kept in good working condition and be properly tuned and maintained throughout construction to avoid spills and leaks; and
- Fuels and chemicals will be stored on concrete-floored, bounded, covered to provide shade and prevent the ingress of rain and should be located away from the open water sources.

The significance of impact is expected to be low after taking the above-mentioned mitigations.

#### **7.4.6 Traffic Issues**

Traffic problems including traffic jams, accidents and inconvenience to the locals may arise during implementation of construction and rehabilitation activities, particularly during excavation, stacking of materials, laying pipelines activities under component B, due to the movement of construction machinery and vehicle. The movement of vehicles along the haulage route may cause soil erosion, debris flow, dust emissions, deterioration of existing roads, vibrational impacts, etc. This impact is categorized as medium adverse in nature.

#### **Mitigation Measures**

- Movement of vehicles carrying construction materials and equipment/machinery shall be restricted during the night time to reduce traffic load and inconvenience to the locals;
- Construction vehicles and machinery shall be parked at designated areas to avoid unnecessary congestion along major roads;
- Vehicle speed shall be kept low (20-40 km/h);
- Damage of roads due to construction vehicles shall be instantly repaired and/or compensated after the completion of work;
- Proper safety signboards will be provided for a smooth flow of traffic;
- Schedule the mobilization activity during off-peak hours to avoid the disturbance on the sensitive receptors such as educational institutes, graveyards, mosques and hospitals (if any);
- Any closure of the roads (especially main roads) and deviations / diversions proposed shall be informed to the riders through standard signs and displays; and
- Traffic Management Plan (where applicable) will be prepared by the Contractor and implemented to avoid traffic accidents, jams/public inconvenience.

The impact of traffic issues will be low significant after taking the above-mentioned mitigations.

#### **7.4.7 Flora and Fauna**

Project is not likely to have a significant impact on the biodiversity and forests as most of the construction/rehabilitation activities will be carried out in the built environment. The potential

impacts on biodiversity due to water harvesting is not anticipated at this stage as only part of seasonal flood water will be utilized in the project.

However, the construction and rehabilitation activities under the Component A and B (such as clearing of sites, establishment construction camps (if established) and mobility of construction machinery may affect the local agriculture land/vegetation/trees and causing disturbance to fauna, particularly due to the increase in noise level and decline in ambient air quality. The Contractor's workers may also damage and cut the ornamental plants and trees, for use as fire-wood to fulfil their requirements. Moreover, the movements of the mammals and reptiles (such as snakes, lizard) will be restricted during the construction phase. Birds and animals may tend to move away from the construction areas and find shelter and food elsewhere due to the activities mentioned above for fear of being hunted / trapped. The significance of this impact is considered medium to low.

### **Mitigation Measures**

- The proposed project will specifically exclude physical investments that may have significant adverse impacts to natural and critical habitats;
- Sites, for the installation of construction camps (if required) and mobility of construction machinery shall be properly planned to avoid or minimize the cutting of trees/shrubs/herbs and loss of agriculture land;
- The project will not introduce any alien or non-native species of flora or fauna only selective native species of trees and shrubs will be planted as part of rangeland management;
- Compensatory plantation will be carried out with a ratio of five trees for each tree fell/cut. Forest and Wildlife Departments shall be consulted to fulfill the legal requirements, where applicable;
- The construction crew will be provided with LPG as cooking (and heating, if required) fuel. Use of fuel wood will not be allowed;
- The Contractor's staff and labour shall be strictly directed not to damage any nearby agriculture land/vegetation/trees;
- The speed of construction vehicles shall be kept low to avoid killings of reptiles and other fauna. If there is any specie and habitat found of special concern, Wildlife department should be informed to take care of asset;
- Hunting, poaching and harassing of wild animals and birds shall be strictly prohibited, and Contractor shall be required to instruct and supervise its labour force accordingly; and
- In addition to above, ensure the compliance with the relevant measures provided for air and noise pollution and waste management.

The significance of impact is expected to be low after taking the above-mentioned mitigations.

## 7.5 POTENTIAL SOCIAL IMPACTS AND MITIGATION MEASURES – CONSTRUCTION PHASE

### 7.5.1 Occupational Health and Safety (OHS) Risks

Occupational Health and Safety related risks may arise including unsafe and unhealthy working conditions, risk incident and accident during the construction/rehabilitation activities, installation of contractor camps, deep excavations, laying of transmission pipelines, steel fixing, installation of a batching plant, concrete pouring, movement of various heavy machines, manual handling during loading-unloading operation, bad housekeeping, exposure to electrical hazards from the use of tool and machinery and improper management and exposure to hazardous and non-hazardous wastes, risk of leakage of polychlorinated biphenyl (PCBs) from replacement of transformers, lack of compliance with local OHS rules and regulations, GBV/SEA/SH, child labor and forced labor, risk of drowning in rivers during flash floods, risk of injury or death by being caught in tribal conflicts, and exposure to water-borne diseases. This impact is moderate adverse in nature.

#### Mitigation Measures

- The Contractor will prepare Site Specific Occupational Health and Safety Plan according to Balochistan Occupational Safety and Health Act, 2022 and Labour Management Procedures (LMP) and will submit it to the PIUs for review and approval. When approved, the Contractor will implement the plan during the project implementation through dedicated staff;
- A separate Action Plan on GBV/SEA/SH will be prepared for the Project and same will be implemented;
- Community liaison will be maintained during the construction stage and GRM will be established to address complaints related to safety hazards;
- Ensure compliance with the Worker's Code of Conduct, sample attached as **Annex-C**;
- Ensure that the site will be restricted for the entry of irrelevant people particularly children, disabled and elderly peoples. Ensure the use of appropriate safety signs at the construction and rehabilitations sites;
- Ensure the provision of appropriate use PPEs to all workers and compliance with BEQs;
- Immediately identify and isolate the source of the PCB leak to prevent further spreading. Develop and implement a comprehensive emergency response plan for PCB leaks including communication protocols, evacuation procedures, and coordination with emergency services
- All the occupational incidents, accidents and diseases will be recorded and reported;
- Ensure the provision of fire prevention and firefighting equipment;
- Ensure the training of workers in construction safety procedures, use of PPEs, fire safety, waste management, defensive driving, hygienic conditions, emergency prevention, preparedness and response arrangements, communicable diseases;
- The Contractor shall make available the first aid kit, snake bite kits 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 BOQ item. The location of these kits shall be marked and shall be easy to access by all; and

- Identify and minimize, so far as reasonably practicable, the causes of potential hazards to workers, including communicable diseases such as HIV/AIDs and vector borne diseases.

With the help of the above mitigation measures, the residual impact is likely to be low significant.

### **7.5.2 Community Health and Safety**

The Project will carry out moderate to large scale civil works under both Components. Community health and safety issues may arise during the construction/rehabilitation activities of proposed subprojects including dust and noise, physical harm due to accidents, traffic incidents due to heavy machinery and construction vehicles, disruption to people and businesses, injuries due to falls in excavated sites, exposure to hazardous materials, security, inappropriate disposal of liquid and solid wastes. Conflicts may arise between the local/beneficiary communities and the project workers, particularly in the case of agreeing on scheme designs, water sharing, inter and intra tribal shares, etc. which may result in exploitation of economically disadvantaged, flood affected, or otherwise vulnerable community members. Ill-planned community/tribal engagements may lead to conflicts which can be violent for the communities and the Project workers. Project may also result in transmission of infectious diseases, GBV, SEA and SH during civil works. . The impact significance is moderate adverse.

#### **Mitigation Measures**

- The Contractor will prepare site specific community health and safety plan in compliance with relevant sections of the WBG General Environmental Health and Safety Guidelines (WBG 2007);
- Ensure that the site will be restricted for the entry of irrelevant people particularly children, disabled and elderly peoples. Ensure the use of appropriate safety signs at the construction site;
- The Contractor shall provide adequate fencing around the working areas and excavations;
- Ensure the compliance with the mitigation measures provided for air, noise and waste management;
- Vehicle limit shall be kept low and horns will not be used while passing through or near the communities. Traffic Management Plan shall be prepared by the Contractor and implemented with the approval of PIUs;
- The excavation of trenches for pipe laying and backfilling shall be efficiently scheduled;
- Effective implementation of GRM will be ensured to timely address the issues;
- Ensure the effective implementation of SEP and GBV/SEA/SH Assessment and Action Plan;

- Contractor will take due care of the local community and observe sanctity of local customs and traditions. Contractor will warn the staff strictly not to involve in any unethical activities and to obey the local norms and cultural restrictions;
- Awareness sessions will be conducted regularly for community, and workers on road safety, communicable diseases, emergency procedures, worker code of conduct and basic medical services; and
- A security management plan developed for BIWRMDP shall be extended to the Project to deal with security risks. The security measures identified in this plan will be part of work contracts in sensitive areas.

With the help of the above mitigation measures, the residual impact is likely to be low significant.

### **7.5.3 Site Security**

In the recent past, it has been observed that the security situation of Balochistan Province has deteriorated and different incidents have caused loss of human lives and infrastructure particularly in the remote regions. BIWRMDP project has encountered major security challenges since its inception. Over the past two years, there have been a total of 09 incidents resulting in casualties, injuries to the labour and physical damages. Acts of vandalism, intimidation, violence, and landmine blast might be the potential risks for project staff involved in the implementation of project, particularly in the remote regions. The social conflicts may also be exacerbated by the project which may put project staff at risk. The impacts are assessed as high Adverse.

#### **Mitigation Measures**

- Before the execution of work, a detailed risk assessment of the project sites shall be carried out by the security expert (s)/ Consultant for the development of SMP (outline is provided as Annex-D), where required, based on the lessons learnt from BIWRMDP. The plan will be implemented at all the project sites in true letter and spirit;
- All the work executed by or on behalf of the Contractor (sub-contractor) shall be in accordance with high standards of safety at all times and shall, inter alia, comply with local laws, and ensure strict adherence;
- The Contractor shall hire an adequate number of security personnel to maintain security at worksites and in the camps (if established). It will be mandatory for the security personnel to provide a clearance certificate from the police station;
- The Contractor shall maintain communication through employer with local police and law enforcement agencies and inform about construction activities particularly for sensitive areas;
- Subproject construction sites and labor camps will be properly fenced, with tight access restrictions in place. Contractors will be responsible for ensuring that adequate security arrangements are made at construction sites and labor camps (such as security personnel deployed at entrances, security patrols, CCTV cameras, etc.);
- The Contractor shall prepare emergency evacuation procedure and display emergency contact numbers; and

- Ensure the effective implementation of GRM.

#### **7.5.4 Labor Influx**

The construction and rehabilitation activities are likely to require the use of labor from outside. This labor influx may have several potential adverse impacts, including conflicts between local communities and outside labor, increased illicit behavior and crime, increased burden on local public services and utilities, the spread of communicable diseases, and risk of GBV/SEA/SH. The impacts are assessed as moderate adverse.

#### **Mitigation Measures**

In addition to the measures provided for Occupational Health and Safety (OHS) Risks (refer section 7.5.1);

- Locals will be given preference in hiring where possible, for both skilled and unskilled labor;
- Contractors and their employees will be required to respect local cultural norms and will receive training on cultural sensitivity and conduct; and
- Contractors shall ensure the effective implementation of GRM.

With the help of the above mitigation measures, the residual impact is likely to be low.

#### **7.5.5 Gender Base Violence (GBV), Sexual Exploitation and Abuse/ Sexual Harassment (SEA/SH)**

Risks of SEA/SH may arise from civil works on rehabilitation/laying of water and sewage infrastructure in congested areas and slums of Quetta city under Component B. The routes for such works may cross public infrastructures such as schools/colleges, markets and residential areas, disrupting access and creating an influx of labor in these areas and close interaction with women and children. Component A will involve significant contact between Project workers and beneficiary communities, particularly in the case of agreeing on scheme designs, water sharing, inter and intra tribal shares. Such contact may result in the exploitation of the vulnerable community members, including women. Women and children may be exposed to labor and other project workers during the moderate level civil works and the project's capacity building activities at the community level with the WUAs.. This impact is assessed as moderate adverse.

#### **Mitigation Measures**

- A separate Action Plan on SEA/SH will be prepared for the Project and same will be implemented;
- The SEA/SH complaints received through the GRM will be redirected to the dedicated staff who are trained on the GBV/SEA/SH with the required sensitivities and confidentiality. It will be ensured that safe and confidential accountability mechanism is established for complaints;

- Labor and or other staff engaged by the contractor will be educated and made aware of the civil, social, and legal rights of women and vulnerable groups and about the actions taken in the event of GBV and SEA/SH;
- Awareness session will be conducted regularly for community and workers through skilled trainers/ service providers. Targeted communications and awareness to women regarding potential SEA / GBV risks, especially as literacy rates amongst women are lower. This could include organizing consultations during times when women are not busy with their household chores, holding consultations in areas accessible to women;
- Project staff (skilled and unskilled) will sign the code of conduct before commencement of civil works, describing acceptable and prohibited behaviors and communicated through training and publicized;
- Service providers will be identified and mapped to address SEA/SH issues;
- Provision related to SEA/SH or GBV will be incorporated in the bidding document; and
- Gender specialist will be hired in the PIUs with experience on GBV/SEA/SH and supervision consultant team overseeing civil works activities will also include a GBV specialist.

With the help of the above mitigation measures, the residual impact is likely to be moderate to low significant.

#### **7.5.6 Force/Child Labor**

Project activities may involve the use of child forced/child labor. This includes indentured labor, and hiring of under age children. These risks are likely to be higher in economically disadvantaged and remote areas. The impacts are assessed as moderate adverse.

#### **Mitigation Measures**

- Contractors will be prohibited from hiring children below the age of 14 for any type of labor, and below the age of 18 for hazardous work. Contractor through contractual agreement will be bound to follow the provincial labour laws and World Bank requirements during hiring the labor force;
- Project staff will monitor sites to check for child labor and will hold regular consultations to keep a check on forced labor at project sites;
- Awareness will be created among the local communities and project staff about the adverse impacts of child labor. Contractors will be required to follow the LMP with regard to contracts and terms of employment for labor;
- Beneficiaries and primary suppliers will be made aware of the provincial labour laws and World Bank regulations regarding child/forced labor.

#### **7.5.7 Elite Capture, Exploitation and Exclusion Disadvantaged or Vulnerable Groups**

There is potential that influential people might interfere in the selection of beneficiaries. The presence of vulnerable groups in the project area will require careful attention to be paid to stakeholder engagement. There is a risk that vulnerable groups and underserved population



of Quetta who live in kacchi abadis may be excluded from stakeholder consultations, limiting their ability to provide feedback on project design and impacts, and potentially preventing them from fully benefiting from the project. This risk is proportionate to their degree of disadvantage/vulnerability and is additionally relevant for communities living in remote or historically underserved areas. Component A will involve significant contact between Project workers and beneficiary communities, particularly in the case of agreeing on scheme designs, water sharing, inter and intra tribal shares, etc. Such contact may result in the exploitation of economically disadvantaged, flood affected, or otherwise vulnerable community members. Ill-planned community/tribal engagements can lead to conflicts which can be violent for the communities and the Project workers. The impacts are assessed as moderate adverse.

### **Mitigation Measures**

- A comprehensive Stakeholder Engagement Plan (SEP) has been developed and will be implemented during course of project;
- Ensure the compliance with the GRM;
- Ensure that only the genuine beneficiaries are enlisted for the project support;
- Gather regular beneficiary feedback;
- Project shall pay particular attention to most underserved population of Quetta who live in kacchi abadis through the construction of standposts and toilets in these communities and the people with disabilities to access the standposts and toilets.;
- Project staff will be trained on social inclusion and stakeholder engagement; and

### **7.5.8 Chance Findings of Important Physical and Cultural Resources**

Some of the districts included in Kachhi Plains and Quetta have culturally significant sites and resources. The specific information on exact location and scale of project activities are not known at this stage and it is unknown if there will be any impacts on these sites due to the project. However, the project may encounter the chance finding of important physical cultural resources during the construction and rehabilitation phase. The impacts are assessed as low to moderate adverse.

### **Mitigation Measures**

- Subprojects sites will be screened for the presence of physical cultural resources prior to commencement of construction and rehabilitation work;
- Ensure the compliance with the chance find procedure provided in **Annex-E**.

### **7.5.9 Land Acquisition and Involuntary Resettlement**

There is no expected large-scale acquisition of private lands under the project. The project will prioritize the use of existing government lands if required for civil works. Under Component A, the rehabilitation/construction of on-farm community water infrastructure such as water channels, rainwater harvesting structures and access roads may require community lands through Voluntary Land Donation (VLD) where government lands are not available and VLD is acceptable as per requirements of ESS5. Activities under Component B carry a risk of

temporary economic and physical displacement of people and businesses and removal of informal settlers (encroachers) during the rehabilitation of water supply and sewage infrastructure in the densely populated and congested areas of Quetta city including 'kachi abadis' (slums). Public lands in Quetta city and Balochistan as a whole are loosely documented, and hence may be encroached. Therefore, the impact of land acquisition will be moderate.

### **Mitigation Measures**

A Resettlement Framework (RF) has been prepared for the project, and Resettlement Plans (RPs) will be prepared during implementation after identification of site-specific impacts. The RF focuses on mitigating land taking impacts through negotiated agreement, expropriation and compensation and includes annexures with protocols for acceptance of VLD where circumstances meet requirements under ESS5.

#### **7.5.10 Gender Inclusion**

The risk for exclusion of women in benefiting project benefits, particularly under Component A is substantial. Women under Component A may fail to benefit and be excluded from on-farm water productivity activities due to lack of inclusion of women in WUAs. Poor access to clean water sources in rural and urban areas also disproportionately affects women's health and well-being. With respect to irrigation, the design and implementation of infrastructure often do not consider the specific needs and priorities of women. This includes the lack of separate water sources or facilities for women which limit their access to water for irrigation and other agricultural activities.

In QWASA specifically, a number of barriers undermine women's attraction, recruitment, retention, and advancement in the institution. Moreover, limited training opportunities for female staff (for example, in the past year, women were absent from a technical training attended by male staff) and the lack of female-friendly workplace facilities and amenities (such as the lack of the provision of childcare facilities/monetary assistance for childcare) makes it challenging for women to remain and advance in the workplace.

### **Mitigation Measures**

- The project will engage with local NGOs and Women Water Network such as Aurat Foundation in Quetta to ensure female participation in consultations and ensure women's voice is heard for the flood protection, agriculture productivity and watershed management activities;
- The project shall ensure women's representation and leadership in the WUAs by establishing a quota of X% for decision-making positions held by women and providing women in these positions, and more broadly female members in WUAs, with training in leadership and negotiation, as well as in technical skills such as financial management and O&M;
- Separate trainings shall also provide to women on agricultural productivity, climate smart agriculture, horticulture, livestock, and kitchen gardening and income generation activities to improve their resilience to climatic shocks;

- The project will improve women representation in technical and management/leadership within QWASA, where currently only X percent of technical and Y % of decision-making positions are held by women.

## **7.6 POTENTIAL SOCIAL IMPACTS AND MITIGATION MEASURES –OPERATIONAL PHASE**

### **7.6.1 Flood and Drought Management**

The primary source of 85% population of Balochistan's income is agriculture. This province has faced many severe droughts in the past which had a drastic impact on livelihoods and its economy. Kachhi plains, is particularly affected by powerful hill torrents during the monsoon season, triggering inundations yearly and causing damages. Uncontrollable flows expelled out of river bank may also cause damages to agriculture, livestock, infrastructures, forests and other indirect impacts. This increase in climate extremes in the form of droughts and floods may disproportionately affect people particularly with low incomes. The impact is high to moderate adverse.

#### **Mitigation Measures**

- The construction of flood dispersal structures on Nari, Lehri and Talli rivers will help to divert the water towards canals, to mitigate the flood water;
- The construction flood water retention ponds, raising of flood embankments, flood protection bunds will mitigate the flood, droughts and minimize the damages, also provide the water supply to the farmers; and
- The Watershed Management/ Afforestation Interventions within the ambit of the catchment, piedmont/ flood plain areas of Kachhi Plan will help to reduce and delay the peak of floods and extend the duration of flood flows.

### **7.6.2 Water Borne Diseases**

Still, shallow, and warm water serve as the ideal breeding ground for mosquitoes and other nuisance insects. Mosquitoes may pose public health risks by spreading human and animal diseases. Even in areas where the insects don't carry any serious diseases, they're annoying and make it hard for nearby residents to enjoy the outdoors.

#### **Mitigation Measures**

- The capacity building component of the project will address the importance of safe drinking water and hygienic practices, thus addressing the water borne diseases; and
- Conduct regular inspections of the storage ponds to identify potential issues early on. Prompt action (such as introduction of mosquito fish, promote water surface disturbances) can prevent the escalation of problems and the spread of waterborne diseases.

### **7.6.3 Reduction in Storage Capacity**

Sedimentation is a major issue across the Kachhi Plains leading to a decline in water quality, reduction in the capacity of the reservoirs. Large water storage ponds have been proposed for mitigation of flood water, agriculture and drinking purpose. The ponds may gradually become ineffective and capacity of large storage ponds may be reduced on Nari, Talli and Lehri rivers.

#### **Mitigation Measures**

- Conduct regular monitoring to observe the performance of ponds;
- Proper desilting shall be done at least when pond is 50% silted up and proper maintenance will be essentially required to get the real benefits; and
- Watershed Management/Afforestation as a part of this project will help to control sedimentation.

### **7.6.4 Improper Distribution of Water**

Unavailability or improper distribution of irrigation water in the subproject areas may result social unrest in the area. Increased water consumption at upstream may potentially affect other water users. The impact is medium adverse in nature.

#### **Mitigation Measures**

- Proper water distribution through engaging WUAs shall be ensured. The social mobilization and capacity building components of the subprojects will address formulation and sustainability of the WUAs; and
- The water saved through the project interventions shall be used to address the water stress and/or to bring the fallow land under cultivation.

### **7.6.5 Enhanced Use of Pesticides**

Improvement in water availability may result in enhanced use of fertilizers and pesticides. Extended and indiscriminate use of pesticides may result in pest outbreaks as well as negative effects on locals/farmers working in the agricultural fields and the surrounding environments. This would be an impact of high significance.

#### **Mitigation Measures**

- Awareness and training program shall be conducted regarding integrated pest management, sustainable use of fertilizers, safe disposal of empty containers; and
- Use of restricted pesticides identified by WHO shall not be allowed.

### **7.6.6 Non-Functionality of Water User Associations**

Non-Functionality of Water User Associations may lead to inefficient use of water resources and related facilities. Effective WUAs are necessary for making the best use of the improvement brought about by the project. The impact would be of moderate in nature.

### **Mitigation Measures**

- Support Organizations (SO) will assist with the formation and training of water users associations (WUAs) who will be responsible for management, operation, and maintenance of on-farm water management structures and equipment to be supported under the project; and
- Farmers' awareness shall be raised on climate change and groundwater recharge through participatory training so that they can effectively plan water use in the long run.

### **7.6.7 Maintenance of Water Supply Lines**

The repair and maintenance of water supply lines may cause temporary flooding of adjacent areas due to accidental leakages, bursts and blockages of lines etc. Any accidental leakages and overdosing of disinfectant may cause severe health impact to the worker and end users as well. The health impacts associated with overdosing of chlorine are skin irritation, digestive problem, etc. It also causes corrosion in distribution networks. Moreover, the leakage water from these pipes may get contaminated by the nearby sewer line and carry fecal coliform along with other pollutants which can damage human health and contaminate the soil as well as groundwater resources. This impact is moderate adverse in nature.

### **Mitigation Measures**

- Ensure regular inspection of the condition of water structures and identifying areas that need repair and maintenance comprising cracked and deteriorating pipes; leaking joints; frequent line blockages; lines that generally flow at or near capacity; and suspected infiltration or exfiltration;
- Maintain records; review previous water maintenance records to help identify "hot spots" or areas with frequent maintenance problems and locations of potential system failure, and conduct preventative maintenance, rehabilitation, or replacement of lines as needed;
- Develop an Emergency Response System for the water system leaks, burst and overflows;
- Provide necessary health and safety training to the staff;
- Develop standard operating procedures for operation and maintenance of water main supply, and provision of sufficient O&M staff in annual budget;
- Regular monitoring of chlorine dosing as per recommended values;
- Safety protocols related to disinfectant process will be defined and communicated to the worker responsible to the chlorination process; and
- Development of a system to register public complaints and timely resolution.

With the help of the above mitigation measures, the residual impact is likely to be low significant.

### **7.6.8 Fire and Explosions Hazard**

Improper handling and storage of chemicals, and electric installations may lead to fire and explosion that may in turn cause injury and possible death of a worker. Fuel or oil spills around the generator (as a backup power supply, if used) and presence of combustible materials may pose a risk of a fire explosion. This impact is categorized as moderate adverse in nature.

#### **Mitigation Measures**

- Prepare and implement the O&M phase OHS management plan including appropriate procedures and protocols for fire and explosion hazards;
- Regular monitoring will be carried out to check that the area around the generator, storage of other explosive/hazardous substances and materials is free of flammable material;
- Workers and staff will be trained on handling and controlling accidental spillage of flammable substances that may trigger fires;
- Appropriate fire safety equipment will be installed at convenient locations;
- Equipment will be regularly examined and maintained by a reputable fire safety and security company;
- Fire drills will be conducted at least biannually to ensure that workers are familiar with the action to take in the event of fire or explosions;
- Fire awareness materials will be placed appropriate locations within the plant to educate the staff and visitors on what to do in the event of fire.

With the help of the above mitigation measures, the residual impact is likely to be low significant.

### **7.6.9 Institutional Capacity Limitations**

Due to a lack of experience working with the ESF, there is a risk that the implementing agency will not have sufficient capacity to mitigate environmental and social risks by implementing this ESMF. Without adequate capacity, many of the risks in this document may go unmitigated, potentially reducing project effectiveness significantly.

The project will hire the dedicated E&S staff for the implementation of the E&S instruments in line with the WB ESF and local requirements. The project will ensure that all project staff are trained in the E&S instruments especially those that will be involved in implementing the E&S instruments.

### **7.6.10 Sustainability of Interventions**

Rehabilitated & Improvement infrastructure work may fall into destruction if they are not regularly maintained according to the best practices. This risk may be particularly relevant in remote areas, where access and routine maintenance may be challenging.

- The subprojects will ensure strong and effective backup support to be provided by the suppliers through appropriate contractual clauses.
- Proper trainings of farmers regarding the importance of HEIS and solar system will be carried out;
- Continued maintenance of the proposed project interventions after project closure will be carried out;
- Rehabilitated and Improvement interventions will be built using climate-resilient approaches to minimize deterioration caused by climate impacts;
- Rehabilitated schemes/sub- projects will be handed over to the concerned department and the O&M budget of the same will be ensured in the annual budget.

## **8 IMPLEMENTATION OF ESMF**

This chapter summarizes the mitigation, monitoring requirements, screening procedure, institutional arrangement monitoring and measures to be taken during the implementation and implementation budget.

### **8.1. KEY STEPS FOR ENVIRONMENTAL AND SOCIAL MANAGEMENT**

- E&S screening and classification of each subproject using the E&S Screening Checklist;
- Information disclosure and stakeholder consultations as per guidance provided in the SEP;
- Preparation of Environmental and Social Management Plan (ESMP)/checklist with mitigation measures/other E&S instruments as per outcomes of the E&S screening process indicative budget for E&S management.
- All E&S instruments must be completed and cleared by World Bank before the submission of bidding documents for approval.
- Inclusion of ESMP and other E&S instruments in bidding documents and agreements with Contractors.
- Implementation of ESMP and other E&S instruments by implementing agencies/contractors.
- Monitoring the compliance with E&S instruments.
- Integration of Recommendations in Project Design / E&S Instruments
- Sufficient budget should be allocated in the BOQ under a separate budget head for the effective implementation of mitigation measures;
- Strengthening and capacity building through trainings/awareness sessions/workshops of the E&S staff;
- Induction of qualified Environmental, Social and Gender Specialists.
- Information pertaining to impacts identified and mitigation measures adopted should be reported in detail in the progress reports;
- Roles and responsibilities of key players involved in the implementation of ESMF should be defined;
- Ensure the incorporation of ESMP/ E&S instrument in the contract Documents to bound the Contractor for compliance; and
- Engagement of relevant stakeholders should be ensured for effective implementation of ESMF/E&S instruments.

### **8.2. CAPACITY ASSESSMENT OF IMPLEMENTING AGENCY**

The Balochistan Irrigation Department will be the Implementing Agency for component A while the Balochistan PHED will be the Implementing Agency for component B. The Balochistan ID will rely on the existing PMU of the BIWRMDP for project management. For the PHE Department, a new project implementing unit will be created and staffed with QWASA staff and relevant specialists.

The BIWRMDP PMU at BID currently has Environmental and Social Development Specialists (ES&SDS) with demonstrated knowledge and experience in implementing WB safeguard



policies and instruments. However, BID has not implemented any project under ESF, while this project, BWSP/IP will follow WB ESF. The PMU does not have a Gender Specialist. The ES & SD Specialists in PMU of BIWRMDP have received ESF training provided by the WB under ESF capacity development program. PHED, responsible PIU for implementing Component B, has no experience with World Bank funded projects and the E&S requirements. Currently PHED and Q-WASA do not have adequate E&S staff to ensure compliance with E&S instruments during project implementation.

Considering the current staff strength in PIU Component A and scale of activities to be implemented by BID and PHED; additional E&S staff would be required to implement and oversee the E&S requirements. Each PIU will be required to have one Environment Specialist, one Social Development Specialist and one Gender Specialist. Apart from this regular E&S set-up, "Project Design and Supervision Consultants (PSDC)" planned to be hired for overall project will also be responsible for E&S implementation, compliance monitoring in the field and reporting; as being successfully done for implementing BIWRMDP. Additionally, the effectiveness of safeguards implementation and compliance would be regularly validated and assessed by the "Monitoring and Evaluation Consultants"; as an independent/third party monitor.

While concluding the overall satisfactory performance for implementing ESMP in BIWRMDP, the assessment identified some gaps and drew key lessons. These include: (i) the fragile security situation in Balochistan particularly in its southern districts that impedes the development efforts; (ii) delayed and irregular E&S progress reporting; and (iii) insufficient E&S trainings particularly for lower formation/workers leading to non-compliances on the use of PPEs. Accordingly, the suggested needed measures such as: employing and implementing security management plan earlier developed for BIWRMDP, clear pathway for E&S progress reporting, and sound capacity building mechanism; to integrate lessons learned and to fill the observed gaps during BWSP/IP implementation.

### 8.3. SUBPROJECT E&S SCREENING

As a first step, all proposed activities/subprojects should be screened to ensure that they are within the boundaries of the Project's eligible activities, and are not included in the E&S Exclusion List as below:

**Table 8-1: E&S Exclusion List**

- |  |
|--|
| <ul style="list-style-type: none"><li>• Activities having "significant adverse cumulative/transboundary impacts.</li><li>• Activities that have the potential to cause any significant loss or degradation of critical natural habitats, whether directly or indirectly or which would lead to adverse impacts on natural habitats.</li><li>• The subproject introducing any alien or non-native species of flora or fauna only selective native species of trees and shrubs will be planted as part of rangeland management.</li><li>• Activities that involve extensive harvest and sale/trade of forest resources (post, timber, bamboo, charcoal, wildlife, etc.) for large-scale commercial purposes.</li><li>• Use of banned pesticides/fertilizers of Pakistan and WHO regulations.</li></ul> |
|--|

- Activities that involve the use of international waterways.
- Any activity affecting physical cultural heritage such as graves, temples, churches, historical relics, archeological sites, or other cultural structures.
- Activities that may cause or lead to forced labor or child abuse, child labor exploitation or human trafficking, or subprojects that employ or engage children, over the minimum age of 14 and under the age of 18, in connection with the project in a manner that is likely to be hazardous or interfere with the child's education or be harmful to the child's health or physical, mental, spiritual, moral, or social development.
- Any activity that will cause physical relocation of households or will require the use of eminent domain.
- Areas under Anti Encroachment Drive.
- Cause any displacement or severe loss of livelihood.
- Any activity with significant environmental and social risks and impacts that require an Environmental and Social Impact Assessment (ESIA).

All the subprojects will be screened for E&S impacts using the screening checklist provided in **Annex-F**. Since exact extent and precise location/footprints of individual interventions (subprojects) to be implemented under the proposed Project are not known at this stage, therefore, a framework approach has been adopted for the present E&S assessment for this ESMF. This ESMF provides screening procedure following the ESF for the type of E&S instrument to be used before implementing a subproject.

The screening criterion is based on the nature of activities and potential E&S risks and impacts as described below:

- **High-risk (H)** proposed project interventions that have the potential for severe adverse environmental and social impacts that are diverse, irreversible or unprecedented. However, such type of subprojects will be avoided and not supported under the proposed Project.
- **Substantial-risk (S)** proposed project interventions may have the potential for adverse environmental and social impacts, but are less adverse than those of high-risk proposed project interventions. **These proposed project interventions will require the preparation and submission of ESMP/RP** (Generic Template of ESMP is attached as **Annex-G**).
- **Moderate-risk (M)** proposed project interventions would have moderate levels of environmental and social impacts. These impacts are likely to be temporary and reversible and are not expected to have lasting effects on the proposed project intervention areas. For these proposed project interventions, the preparation and submission of a **checklist with mitigation measures will be required. An ESMP/RP may also be prepared if needed as per E&S screening process/outcome.**
- **Low-risk (L)** proposed project interventions will have negligible to no negative impacts, and no further environmental assessment will be needed following the initial screening

process. Any site-specific impacts will be mitigated through simple mitigation measures suggested in the E&S Checklist(s), where applicable, or through adopting ECOPs. Implementation will be monitored and supervised through a monitoring checklist.

**Table 8.2** shows the BWSPIP subprojects environmental screening, anticipated classification and guides on preparation of relevant E&S management instrument/tool. The exact instrument will however be decided as per screening outcome of individual subproject.

**Table 8-2: Subprojects Environmental and Social Screening**

Project Components <sup>33</sup>	Type of Subprojects	Nature of Environmental and Social Risks	Indicative E&S Management Instrument
Component A: Flood protection, agricultural Water and Watershed Management	Construction of dispersal structures <sup>34</sup>	Likely to have moderate to substantial E&S risks	ESMP/RP <sup>35</sup> / Checklist with mitigation measures
	Embankment Protection Works	Likely to have moderate to low E&S risks	ESMP/Checklist with mitigation measures
	Auxiliary infrastructure including canals, gauges, regulation and measurement systems	Likely to have moderate to low E&S risks	ESMP/Checklist with mitigation measures
	Watershed management interventions <sup>36</sup>	Likely to have moderate to low E&S risks	ESMP/Checklist with mitigation measures
	On farm water management interventions <sup>37</sup>	Likely to have moderate to low E&S risks	ESMP/Checklist with mitigation measures
Component B: Improvement of Quetta Water Supply and Sanitation	Solarization of sewerage treatment plant and On-site improvements of STP (rehabilitation inlet, solid waste separation system, restoration of settling tank, minor upgrades to sludge drying and pressing unit and a facility for filling tankers with treated wastewater, lab modernization),	Likely to have low to moderate E&S risks	Checklist with mitigation measures
	Rehabilitation of pumping stations and construction of public water points	Likely to have low to moderate E&S risks	Checklist with mitigation measures
	Sewerage network investments in the Sabzal STP's catchment area	Likely to have moderate to low E&S risks	ESMP/Checklist with mitigation measures

<sup>33</sup> Only those Components which may E&S risks.

<sup>34</sup> Flood water detention structures; Flood dispersion structures; Leaky weirs and water harvesting structures

<sup>35</sup> RAP/ ARAP/checklist, finalized upon confirmation of project footprints/ as per RPF.

<sup>36</sup> Afforestation, erosion check and control structures, land leveling, water detention structures/ponds, water and soil conservation.

<sup>37</sup> Installation of HEIS, construction/rehabilitation of small water channels, small rainwater harvesting structures and access roads,

Project Components <sup>33</sup>	Type of Subprojects	Nature of Environmental and Social Risks	Indicative E&S Management Instrument
	Network repair, and rehabilitation (or construction) of storage reservoirs within the city	Likely to have moderate to low E&S risks	ESMP/Checklist with mitigation measures
	Rehabilitation of community water filtration plants	Likely to have low to moderate E&S risks	Checklist with mitigation measures
	Solarization and rehabilitation of pumping stations and installation of electric generators.	Likely to have moderate to low E&S risks	ESMP/Checklist with mitigation measures
	Leakage management, and pressure management, installation of bulk and consumer meters, public outreach to promote water demand management.	Likely to have low to moderate E&S risks	Checklist with mitigation measures
	Construction of new underground / overhead reservoirs	Likely to have low to moderate E&S risks	Checklist with mitigation measures
	Water supply infrastructure improvement works <sup>38</sup>	Likely to have low to moderate E&S risks	Checklist with mitigation measures
	Groundwater improving and monitoring network <sup>39</sup>	Likely to have low to moderate E&S risks	Checklist with mitigation measures
	Works related to the rainwater harvesting and watershed management <sup>40</sup>	Likely to have moderate to low E&S risks	ESMP/Checklist with mitigation measures
	Surface water conveyance works for water supply to Quetta City (rehabilitation of the conveyance system, construction of bulk supply lines)	Likely to have moderate to substantial E&S risks	ESMP/RP/ Checklist with mitigation measures
	Construction of WASA Customer Facilitation Centers	Likely to have low to moderate E&S risks	ESMP/Checklist with mitigation measures

<sup>38</sup> repair and maintenance of community filtration plants, solarization and construction of public stand posts and public toilets, replacement of submersible and centrifugal pumps and outlived transformers, provision of trolley mounted portable transformers

<sup>39</sup> installation of SCADA system, exploration of new tube wells and well fields, electromagnetic water flow meter, construction of injection tube wells for groundwater recharge

<sup>40</sup> forestation, terracing, check dams, intercepting ditches, controlled grazing, grass & bush barriers, construction of recharge groundwater aquifer/ponds, stock water ponds for wildlife, water spreading diversion structures/dykes, valley dykes, contour ridges, contour trenches, hillside ditches

The PIUs will coordinate with Balochistan Environmental Protection Agency to fulfill the legal requirements of the Balochistan Environmental Protection Act 2012 for environmental approval, if required, before any project activities begun.

#### 8.4. ENVIRONMENTAL AND SOCIAL REQUIREMENTS IN BIDDING DOCUMENTS

The ESMPs will be prepared based on the guidelines provided in this ESMF before the Contract award. The ESMP will be included in the bidding/ contract documents and their implementation will be a contractual binding for the Contractors. To ensure the effective implementation, the ESMP cost will be the part of BOQ under a separate budget head.

Environmental, Social, Health and Safety (ESHS) conditions will also be included in the bidding documents to ensure all mitigation measures proposed in the relevant ESMPs are effectively implemented as provided in **Table 8.3**.

**T Table 8-3: E&S Requirements in Bidding Documents**

Condition	Rationale	Specifications to be Included in Bidding Documents
Past performance of the Contractor on E&S and OHS	The contractor's past performance on compliance with E&S and OHS considerations is an indicator of the contractor's commitment and capability for implementation of the screening checklists/ESMF/ESMP	Record of past E&S and OHS performance
The Contractor shall propose E&S Specialist (s)/ Officer (s) /Focal Point (s) in its team (proportionate to the scope/type of work and corresponding risks and impacts)	The Contractor's staff should include E&S Specialist(s)/ Officer(s) /Focal Point(s) who will be responsible for the implementation of the mitigation measures in compliance with the relevant instruments	The bidder will include CVs of the proposed, suitably qualified E&S Specialist(s)/Officer(s) /Focal Point(s).
Contractor shall obtain performance bond for compliance with E&S obligations	The Contractor should have a financial implication if it fails to comply with E&S requirements.	The Contractor will obtain a performance bond
Contractor shall implement construction related mitigation measures provided in the E&S instruments	Mitigation measures from E&S instruments will be included on the tender	Tender documents will contain site-specific construction related mitigation measures
Code of Conduct for all site personnel	All workers hired by the Contractor should sign a Code of Conduct to ensure compliance with E&S requirements	The Contractor will submit a Code of Conduct with the bidding documents

## 8.5. INSTITUTIONAL ARRANGEMENTS FOR E&S IMPLEMENTATION

The Balochistan Irrigation Department (BID) will be Implementation Agency for Component A while the Balochistan PHED will be the Implementation Agency for Component B. The ESMF implementation arrangements have been suggested to keep it well aligned with the overall Project implementation and institutional setup.

The Balochistan ID will rely on the existing PMU of the BIWRMDP for project management, with enhancements in capacities as required. For the PHE Department, a new project implementing unit will be created and staffed with QWASA staff and relevant specialists. The PIUs shall be headed by independent Project Directors.

The Project Directors, through E&SD Specialists of the PIUs, will be responsible for the overall project implementation including this ESMF and other E&S instruments (prepared as part of project). The E&SD Specialists of the PIUs will ensure plans and procedures for E&S management mentioned in ESMF and other E&S instruments are being followed and implemented during the project life cycle.

The E&SD Specialists of the PIUs will be supported by designated E&S Focal Points at field levels, where required. The E&SD Specialists of the PIUs will maintain liaison with the E&S Focal Points for the effective implementation of the ESMF/E&S instrument.

The E&SD Specialists of the supervision consultant (PDSC) will also support in implementation of this ESMF/E&S instruments. The E&S monitoring Checklists shall be used to monitor the implementation of ESMF/E&S instruments.

Contractors will be required to comply with the Project's E&S risk management documents and procedures including the ESMP, LMP, and local legislation. This provision will be specified in the contractor's agreements. Contractors will be expected to disseminate and create awareness within their workforce of environmental and social E&S risk management compliance for their effective implementation. However, if the Contractor fails to comply with the implementation of E&S requirements of the ESMPs, deductions will be made from the payments claimed under the heads of environmental components.

## 8.6. ROLES AND RESPONSIBILITIES ENTITIES INVOLVED IN E&S MANAGEMENT

### PIUs

Roles and responsibilities will be:

- The BID and PHED PIUs will be responsible for the implementation of the ESMF activities independently.
- Provide support, oversight, and quality control to field staff working on E&S risk management.
- Review, and provide quality assurance and approval to E & S Screening checklist and ESMPs as relevant. Keep documentation of all progress.

- Oversee overall implementation and monitoring of environmental and social mitigation and management activities, compile progress reports from subprojects, and report to the World Bank on a quarterly basis.
- Train field staff, contractors and communities who will be responsible for implementing the E&S instruments.
- Ensure that all bidding and contract documents include all relevant E&S requirements/instruments.
- Ensure project activities do not fall under the Exclusion List.
- Maintain the close liaison with the World Bank, Government Departments (where applicable), E & S Officers of PIUs and FPs (where required) at field level for smooth and effective implementation of E&S aspects.
- The PIUs will also track grievances/ feedback (in line with the SEP) during project implementation to use as a monitoring tool for implementation of project activities and environmental and social mitigation measures.

The PIUs becomes aware of a serious incident in connection with the project, which may have significant adverse effects on the environment, the affected communities, the public, or workers, it should notify the World Bank within 48 hours of becoming aware of such incident. The Incident reporting Form is attached as **Annex-H**.

Upon completion of Project activities, the PIUs will review and evaluate progress and completion of project activities and all required environmental and social mitigation measures. Especially for civil works, the PIUs will monitor activities with regard to site restoration and landscaping in the affected areas to ensure that the activities are done to an appropriate and acceptable standard before closing the contracts, in accordance with measures identified in the ESMPs and other plans. The sites must be restored to at least the same condition and standard that existed prior to commencement of works. Any pending issues must be resolved before a subproject is considered fully completed.

### **Project Design and Supervision Consultant**

Roles and responsibilities will be:

- To oversee the performance of the Contractors, through dedicated E&S Specialists, to make sure that the Contractors are complying with ESMP requirements and any other measures suggested in the checklist (as per advice of E&S Specialist).
- Ensuring that the day-to-day construction activities are carried out in an environmentally and socially sound and sustainable manner;
- Strong coordination with the Contractors and E&S Specialists- PIUs;
- To supervise and monitor E & S activities being performed at site;
- To organize periodic E & S training programs and workshops for the relevant E&S Specialists including PIUs and contractor.
- Ensure periodic reporting on E&S aspects to relevant PIUs.
- Suggest any additional mitigation measures (if required).

### **Construction Contractor**



Roles and responsibilities will be:

- Comply with the Project's environmental and social mitigation and management measures as specified in ESMPs and contract documents, as well as national and local legislation, in particular, the requirements of Balochistan Environmental Protection Act (BEPA), 2012.
- To appoint E&S Specialists for effective implementation of ESMPs and the measures suggested in the checklist (as per advice of E&S Specialist);
- Take all necessary measures to protect the health and safety of workers and community members, and avoid, minimize, or mitigate any environmental harm resulting from project activities.
- To develop Site Specific Environmental and Social Management Plan (SSESMP) (only for those subprojects which may require preparation of an ESMP) with the support/consent of E&S staff of relevant PIUs and the guidelines provided in the ESMP, prior to mobilization/start of civil works.
- To train its dedicated E & S Specialists on regular basis for effective implementation of E & S aspects.

### **Third Party Validation**

Third Party Validation (TPV) firm will be recruited by PIUs to monitor effectiveness, efficacy and soundness of processes and procedures adopted for and related to: environmental assessment of subprojects, identification of risks and impacts and compliance monitoring at all levels, in addition to assessing sufficiency of institutional arrangements meant for E&S aspects and recommend measures for course correction and to further strengthen, if so required. TPV will be done on annual basis throughout the project duration. The third party will have E&S Specialists to carryout intermittent monitoring of the project.

### **8.7. ENVIRONMENTAL AND SOCIAL MITIGATION AND MONITORING PLAN**

Environmental and Social mitigation and Monitoring Plan, provided in **Table 8.4** will be used as the management tool for mitigation measures. The plan includes the envisaged impacts and their recommended mitigation measures and; the person/organization directly responsible for adhering to or executing the required mitigation measures and suggest frequency of monitoring the mitigation measures. Detailed E&S impacts and mitigation measures have been provided in Chapter 7.

Table 8-4: Environmental and Social Mitigation and Monitoring Plan

Sr. No	Project Impacts	Mitigation Measure	Implemented by	Monitoring Frequency	Monitoring Mechanism	Monitored by
<b>Environmental and Social Mitigation and Monitoring- Design Phase</b>						
1.	<b>Technical Design and Layout Planning</b> Reduction of surface water flow during the rainy season for lower riparian areas, temporary impact on supply and quantity of water to the communities during implementation of component-B, deterioration of water quality during rehabilitation works, unnecessary disruption of utilities, seepage issues due to incompatible layout plan and engineering design	<ul style="list-style-type: none"> <li>• Designs of the project shall follow the national and international guidelines/ codes/ standards and engineering practices.</li> <li>• Ensure the effective implementation of SEP.</li> <li>• Project activities under component B shall specifically target the population of kachhi abadis by delivering safely managed water source;</li> <li>• Project design shall also ensure that the special needs of people with disabilities</li> <li>• Project Sites shall be carefully selected to minimize disturbance locals and public utilities.</li> <li>• Water storage structures shall be designed with impermeable and permanent liners to prevent seepage and keep soils, where applicable.</li> <li>• Ensure the provision of regulated flow shall be ensured in the design.</li> <li>• Ensure the provision of temporary access to entrance to houses and commercial centers during laying of transmission pipelines.</li> <li>• After competitive bidding, only shortlisted Contractors shall be hired for the construction/ rehabilitation works and supply of materials including solar panels.</li> <li>• Lead/acid/cadmium-based batteries will not be procured for solarization.</li> <li>• Efforts shall be made to carry out the construction and rehabilitation activities during the low water demand periods in the command area.</li> <li>• Limit the watercourse lining in the areas with fresh groundwater to ensure the adequate groundwater recharge.</li> <li>• Service providers shall be contractually bound to provide after sale services to WUAs/Farmers, particularly for HEIS.</li> </ul>	Design Consultant	As and when required basis/Monthly	<ul style="list-style-type: none"> <li>• Confirmation of design incorporation.</li> <li>• Stakeholder Consultation with photographic records</li> </ul>	PIU-A <sup>41</sup> PIU-B
2.	<b>Public Utilities</b> Public utilities such as water supply, sewerage and gas pipelines, PTCL and electric poles, may be affected during implementation of proposed project causing disruption of public services.	<ul style="list-style-type: none"> <li>• Efforts shall be made to avoid the relocation of damages to public utilities by making certain changes in the design.</li> <li>• Relocation of the public utilities, if any, shall be planned and approved in consultation with relevant departments/authorities/stakeholders before project commencement.</li> </ul>	Design Consultant	As and when required basis/Monthly	Confirmation of design incorporation.	PIU-A PIU-B
3.	<b>Seismic Hazard</b> The project area under Component A (districts Sibbi and Kachhi) Component B (district Quetta) falls in Zone 3 and zone 4 respectively <sup>42, 43</sup> . A moderate to severe intensity earthquake may impact structures under the proposed project.	<ul style="list-style-type: none"> <li>• The proposed infrastructure will be designed and constructed to withstand moderate to severe intensity earthquake.</li> <li>• Ensure the compliance with the Updated Seismic Building Code of Pakistan.</li> </ul>	Design Consultant	As and when required basis/Monthly	Confirmation of design incorporation.	PIU-A PIU-B
4.	<b>Climate Change</b> Structures under the project may potentially be impacted if not designed with sufficient resilience specifications to protect against extreme flood events.	<ul style="list-style-type: none"> <li>• Project activities design will take disaster risk reduction into consideration and will employ approaches to improve disaster resilience.</li> <li>• Only shortlisted/pre-qualified Contractors shall be hired for the reconstruction, rehabilitation works and supply of construction materials.</li> </ul>	Design Consultant	As and when required basis/Monthly	Confirmation of design incorporation.	PIU-A PIU-B
5.	<b>Water Sharing Issues</b> Water sharing issues may arise among shareholders with the construction of new dispersal structures as a result of increase or decrease in irrigation supplies.	<ul style="list-style-type: none"> <li>• Sites selection for dispersal structure will be proposed based on the availability of flood water and mostly existing dispersal structures are proposed for new construction.</li> <li>• Structures will be finalized after long deliberation with all stakeholders regarding their usefulness according to prevailing site conditions.</li> <li>• Follow the historical traditions and rights of shareholders.</li> </ul>	Design Consultant	As and when required basis/Monthly	<ul style="list-style-type: none"> <li>• Confirmation of design incorporation.</li> <li>• Stakeholder Consultation with</li> </ul>	PIU-A PIU-B

41 For PIU-A and PIU-B is for Component A and B respectively.

42 Zone 3: Peak horizontal ground acceleration from 0.24 to 0.32g

43 Zone 4: Peak horizontal ground acceleration &gt;0.32

Sr. No	Project Impacts	Mitigation Measure	Implemented by	Monitoring Frequency	Monitoring Mechanism	Monitored by
					photographic records	
<b>Environmental Mitigation and Monitoring- Construction Phase</b>						
6.	<b>Soil Erosion and Contamination</b> Construction and rehabilitation activities may disturb the surrounding soil and degrading its quality due to waste generation.	<ul style="list-style-type: none"> <li>• Embankments and excavated slopes will not be left untreated/unattended.</li> <li>• Approved Engineering design will be followed.</li> <li>• Avoid or minimize vegetation removal/clearing.</li> <li>• Sites will be restored upon completion of project.</li> <li>• Ensure that selected borrow areas are clearly demarcated, including the allowable depth of the excavation, before starting any soil removing and unnecessary excavations will be avoided;</li> <li>• Waste generated at sites shall be properly managed.</li> <li>• Vehicles must be properly maintained and regularly checked.</li> <li>• Ensure training and awareness sessions for the project staff including workers.</li> </ul>	Contractor	Monthly	<ul style="list-style-type: none"> <li>• Visual checks and photographic record</li> <li>• Ensure site restoration.</li> </ul>	E&S Staff of:  PIU-A PIU-B PDSC
7.	<b>Waste Generation</b> Wastes including discarded construction material, asphalt, steel, oil, fuel, empty containers and bags, excavated material, packing, wiring, broken glass, pieces of metal pipes and municipal waste will likely be generated during the civil work construction and rehabilitation activities and installation of solar system.	<ul style="list-style-type: none"> <li>• Ensure proper waste management including storage, handling, transportation and disposal.</li> <li>• Left over construction and demolition waste materials will be reused, where possible.</li> <li>• Compliance with site specific waste management plan.</li> <li>• MSDS shall be followed strictly, where applicable.</li> <li>• Ensure training and awareness sessions on waste management and resource conservation themes for the project staff including workers.</li> </ul>	Contractor	Monthly	<ul style="list-style-type: none"> <li>• Visual checks and photographic record.</li> <li>• Waste Management plan implementation</li> <li>• Training Record</li> </ul>	E&S Staff of:  PIU-A PIU-B PDSC
8.	<b>Ambient Air Quality</b> Movement of construction machinery (operation of concrete batching and concrete mixer, diesel generator,) and activities (excavation, site clearance and leveling, filling of earth material, demolition, loading/unloading of material etc.) may cause decline in air quality.	<ul style="list-style-type: none"> <li>• Vehicles and other equipment shall be properly tuned and maintained.</li> <li>• All dust raising locations shall be kept wet with water sprinkling, where required.</li> <li>• Construction material will be transported in a covered truck. Vehicle speed shall be kept low.</li> <li>• Ensure provision of PPEs to project workers and trained them on their use.</li> <li>• Ensure compliance with the BEQS and IFC/WHO guidelines whichever is stringent (as per advice of Environment Specialist).</li> </ul>	Contractor	Monthly	<ul style="list-style-type: none"> <li>• Visual checks</li> <li>• Vehicle maintenance records</li> <li>• Water sprinkling records.</li> <li>• Use of PPEs</li> <li>• Training Record</li> <li>• Compliance with BEQs</li> <li>• GRM complaints record</li> </ul>	E&S Staff of:  PIU-A PIU-B PDSC
9.	<b>Noise Pollution</b> Operation of construction machinery (such as bulldozers, excavators, pneumatic machinery, etc.), vehicles, generators, offloading of materials, and construction and rehabilitation activities such as excavation, site clearance and leveling, filling of earth material, demolition, loading/unloading of material may increase the noise level.	<ul style="list-style-type: none"> <li>• Main roads will be used to the maximum extent possible.</li> <li>• Vehicles and machinery shall be properly tuned and maintained.</li> <li>• Noisy construction work shall be limited to normal working hours.</li> <li>• Avoid excessive use of horns and vehicle speeds will be kept low;</li> <li>• Noisy construction activities will be displaced to a fair distance from the nearest sensitive receptors (if any). Construction schedules shall be disclosed to the nearby communities, where required.</li> <li>• Ensure the compliance with BEQS and IFC/WHO guidelines whichever is stringent (as advice of Environment Specialist). Ensure the effective implementation of GRM.</li> </ul>	Contractor	Monthly	<ul style="list-style-type: none"> <li>• Physical observation</li> <li>• Vehicle maintenance records</li> <li>• Use of PPEs</li> <li>• Training records</li> <li>• GRM complaints record</li> <li>• Compliance with BEQs</li> </ul>	E&S Staff of:  PIU-A PIU-B PDSC
10.	<b>Water Contamination</b> Water resources may be at risk of contamination from construction site runoff and wastes, if not managed properly,	<ul style="list-style-type: none"> <li>• Construction camp will not be located within 500m of any water body.</li> </ul>	Contractor	Monthly	<ul style="list-style-type: none"> <li>• Regular monitoring</li> </ul>	E&S Staff of:  PIU-A

Sr. No	Project Impacts	Mitigation Measure	Implemented by	Monitoring Frequency	Monitoring Mechanism	Monitored by
	impacting aquatic life (if available) and also pose health and livelihood risks to communities.	<ul style="list-style-type: none"> <li>Wastewater from the work site will be disposed through a settling tank of appropriate capacity, which will be levelled back after completion of construction work.</li> <li>It will be ensured that the wastes are not released into any water bodies, cultivation fields, or critical habitat.</li> <li>Ensure the compliance with BEQS and IFC/WHO guidelines whichever is stringent.</li> <li>Construction machinery will be kept properly tuned and maintained.</li> <li>Fuels and chemicals will be stored on concrete-floored, bounded, covered to provide shade and prevent the ingress of rain and should be located away from the open water sources.</li> </ul>			<ul style="list-style-type: none"> <li>Waste Management plan implementation</li> <li>Training Record</li> <li>Compliance with BEQs</li> </ul>	PIU-B PDSC
11.	<b>Traffic Issues</b> Traffic jams, accidents and inconvenience to the locals may arise during implementation of construction and rehabilitation activities, particularly during excavation, stacking of materials, laying pipelines activities under component B, due to the movement of construction machinery and vehicle. Other risks include soil erosion, debris flow, dust emissions, deterioration of existing roads, vibrational impacts, etc.	<ul style="list-style-type: none"> <li>Ensure the movement of vehicles carrying construction materials and equipment/machinery during the night time.</li> <li>Ensure the parking at designated areas.</li> <li>Vehicle speed shall be kept low (20-40 km/h).</li> <li>Damage of roads due to construction vehicles shall be instantly repaired and/or compensated after the completion of work.</li> <li>Ensure the provision of proper safety signboards.</li> <li>Schedule the mobilization activity during off-peak hours to avoid the disturbance on the sensitive receptors.</li> <li>Ensure the implementation and compliance with the Traffic Management Plan (where applicable/ as per advice of E&amp;S Specialists).</li> </ul>	Contractor	Monthly	<ul style="list-style-type: none"> <li>Vehicle maintenance record</li> <li>Training record</li> <li>Implementation of TMP</li> <li>GRM complaints record</li> </ul>	E&S Staff of:  PIU-A PIU-B PDSC
12.	<b>Flora and Fauna</b> Activities such as clearing of sites, establishment construction camps (if established) and mobility of construction machinery, increase in noise level and decline in ambient air quality may disturb the flora and fauna.	<ul style="list-style-type: none"> <li>Project will specifically exclude physical investments that could have significant adverse impacts to natural and critical habitats.</li> <li>Properly planned to avoid or minimize the cutting of trees/shrubs/herbs and loss of agriculture land.</li> <li>Avoid to introduce any alien or non-native species of flora or fauna as part of rangeland management;</li> <li>Compensatory plantation will be carried out with a ratio of five trees for each tree fell/cut. Forest and Wildlife Departments shall be consulted to fulfill the legal requirements, where applicable.</li> <li>Project staff shall be strictly directed not to damage any nearby agriculture land/vegetation/trees;</li> <li>Vehicle speed shall be kept low.</li> <li>Construction crew will be provided with LPG as cooking (and heating, if required) fuel. Use of fuel wood will not be allowed.</li> <li>Hunting, poaching and harassing of wild animals and birds shall be strictly prohibited,</li> <li>Ensure the compliance with the relevant measures provided for air and noise pollution and waste management.</li> </ul>	Contractor	Monthly	<ul style="list-style-type: none"> <li>Regular monitoring,</li> <li>Departmental consultations record</li> <li>Training record</li> </ul>	E&S Staff of:  PIU-A PIU-B PDSC
<b>Social Mitigation and Monitoring- Construction Phase</b>						
13.	<b>Occupational Health and Safety (OHS) risks</b> unsafe and unhealth working conditions, risk incident and accident, Deep excavations, laying of transmission pipelines, steel fixing, installation of a batching plant, concrete pouring, during installation of contractor camps installation of solar panels, movement of various heavy machines, manual handling during loading-unloading operation, bad housekeeping, exposure to electrical hazards from the use of tool and machinery and improper management and exposure to hazardous and non-	<ul style="list-style-type: none"> <li>Ensure compliance with the LMP and approved site specific ESMP.</li> <li>Community liaison will be maintained during the construction stage and ensure compliance with GRM.</li> <li>Ensure compliance with GBV/SEA/SH Action Plan;</li> <li>Ensure compliance with the Worker's Code of Conduct;</li> <li>Ensure that the site will be restricted for the entry of irrelevant people and appropriate safety signs at sites;</li> <li>Ensure the provision of appropriate use PPEs to all workers and compliance with BEQs.</li> </ul>	Contractor	Monthly	<ul style="list-style-type: none"> <li>Implementation of LMP.</li> <li>Use of PPEs.</li> <li>Training Records.</li> <li>Work permits</li> <li>Implementation of Emergency Response Plan.</li> </ul>	E&S Staff of:  PIU-A PIU-B PDSC

Sr. No	Project Impacts	Mitigation Measure	Implemented by	Monitoring Frequency	Monitoring Mechanism	Monitored by
	hazardous wastes, risk of leakage of polychlorinated biphenyl (PCBs) from replacement of transformers, lack of compliance with local OHS rules and regulations, GBV/SEA/SH, child labor and forced labor, risk of drowning in rivers during flash floods, risk of injury or death by being caught in tribal conflicts, and exposure to water-borne diseases.	<ul style="list-style-type: none"> <li>Develop and implement a comprehensive emergency response plan for PCB leaks including communication protocols, evacuation procedures, and coordination with emergency services.</li> <li>All the occupational incidents, accidents and diseases will be recorded and reported;</li> <li>Ensure the provision of fire prevention and firefighting equipment;</li> <li>Ensure the training of workers in construction safety procedures, use of PPEs, fire safety, waste management, defensive driving, hygienic conditions, emergency prevention, preparedness and response arrangements, communicable diseases.</li> </ul>			<ul style="list-style-type: none"> <li>Implementation of GRM complaints records</li> <li>Accident/Incident reported.</li> </ul>	
14.	<p><b>Community Health and Safety</b></p> <p>Dust and noise, physical harm due to accidents, traffic incidents, injuries due to falls in excavated sites, exposure to hazardous materials, security, inappropriate disposal of liquid and solid wastes, conflicts between local community the workers (particularly in the case of agreeing on scheme designs, water sharing, inter and intra tribal shares, etc.), ill-planned community/tribal engagements may lead to conflicts which can be violent for the communities and the Project workers, transmission of infectious diseases and GBV/ SEA/ SH risks.</p>	<ul style="list-style-type: none"> <li>Ensure compliance with site specific community health and safety plan.</li> <li>Site will be restricted for the entry of irrelevant people particularly children, disabled and elderly peoples. Ensure the use of appropriate safety signs at the construction site.</li> <li>Provide adequate fencing around the working areas and excavations.</li> <li>Ensure the compliance with the mitigation measures provided for air, noise and waste management.</li> <li>Vehicle limit shall be kept low and horns will not be used while passing through or near the communities.</li> <li>Excavation of trenches for pipe laying and backfilling shall be efficiently scheduled;</li> <li>Effective implementation of GRM will be ensured to timely address the issues.</li> <li>Ensure the effective implementation of SEP, <b>GBV/SEA/SH Assessment and Action Plan</b>; and TMP.</li> <li>Ensure due care of the local community and observe sanctity of local customs and traditions.</li> <li>Warn the staff strictly not to involve in any unethical activities and to obey the local norms and cultural restrictions.</li> <li>Training and awareness sessions will be conducted regularly.</li> <li>Ensure the implementation of security management plan, where applicable.</li> </ul>	Contractor	Monthly	<ul style="list-style-type: none"> <li>Implementation of Community health and safety Plan (as a part of SSEMP).</li> <li>Community Concerns Record.</li> <li>Training Records.</li> <li>Implementation of GRM complaints records</li> <li>Medical reports of worker (as per advice of E&amp;S Specialists)</li> <li>Accident/Incident reported.</li> </ul>	E&S Staff of:  PIU-A PIU-B PDSC
15.	<p><b>Site Security</b></p> <p>Security risks may arise during the implementation of project, particularly in the remote regions.</p>	<ul style="list-style-type: none"> <li>Detailed risk assessment of the project sites shall be carried out for the development of SMP, where required, based on the lessons learnt from BIWRMDP.</li> <li>Work executed by or on behalf of the Contractor (sub-contractor) shall be in accordance with high standards of safety at all times and shall, inter alia, comply with local laws, and ensure strict adherence.</li> <li>Ensure adequate number of security personnel to maintain security at worksites and in the camps (if established). It will be mandatory for the security personnel to provide a clearance certificate from the police station.</li> <li>Maintain communication through employer with local police and law enforcement agencies and inform about construction activities particularly for sensitive areas.</li> <li>Compliance with Security Management Plan, also reviewed and updated periodically in view of the current security situation of the area.</li> <li>Subproject construction sites and labor camps will be properly fenced, with tight access restrictions in place. Ensuring adequate security arrangements are made at construction sites and labor camps (such as security personnel deployed at entrances, security patrols, CCTV cameras, etc.).</li> <li>Prepare emergency evacuation procedure and display emergency contact numbers;</li> <li>Ensure the effective implementation of GRM.</li> </ul>	Contractor	Monthly	<ul style="list-style-type: none"> <li>Regular Monitoring</li> <li>Implementation of Security Plan</li> <li>Consultation with Security Agencies</li> </ul>	E&S Staff of:  PIU-A PIU-B PDSC
16.	<p><b>Labour Influx</b></p> <p>Conflicts between local communities and outside labor, increased illicit behavior and crime, increased burden on local</p>	<ul style="list-style-type: none"> <li>Ensure compliance with LMP and workers code of conduct.</li> <li>Ensure the effective implementation of GRM.</li> </ul>	Contractor	Monthly	<ul style="list-style-type: none"> <li>Visual checks,</li> <li>GRM implementation</li> </ul>	E&S Staff of:  PIU-A

Sr. No	Project Impacts	Mitigation Measure	Implemented by	Monitoring Frequency	Monitoring Mechanism	Monitored by
	public services and utilities, the spread of communicable diseases, and risk of GBV/SEA/SH.	<ul style="list-style-type: none"> <li>Locals will be given preference in hiring where possible, for both skilled and unskilled labor.</li> <li>Respect local cultural norms and will receive training on cultural sensitivity and conduct.</li> <li>Contractor shall ensure the effective implementation of GRM.</li> </ul>			<ul style="list-style-type: none"> <li>Training Records</li> <li>LMP</li> <li>Worker's code of conduct</li> </ul>	PIU-B PDSC
17.	<b>Gender Base Violence (GBV)</b> Risks of GBV/SEA/SH may arise during civil works activities, contact between project workers and community beneficiaries and capacity building activities.	<ul style="list-style-type: none"> <li>Ensure compliance with GBV/SEA/SH Action Plan;</li> <li>Ensure the effective implementation of GRM.</li> <li>Labor and or other staff will be educated and made aware of the civil, social, and legal rights of women and vulnerable groups and about the actions taken in the event of GBV and SEA/SH.</li> <li>Awareness session will be conducted regularly for community and workers through skilled trainers/ service providers.</li> <li>Targeted communications and awareness to women regarding potential SEA / GBV risks, especially as literacy rates amongst women are lower.</li> <li>Project staff (skilled and unskilled) will sign the code of conduct before commencement of civil works.</li> <li>Service providers will be identified and mapped to address SEA/SH issues.</li> <li>Provision related to SEA/SH or GBV will be incorporated in the bidding document.</li> </ul>	Contractor	Monthly	<ul style="list-style-type: none"> <li>Regular Monitoring</li> <li>Grievance Record</li> <li>Training and awareness Record</li> <li>Compliance with GBV/SEA/SH Action Plan Implementation</li> </ul>	E&S Staff of:  PIU-A PIU-B PDSC
18.	<b>Force/Child Labor</b> Project may involve the use of child forced/child labor. These risks are likely to be higher in economically disadvantaged and remote areas.	<ul style="list-style-type: none"> <li>Hiring children below the age of 14 for any type of labor, and below the age of 18 for hazardous work will be prohibited.</li> <li>Ensure regular monitoring to check for child labor and will hold regular consultations to keep a check on forced labor. Follow the provincial labour laws and World Bank requirements during hiring the labor force.</li> <li>Awareness will be created among the local communities and project staff.</li> <li>Beneficiaries and primary suppliers will be made aware of the provincial labour laws and World Bank regulations regarding child/forced labor.</li> </ul>	Contractor	Monthly	<ul style="list-style-type: none"> <li>Regular Monitoring</li> <li>Grievance Record</li> <li>Compliance with LMP</li> </ul>	E&S Staff of:  PIU-A PIU-B PDSC
19.	<b>Elite Capture, Exploitation and Exclusion of Disadvantaged or Vulnerable Groups</b> Influential people might interfere in the selection of beneficiaries. There is a risk that vulnerable groups and communities may be excluded from stakeholder consultations, limiting their ability to provide feedback on project design and impacts, and potentially preventing them from fully benefiting from the project. Significant contact between Project workers and beneficiary communities, may result in the exploitation of economically disadvantaged, flood affected, or otherwise vulnerable community members. Ill-planned community/tribal engagements can lead to conflicts which can be violent for the communities and the Project workers.	<ul style="list-style-type: none"> <li>A comprehensive Stakeholder Engagement Plan (SEP) has been developed and will be implemented during course of project.</li> <li>Ensure the compliance with the GRM.</li> <li>Ensure that only the genuine beneficiaries are enlisted for the project support.</li> <li>Project shall pay particular attention to most underserved population of Quetta who live in kacchi abadis through the construction of standposts and toilets in these communities and the people with disabilities to access the standposts and toilets.</li> <li>Project staff will be trained on social inclusion and stakeholder engagement.</li> </ul>	Contractor	Monthly	<ul style="list-style-type: none"> <li>Grievance Record,</li> <li>Implementation of SEP</li> </ul>	E&S Staff of:  PIU-A PIU-B PDSC
20.	<b>Chance Findings of Important Physical and Cultural Resources</b> Project may encounter the chance finding of important physical cultural resources during the implementation.	<ul style="list-style-type: none"> <li>Subprojects sites will be screened prior to commencement of civil work;</li> <li>Ensure the compliance with the chance find procedure.</li> </ul>	Contractor	Monthly	<ul style="list-style-type: none"> <li>Visual Monitoring</li> <li>Compliance with Chance find Procedures</li> </ul>	E&S Staff of:  PIU-A PIU-B PDSC
21.	<b>Land Acquisition and Involuntary Resettlement</b> Project will prioritize the use of existing government lands if required for civil works. Under Component A, the	A Resettlement Framework (RF) has been prepared for the project, and Resettlement Plans (RPs) will be prepared during implementation after identification of site-specific impacts. The RF focuses on mitigating land taking	PMU/PIU	Monthly	<ul style="list-style-type: none"> <li>Regular Monitoring</li> </ul>	E&S Staff of:  PIU-A

Sr. No	Project Impacts	Mitigation Measure	Implemented by	Monitoring Frequency	Monitoring Mechanism	Monitored by
	rehabilitation/construction of on-farm community water infrastructure such as water channels, rainwater harvesting structures and access roads may require community lands through Voluntary Land Donation (VLD) where government lands are not available and VLD is acceptable as per requirements of ESS5. Activities under Component B carry a risk of temporary economic and physical displacement of people and businesses and removal of informal settlers (encroachers) during the rehabilitation of water supply and sewage infrastructure in the densely populated and congested areas of Quetta city including 'kachi abadis' (slums). Public lands in Quetta city and Balochistan as a whole are loosely documented, and hence may be encroached.	impacts through negotiated agreement, expropriation and compensation and includes annexures with protocols for acceptance of VLD where circumstances meet requirements under ESS5.			<ul style="list-style-type: none"> <li>Compliance with RPF</li> </ul>	PIU-B PDSC
22.	<p><b>Gender Inclusion</b> Women under Component A may fail to benefit and be excluded from on-farm water productivity activities due to lack of inclusion of women in WUAs. Poor access to clean water sources in rural and urban areas also disproportionately affects women's health and well-being. Incorporate design of infrastructure may limit access to water for irrigation and other agricultural activities.</p> <p>In QWASA specifically, a number of barriers undermine women's attraction, recruitment, retention, and advancement in the institution. Moreover, limited training opportunities for female staff (for example, in the past year, women were absent from a technical training attended by male staff) and the lack of female-friendly workplace facilities and amenities (such as the lack of the provision of childcare facilities/monetary assistance for childcare) makes it challenging for women to remain and advance in the workplace.</p>	<ul style="list-style-type: none"> <li>Project will engage with local NGOs and Women Water Network such as Aurat Foundation in Quetta to ensure female participation in consultations and ensure women's voice is heard for the flood protection, agriculture productivity and watershed management activities.</li> <li>Project shall ensure women's representation and leadership in the WUAs by establishing a quota of X% for decision-making positions held by women and providing women in these positions, and more broadly female members in WUAs, with training in leadership and negotiation, as well as in technical skills such as financial management and O&amp;M;</li> <li>Separate trainings shall also provide to women on agricultural productivity, climate smart agriculture, horticulture, livestock, and kitchen gardening and income generation activities to improve their resilience to climatic shocks.</li> <li>Project will improve women representation in technical and management/leadership within QWASA, where currently only X percent of technical and Y % of decision-making positions are held by women.</li> </ul>	Relevant Project Staff  Design Consultant  WUAs	Monthly/ As and when required basis	<ul style="list-style-type: none"> <li>Grievance Record,</li> <li>Implementation of SEP</li> <li>Compliance with Project Criteria for beneficiaries</li> </ul>	E&S Staff of:  PIU-A PIU-B PDSC
<b>Environmental and Social Mitigation and Monitoring- Operation Phase</b>						
23.	<b>Water Borne Diseases</b> health risks due to mosquitoes produced in the water storage ponds.	<ul style="list-style-type: none"> <li>Capacity building component of the project will address the importance of safe drinking water and hygienic practices.</li> <li>Conduct regular inspections to identify potential issues early on and take prompt action.</li> </ul>	Relevant Implementing Agency	As and when required basis/quarterly	Regular monitoring	E&S staff/ designated staff of Relevant Implementing Agency
24.	<b>Reduction in Storage Capacity</b> Sedimentation may reduce the capacity and become ineffective.	<ul style="list-style-type: none"> <li>Conduct regular monitoring to observe the performance of ponds.</li> <li>Proper desilting shall be done at least when pond is 50% silted up.</li> <li>Watershed Management/Afforestation as a part of this project will help to control sedimentation.</li> </ul>	Relevant Implementing Agency	As and when required basis/ quarterly	Regular monitoring	E&S staff/ designated staff of Relevant Implementing Agency

Sr. No	Project Impacts	Mitigation Measure	Implemented by	Monitoring Frequency	Monitoring Mechanism	Monitored by
25.	<b>Improper Distribution of Water</b> Increased water consumption at upstream may potentially affect other water users.	<ul style="list-style-type: none"> <li>• Proper water distribution through engaging WUAs shall be ensured.</li> <li>• Conduct capacity building and awareness sessions for WUAs.</li> <li>• Water saved through the project interventions shall be used to address the water stress and/or to bring the fallow land under cultivation.</li> </ul>	Relevant Implementing Agency	As and when required basis/ quarterly	<ul style="list-style-type: none"> <li>• Regular monitoring</li> <li>• Consultations with relevant stakeholders</li> </ul>	E&S staff/ designated staff of Relevant Implementing Agency
26.	<b>Enhanced Use of Pesticides</b> Extended and indiscriminate use of pesticides may result in pest outbreaks as well as adverse effects on locals working in the agricultural fields and the surrounding environments.	<ul style="list-style-type: none"> <li>• Awareness and training program shall be conducted regarding pest management, sustainable use of fertilizers, safe disposal of empty containers.</li> <li>• Use of restricted pesticides identified by WHO shall not be allowed.</li> </ul>	Relevant Implementing Agency	As and when required basis	<ul style="list-style-type: none"> <li>• Regular monitoring</li> <li>• Training and awareness sessions</li> </ul>	E&S staff/ designated staff of Relevant Implementing Agency
27.	<b>Non-Functionality of Water User Associations</b> Inefficient use of water resources and related facilities.	<ul style="list-style-type: none"> <li>• Support Organizations (SO) will assist with the formation and training of water users associations (WUAs), responsible for management, operation, and maintenance of on-farm water management structures and equipment to be supported under the project.</li> <li>• Farmers' awareness shall be raised on climate change and groundwater recharge through participatory training.</li> </ul>	Relevant Implementing Agency	As and when required basis	<ul style="list-style-type: none"> <li>• Regular monitoring</li> <li>• Training and awareness sessions</li> </ul>	E&S staff/ designated staff of Relevant Implementing Agency
28.	<b>Maintenance of Water Supply Lines</b> Accidental leakages, bursts and blockages of lines etc. health risks due to overdosing of disinfectant, contamination by the nearby sewer line, contaminate the soil as well as groundwater resources.	<ul style="list-style-type: none"> <li>• Ensure regular inspection of the condition of water structures and identifying areas that need repair and maintenance.</li> <li>• Maintain records; review previous water maintenance records to help identify "hot spots" or areas with frequent maintenance problems.</li> <li>• Develop an Emergency Response System for the water system leaks, burst and overflows.</li> <li>• Provide necessary health and safety training to the staff.</li> <li>• Develop standard operating procedures for operation and maintenance of water supply lines.</li> <li>• Regular monitoring of chlorine dosing as per recommended values.</li> <li>• Safety protocols related to disinfectant process shall be communicated to the workers.</li> <li>• Development of a system to register public complaints and timely resolution.</li> </ul>	Relevant Implementing Agency	As and when required basis	Regular monitoring Training records	E&S staff/ designated staff of Relevant Implementing Agency
29.	<b>Fire and Explosions Hazard</b> Improper handling and storage of chemicals, and electric installations may lead to fire and explosion and pose health risks to worker.	<ul style="list-style-type: none"> <li>• Prepare and implement the O&amp;M phase OHS management plan.</li> <li>• Conduct regular monitoring.</li> <li>• Workers and staff will be trained on handling and controlling accidental spillage of flammable substances.</li> <li>• Appropriate fire safety equipment will be installed at convenient locations.</li> <li>• Equipment will be regularly examined and maintained.</li> <li>• Fire drills will be conducted at least biannually.</li> <li>• Fire awareness materials will be placed at appropriate locations.</li> </ul>	Relevant Implementing Agency	As and when required basis/ quarterly	<ul style="list-style-type: none"> <li>• Regular monitoring</li> <li>• Training and awareness session records</li> </ul>	E&S staff/ designated staff of Relevant Implementing Agency



## 8.8. MONITORING

Monitoring will be carried out to ensure that the mitigation plans are regularly and effectively implemented. It will be performed at PMU, PIUs, field level and by the Contractor. Two complementary methodology approaches are being applied to monitor the proposed actions under the ESMF:

Compliance monitoring; which checks whether the actions proposed by the ESMF/ E&S Instruments have been carried out by visual observation, photographic documentation and the use of checklists prepared for the ESMF; and Effects monitoring; which records the consequences of program activities on the biophysical and social environment; as applicable, these effects are repeatedly measured by applying selected indicators.

A separate monitoring checklist will be developed by PIUs based on the ESMPs, which will be used by field monitor on monthly basis. The sample monitoring checklist is provided in **Annex-I**.

## 8.9. REPORTING AND DOCUMENTATION

At a minimum, the reporting will include (i) the overall implementation of E&S risk management instruments and measures, (ii) any environmental or social issues arising as a result of project activities and how these issues will be remedied or mitigated, including timelines, (iii) Occupational Health and Safety performance (including incidents and accidents), (iv) community health and safety, (v) stakeholder engagement updates, in line with the SEP, (vi) public notification and communications, (vii) progress on the implementation and completion of project works, and (viii) summary of grievances/beneficiary feedback received, actions taken, and complaints closed out, in line with the SEP.

The PIUs become aware of a serious incident in connection with the project, which may have significant adverse effects on the environment, the affected communities, the public, or workers, it should notify the World Bank within 48 hours of becoming aware of such incident, as per the procedure defined in the LMP.

Reports from the field levels will be submitted to the relevant PIUs, where they will be aggregated and submitted to the World Bank on a quarterly basis. The reporting requirements are provided in **Table 8.5**

**Table 8-5: Reporting Requirements**

Sr. No.	Type of Reporting	Frequency	Responsibility	Submitted to
1	Visit Reports and Consultations with relevant stakeholders (with date, time, venue and photographs)	Monthly	E&SD Specialists	Relevant PIU
2	E&S Screening Checklists and Screening Reports	As and when required basis	E&SD Specialists	Relevant PIUs and World Bank
3	E&S Monitoring Checklists	Monthly	E&SD Specialists	Relevant PIU

Sr. No.	Type of Reporting	Frequency	Responsibility	Submitted to
4	Progress Reports	Quarterly	PIUs <sup>44</sup>	World Bank
5	Incident and Accident Reporting	Within 48 hours	PIUs	World Bank
6	Training Reports	Biannual	PIUs	World Bank
7	MEC/ Third Party Reports	Annually	PIUs	PSC
8	Completion Report	After completion of Project	PIUs	World Bank

## 8.10. TRAINING AND CAPACITY BUILDING

To ensure the successful implementation of ESMF and compliance of the E&S mitigation measures, strengthening capacity of project staff and workers is essential. This will be achieved through a series of customized trainings and awareness sessions. **Table 8.6** below provides the capacity building / training framework for the proposed project.

**Table 8-6: Capacity Building and Training Framework**

Sr. No.	Key Areas	Key Aspects to Cover	Potential Participants	Frequency of Training	Responsibility
1.	E&S Orientation / Awareness	E&S awareness; WB Environmental and Social Standards (ESSs); OHS and CHS aspects; Local E&S Legal requirements; ESMF findings; Checklist /ESMP and its components; and GBV and GRM. Reporting on incidents and accidents and emergency preparation and response preparedness Labor Management Procedures Resettlement and Land Acquisition	BWSPIP Project staff <sup>45</sup> Contractor Staff Local Communities including WUAs	At the start of the project; and  Refresher afterwards as and when required/bi-annual basis	E&S Specialists of PIUs with the support of PDSC
2.	GBV/SEA/SH	Prevention of GBV/SEA/SH GRM for GBV/SEA/SH	BWSPIP Project staff Consultant and Contractor Staff Local Communities including WUAs	At the start of the project; and  Refresher afterwards as and when required/ bi-annual.	Social and Gender Specialists of PIUs with the support of PDSC

<sup>44</sup> Prepare the quarterly reports.

<sup>45</sup> PIUs

Sr. No.	Key Areas	Key Aspects to Cover	Potential Participants	Frequency of Training	Responsibility
3.	ESMF/ESMP Implementation	ESMF components; Key steps for the implementation of ESMF; Checklists used in the field; GRM & GBV; Checklist /ESMP implementation; and Documentation and reporting.	BWSPIP Project staff Consultant and Contractor Staff Local Communities including WUAs	At the start of the project; and  Refresher afterwards as and when required/ bi-annual	E&S Specialists of PIUs with the support of PDSC.
4.	E&S Management	E&S mitigation plans; Stakeholder mapping and engagement OHS and CHS aspects Emergency Prevention, preparedness and response planning Resource Efficiency and Pollution Prevention and Management	BWSPIP Project staff Consultant and Contractor Staff Local Communities including WUAs	At the start of the project; and On-going/informal	E&S Specialists of PIUs with the support of PDSC.

### 8.11. ESMF DISCLOSURE

The ESMF and other E&S documents after review and clearance from the bank will be disclosed on the official website of BWSPIP, and shall also be available in World Bank repositories. Executive summaries of each instrument will be translated into Urdu/Pashto/Balochi and will also be made available.

### 8.12. TENTATIVE ESMF IMPLEMENTATION BUDGET

**Table 8.7** presents the estimated cost of ESMF implementation. This tentative cost will be included in the overall project cost. This cost will be reviewed and firmed up when the project footprints will be finalized at subproject level to ensure realism. Additional costs could be included in the subproject specific ESMPs that will become part of each bidding/BOQ documents. The Contractor(s) however shall be paid against the actual execution with evidential proof of relevant E&S instruments activity.

**Table 8-7: Estimated Budget**

Item	Frequency/ Quantity	Unit Rate (PKR)	Estimated Cost (Million PKR)	Remarks
Environmental Specialist	01	300,000	28.8	BIWRMDP PMU at BID currently has Environmental and Social Development Specialists. Therefore, one Environmental Specialist and One Social Development Specialist shall be hired for PIU for Component- B. This is the tentative monthly cost for 8-years, and shall be
Social Development Specialist	01	300,000	28.8	

Item	Frequency/ Quantity	Unit Rate (PKR)	Estimated Cost (Million PKR)	Remarks
				reassessed annually with increment.
Gender Specialists	02	300,000	28.8	For both PIUs. This is the tentative monthly cost for 8-years, and shall be reassessed annually with increment.
Trainings and Capacity Building	16	1000,000	16	
ESMP Preparation Cost	Lump sum		25.0	
GRM Implementation Cost	Lump sum		2.0	
Implementation Cost of GBV/SEA/SH Action Plan	Lump sum		2.0	
PPEs and Fire Safety Equipment Cost	Lump sum		60.0	PPEs: helmet, vest, gloves, shoes, dust masks, harness, earplugs etc.
Cost of Mitigation Measures	--		--	Cost will be included in respective subproject bidding/estimated costs.
Third party Audit/Monitoring	Annual	1000,000	80.0	Lump sum
<b>Total</b>			<b>271.4</b>	Tentative cost for 8-year. The cost shall be updated based on the current market prices during implementation.

# **ANNEXES**

## ANNEX-A

## Key Interventions Under Component A and B

Sr. No.	Description
<b>Component A: Improving Water Availability, Productivity, and Efficiency in The Kachhi Plains and In Pishin-Lora Basin</b>	
<b>A1</b>	<b>Water Infrastructure</b>
1.	Construction of Dispersal Structures
2.	Providing, Installing, Commissioning and Testing of Gates & Gearing Equipment's including Electrical & Mechanical Operating System
3.	Construction of Flood Protection Embankments
4.	Stone pitching, stone apron to proposed and existing flood embankments on critical sites
5.	All weather road by providing Shingle on top of Flood embankments
6.	Rehabilitation of Existing Hydraulic Structures, channels
7.	Rehabilitation of Existing Buildings
<b>A2</b>	<b>Watershed Management</b>
1.	Flood Water Ponding for Drinking Water on all three river basins
2.	Flood Control and Storage Ponds in selected locations of Nari, Talli and Lehri
3.	Water Shed & Range Land Management and afforestation (Deposit Work)
4.	On farm Water Management (Deposit Work)
<b>A3</b>	<b>Improvements of Farm Productivity and Water Use Efficiency</b>
1.	Installation of HEIS
2.	Land Leveling
3.	Water Course Improvement
4.	Improvement of Production and Post-harvest Technologies
5.	Construction/Rehabilitation of Watercourses, Water Storage Tanks/Ponds and Farm Access Tracks.
<b>Component B: Improving Water Supply Service Delivery in Quetta</b>	
<b>B1</b>	<b>Bulk Water Supply to Quetta</b>
1.	Sewerage System to Maximize utilization of STP Sabzal & it's Solarization
2.	Construction of New Underground / Overhead Reservoirs and Laying of Water Distribution Lines.
3.	Water supply infrastructure improvement works
4.	Revival / Improvement of Community Water Filtration Plants of Quetta City.
5.	Construction of Public Stand posts and Public Toilets.
<b>B2</b>	<b>Improving Water Supply Service Delivery in Quetta</b>
1.	SCADA System for 41 Tube wells
2.	Works related to exploration of new tube wells and well fields by WASA.
3.	S/F Electromagnetic water flow meter
4.	Ground Water Recharge for Revival of WASA Schemes in Alluvial Aquifers
5.	Compressor cleaning 32 tube wells
	Customized Submersible and Centrifugal Pumps
	Replacement of Outlived Transformers
	Providing & Fabrication of trolley mounted 100 KVA transformers
6.	<b>Proposed Surface Water Conveyance Works required for Water Supply to Quetta City:</b>
	(i) From Wali Tangi Dam to City and Cantonment Area. (ii) From Spin Karez to City and Cantonment Area.

Sr. No.	Description
	<p>(iii) From Wali Tangi Dam to Spin Karez.</p> <p>Laying of 11.5 Km long HDPE waterline of 200 mm dia. to convey water from Kach Dam to WASA Saraghorgai Reservoir including the Construction of Outlet Works, Construction of Storage Tank (01 No.) and Construction of Filtration Plant of 0.5 Million Gallon Capacity.</p> <p>Laying of 7.5 Km long HDPE waterline of 200 mm dia. to convey water from Saraghorgai Dam to WASA Saraghorgai Reservoir including the Construction of Outlet Works, Construction of Storage Tank (01 No.) and Construction of Filtration Plant of 0.2 MGD Capacity.</p>
7.	Assessment Surveys for Site Selection with GIS Mapping.
8.	Preparation of Watershed Management Plan for Quetta.
9.	Water Harvesting System for the augmentation of Hanna Urak Valley.
10.	Construction of recharge groundwater aquifer/ponds, stock water ponds for wildlife, water spreading diversion structures/dykes, valley dykes, contour ridges, contour trenches, hillside ditches etc.
11.	Construction of Check Dams (Small sized mini earthen, loose stone, pack stone, gabion and dykes).
12.	Injection /Observatory Wells
<b>B3</b>	<b>Strengthening the Performance of Q-WASA</b>
1.	Construction of WASA Customer Facilitation Centers (10 Nos)
2.	Procurement of equipment

## ANNEX-B

## LIST OF STAKEHOLDERS CONSULTED AND KEY FINDINGS

## Stakeholder Consulted for Component A (Kachhi Plain Areas)

Sr. No.	Settlement	Tehsil	District	Number of Participants
1.	Talli	Sibi	Sibi	30
2.	Bokha Ghulam Bolak			22
3.	Ghulam Bolak			07
4.	Qasir Gahramzai			06
5.	Mall Gahramzai			17
6.	Juma Kash			08
7.	Goth Chandia			09
8.	Sultan Kot			14
9.	Arbab Chachar			12
10.	Mal Gorgage			10
11.	Sibi City (Women Consultation)			08
12.	Theri Barmani	Lehri	Sibi	07
13.	Ralo Mian Khan			12
14.	Ralo Gulib			10
15.	Hujo Machta			05
16.	Lehri			05
17.	Goht Haji Tuma Khan			04
18.	Khairwah			08
19.	Basti Kashmir (Sherkal)			08
20.	Bakhtiar Abad (Women Consultation)			09
21.	Haji Jabalana	Bagh	Kachhi	06
22.	Jalal Khan			10
23.	Rehanzai New			07
24.	Mogari			05
25.	Dhadar City (Women Consultation)	Dhadar	Kachhi	07

## List of Shareholder Claimant in Kach Dam Area of Quetta

Sr. No.	Principal Shareholder	Progenies
1.	Abdullah Khan	Haji Alam
		Muhammad Azam
		Muhammad Akram
		Haji Ishaq
		Ajmal Khan
2.	Ghulam Sarwar	Haji Mira Jan
		Muhammad Nawaz
		Muhammad Akbar
		Ibrahim
		Ismail
		Muhammad Hashim
		Muhammad Anwar
3.	Nadir Khan	Niamatullah
		Muhammad Arif



Sr. No.	Principal Shareholder	Progenies
		Noor U Ilah
		Imran
		Asmat
		Muhammad Aziz
4.	Malik Haji Ghulam Hydar	Malik Payand
		Malik Tariq
		Haji Mir Hassan (Late)
		Muhammad Iqbal
5.	Lal Muhammad	Muhammad Rahim
		Allauddin
		Zar Gul
6.	Haji Aslam	Abdul Bari
		Hajan

#### List of Participants of FGD at Shabal Village Quetta

Sr. No	Name	Father's Name
1.	Malik Payand	
2.	Gul	Rahim
3.	Owais Khan	Haji Iqbal
4.	Saeed Khan	Tariq
5.	Khairo	Sultan
6.	Rehmatullah	Ghulam Rasool
7.	Muhammad Anwar	Gul
8.	Shadi Khan	Ghulam Rasool
9.	Qiyamudin	

#### List of Participants of Sra Khula Dam Village Quetta

Sr. No	Name	Father's Name
1.	Haji Din Muhammad	Abdul Rahim
2.	Khalil Ahmad	Amir Ahmad
3.	Bor Muhammad	Haji Faqir Muhammad
4.	Ahmad Jan	
5.	Parvez Khan	Muhammad Azam
6.	Hikmatullah	Haji Din Muhammad
7.	Amirullah	Faizaul Haq
8.	Haji Faiz Muhammad	Ghulam Muhammad
9.	Mushtaq Ahmad	Faqir Muhammad
10.	Ali Ahmad	Shah Muhammad
11.	Naseebullah	Shah Muhammad

#### Consultation with Institutional Stakeholders

Sr. No	Department/Organization	Designation
1.	PMU	Project Director
		Social Safeguard Specialist
		Environment Specialist
		M&E Specialist
2.	A.C Bagh	Assistant Commissioner

Sr. No	Department/Organization	Designation
3.	Agriculture Department, Quetta	Director General
4.	Forest Department, Quetta	Conservator/P.D 10 Billion Tree Project
		CF M&E
		Media coordinator
5.	PCRWR, Quetta	Assistant Director
		Scientific officer
6.	Forest Department, Sibi	Conservator
7.	Wildlife Department, Sibi	Assistant Conservator
8.	Agriculture Department, Sibi	Agriculture Officer
9.	OFWM, Sibi	Deputy Director
		Sub-Engineer
		Water Management Officer
10.	Irrigation Department, Haji Shahr	S.D.O
		Gate Supervisor
11.	Forest Department, Dhadar	D.F.O
		D.F.O

#### Consultations along with its Dates to Stakeholder Departments

Date	Venue	Participants	Agenda / Discussion
February 16, 2023	Project Directorate	BIWRMDP Team	Component-B Sub- Projects Introductory meeting
February 21, 2023	WASA Office	MD QWASA and Team	Component-B Sub-Projects Introductory meeting
February 22, 2023	Secretariat	Secretary of Irrigation	Component-B Sub-Projects Introductory meeting
February 22, 2023	Urban Planning & Development Dept Office	Urban Planning & Development Dept.	Component-B Sub-Projects Introductory meeting
February 22, 2023	Urban Local Government Office	Urban Local Government	Component-B Sub-Projects Introductory meeting
February 23, 2023	Pearl Continental	World Bank	Component-B Sub-Projects Introductory meeting
February 23, 2023	ACE Quetta Cantt.	QMES and Irrigation Department	Component-B Sub-Projects Introductory meeting
March 01, 2023	Agriculture Department Office	Agriculture Department	Component-B Sub-Projects Introductory meeting
March 13, 2023	Project Directorate	World Bank, BIWRMDP Team, TCI, MMP	Progress update and discussion over PC-I
March 14, 2023	Secretariat	Secretary of Irrigation	Discussion over PC-I
March 14, 2023	WASA Office	Managing Director, QWASA	Data collection and discussion over PC-I
March 14, 2023	Forest Department Office	Forest Department	Data collection and discussion over PC-I
March 16, 2023	WASA Office	Chief Engr., QWASA	Data collection and discussion over PC-I
March 21, 2023	Project Directorate	World Bank, BIWRMDP Team, TCI, MMP	Discussion over PC-I
March 28, 2023	Project Directorate	World Bank, BIWRMDP Team, TCI, MMP	Update on Progress and presentation

**Key findings of stakeholder consultations****Component- A****Stakeholders' Concerns/ Feedback and Response- Community Level**

<b>Sr. No.</b>	<b>Feedback and Concerns</b>	<b>Response</b>
1.	Almost the stakeholder of all settlements of the project area requested that they want water for their life and their livelihood.	The proposed project has been initiated by Irrigation Department to give the water for settlements through effective flood management and to build the ponds for water storage.
2.	Employment opportunities should be provided to local skilled and unskilled labour in the project, as to improve the livelihood of the locals.	The contractor will be contractually bound to disclose the "Recruitment Policy" that specifically includes a requirement to prioritize local employment for unskilled and semi-skilled positions that become available.
3.	Compensation for the houses and other private/ community assets should be fixed in accordance with current market rates/replacement cost.	The valuation of built-up structures is based on current market value but with consideration of the cost of new construction of the structure, with no deduction for depreciation.
4.	Is there a grievance redress mechanism system in place and will it be effective?	The grievance redress mechanism has been developed for the project to handle issues fairly.
5.	The Contractor will inform residents of the area about detail of work, likely disturbances and their duration and as to whom they should address their complaints.	Prior to starting of work, the contractor shall prepare a method statement for major construction activities and share with all stakeholders. This shall be simple and explain the contractor's work process that is actually conducted on site, with safety and safeguard concerns.
6.	The rehabilitation of these water resources will be beneficial for the entire area and also beneficial for social and a significant environmental enhancement is also expected.	This project team committed to providing local residents for effective, comfortable and healthy environment.
7.	The relevant Government personnel must ensure the Contractor staff is cooperative with the locals and maintain the right attitude and try to facilitate them instead of being confrontational.	During the project implementation stage, measures will be prepared that will include GRM and institutional arrangements. In addition, the contractors will respect the local culture and norms.
8.	The stakeholders also expressed the desire to receive regular updates on the project development from the relevant Government departments.	Comment has been incorporated in the ESMF report.
9.	The community perception of the project is good and most of the people wish to see immediate implementation of the project.	Noted.
10.	Religious and educational structures like mosques, madrassas and graveyards	Noted. Necessary measures have been provided in the ESMF to minimize the land

Sr. No.	Feedback and Concerns	Response
	should be saved from demolishing as such as possible.	acquisition and involuntary resettlement, if required.
11.	Ensure adequate compensation for the loss of land. Payments to be made only to the legitimate owners at the prevailing market rates.	Resettlement planning document will be prepared, if required, based on the guidance provided in the RPF to ensure the adequate compensation based on the market price.
12.	The local representatives of the community requested to raise awareness about tree plantation.	Necessary measures have been provided in the ESMF. Compensatory plantation will be carried out with a ratio of five trees for each tree fell/cut.
13.	The local representatives of the community requested that the staff of contractor should be cooperate with local communities on their cultural norms and values.	The contractor will be developed and enforced a strict code of conduct for workers to regulate behavior in the local communities. To avoid conflicts among local people on employment matter, it is proposed that the Contractor employs the locals in cooperation with local administration in unskilled and semi-skilled duties.
14.	People are willing to provide Sra Khula Dam and Sra Ghurgai Dam reservoir water for Quetta city but with the willingness of existing village committee (a community-based organization). Employment opportunities should be provided to locals and ensure proper allocation of community water share.	Meaningful consultation with the respective communities on regular basis. Proper allocation of proportionate water share for irrigation and drinking purpose shall be considered in the design.

## **Consultations of Component B**

### **Consultation with Communities of Quetta**

Findings and recommended actions of consultation with the communities along the proposed surface water sources are presented as follows;

### **Overall Findings of the consultations:**

The overall region of Quetta Division is water stressed zone. Proper water resources management plays a crucial role in Quetta's development and survival as a capital city. Large influx of migrants and refugees explosively increased population and water demand in the last 30 - 40 years. Coupled with rapidly dropping groundwater levels, the city and surrounding villages need massive and rapid intervention to rectify and improve its water supply situation. Community acceptance and cooperation are most important factors for the feasibility of the selected short-term sub-projects. Therefore, in this report, great emphasis was put on the social dimensions associated with the planning, implementation and sustainable operation of the envisioned ensuing sub-projects.

In general, the social aspects of the reported sub-projects are (i) the beneficiaries of the project are the citizens of Quetta city; and (ii) the communities settled in the vicinity of the sub-projects are the owners of the land or perceived as actual beneficiaries (in term of incremental recharge

of groundwater or direct use for irrigation and domestic use) of the commissioned and under construction dam sub-project are non-beneficiaries or disadvantaged communities under the proposed withdrawal of raw water for Quetta city. Therefore, to avoid social conflicts on the sub - projects at the construction stage, the following action are imperative for the feasibility of the sub- projects;

This is an initial consultation (covered in this report) and in future meaningful consultation with the legally entitled land-owning community's participation;

Signing of formal agreements between B-WASA/PHE or Balochistan Irrigation department and involvement are important factors towards the feasibility and success of the project; and; Participatory development processes need to be mainstreamed during the project preparation, construction and O&M process or its activities.

Overall; the communities' perceptions the land-owning communities in term of Dam construction and installation of transmission pipelines for water withdrawal was conditionally appreciative and expressed their concurrence. They have one concern that in future when the population growth increases and the demand water would be high, if the complete right of water use is given to BWASA/PHE, they (communities) will be deprived from the right of water use for drinking and irrigation. The sub-project wise consultation findings are discussed as follows;

#### **Sra Ghurgai Dam Village**

During consultation with the tribal elder Malik Mohammad Khan, it was ascertained that they are willing to provide Sra Ghurgai Dam reservoir water for Quetta city but have requested for some time to discuss the matter with the existing village committee (a community-based organization).

It was informed by the tribal elder that in the past B-WASA developed eleven tube wells in their communal hill terrains situated in north of the village. Consequently, the Thalari Kareze which was major source of water for drinking and irrigation purposes of the village was dried up. At that time, the villagers were well aware of the reported negative consequences of the tube wells development at the source of Thalari Kareze and have signed an agreement with B-WASA to provide drinking water to Sra Ghurgai on first priority. However, the following actions are proposed for the Sra Ghurgai Dam sub-project;

Meaningful consultation with the respective communities is required and their request for allocation of proportionate water share for irrigation and drinking needs to be considered.

It was reported that the dam reservoir is silted up due to high sediment load in the river and last year, the communities pumped water for irrigation and the reservoir was emptied within three days' time period.

#### **Sra Khula Dam village:**

Overall the communities were willing to allow construction of the Dam and withdrawal of water for Quetta city with some conditions. During consultation, it was informed that there is another existing Dam in the name Bhaggi Dam commissioned in 1960s and completely silted up. B-

WASA installed a tube well in the reservoir of the Bhaggi Dam in 2007 and a commitment was agreed with the villagers to they will provide appropriate share of water to the community for irrigation and drinking purposes. But unfortunately, this agreement was not respected by one of the party, therefore, this tube well is still non- functional.

Based on the past practices which persist in the area, the B-WASA/PHE or Balochistan Irrigation Department needs to sign a formal agreement with the legally entitled land-owning communities interm of allocation of proper share of water for drinking and irrigation, provision of regular employment opportunities (if required for O&M of Dam and transmission pipeline) to the local people.

#### **Kach Dam Village:**

During consultation in Malik Shabo village and Sra Ghurgai village, the water rights of the Kach Dam are claimed by two villages i.e. Malik Payand Killi (also known as Killi Shabak) and residents of the Sra Ghurgai village. Therefore, it was ascertained that dispute may be raised over the employment and community water share demanded for drinking and irrigation purposes during construction or after construction of the project.

During detailed studies, review of the cadastral record it will be required to confirm the legal ownership of the land. Accordingly, further meaningful consultation needs to be carried out with the legal owners of the land. An agreement between B-WASA/PHE or Baluchistan Irrigation Department and legally entitled land-owning communities on the same course of action proposed for Sra Khula is required. The villagers of the Shabak Killi reported that the land of the under construction Kach Dam is communal property of the village and the following principal shareholders have land rights.

#### **Stakeholders' Concerns/ Feedback and Response-Department Level**

<b>Sr. No.</b>	<b>Departments</b>	<b>Feedback and Concerns</b>	<b>Response</b>
1.	P.D (PMU)	The Project Director explained the need of environmental studies that the importance of environmental protection and conservation measures has been increasingly recognized during the past two decades. It is now generally accepted that economic development strategies must be compatible with environmental goals. This requires the incorporation of environmental dimensions into the process of development. It is important to make choices and decisions that will eventually promote sound development by understanding the environment functions	This ESMF has been prepared in line with local and World Bank ESF requirements.
2.	Project ES Team (PMU)	Ensure Health and Safety (H&S) awareness during project	Necessary measures have been provided in the ESMF.

Sr. No.	Departments	Feedback and Concerns	Response
		implementation. Human health depends on providing safe, adequate, accessible and reliable drinking water. Literature suggests that a person needs, on average, a daily intake of water that ranges from 1.8 to more than 10 litres, depending on the conditions. Someone doing hard labour in the sun requires much more water than a person resting in the shade. This proposed project is the ideal project for sustainable and reliable drinking water through ponds.	
3.	Environment Protection Agency (EPA), Quetta	There is a need to help communities understand, participate in all activities related to this project and also there is a need to work to increase civic engagement in addressing their concerns and facilitate collaboration among local and regional entities to address their problems.	The project has prepared a separate SEP, being a live document, it will be updated throughout the life of the project to ensure effective, robust and transparent stakeholder engagement.
4.	Agriculture Department, Quetta	Local characteristics of land and amount of water available for agriculture is strongly affecting the livelihood of the communities.	The proposed project will definitely improve the livelihood of the local communities through channelize the flood water.
5.	Forest Department, Quetta	The official of Forest Department desire to receive regular updates on the project development. A formal process should be adopted to predict the environmental consequences of human development activities and to plan appropriate measures to eliminate or reduce adverse effects and to augment positive effects.	Definitely, the consultation process will be on-going process and World Bank's disclosure policy will be adopted. Comprehensive environmental and social assessment will be initiated and ESMP will be developed to enhance the positive impacts and to mitigate the negative impacts as well.
6.	WWF Quetta	No migratory birds and endangered species of fauna have been spotted in the Project area or its surroundings. Watching huts may be constructed in the project area to facilitate wildlife watcher. There is a risk of hunting and poaching of animals by the workers	Necessary measures have been provided in the ESMF to cover this aspect.
7.	Forest Department, Sibi	To make the proposed project environment friendly, more trees should be planted and whenever possible cut down of trees during the	Necessary measures have been provided in the ESMF.

Sr. No.	Departments	Feedback and Concerns	Response
		<p>construction phase should be minimized. With so many people still deprived of drinking water, it is essential to build on both positive and negative lessons from the past. The proposed project is the biggest need of the large population of the project area. The official has suggested that there should be reservoirs on specific distances, and from those reservoirs the water should be distributed.</p>	
		<p>Overall, the Projects interventions will have positive impacts on environmental and social conditions, including the positive impacts on environmental, aesthetics and hygienic conditions of the whole area.</p>	<p>Noted.</p>
		<p>There is a breeding farm of Chinkara Deer is established near the Lehri River command area.</p>	<p>Project is not likely to have a significant impact on the biodiversity and forests as most of the construction/rehabilitation activities will be carried out in the built environment. Physical interventions having significant impacts on the crucial and natural habitat shall be excluded from the project.</p>
		<p>No species of IUCN categorization is found in the Project area.</p>	<p>Noted.</p>
8.	Agriculture Department, Sibi	<p>Decreasing of water continues to be one of the most important threats to land eco- systems around the study area. Water is vital for all anthropogenic activities. The proposed project is essential for the improvement of socio-economic development, particularly in the project area. The official informed that local characteristic of land and amount of water available for agriculture is strongly affecting the livelihood of the communities.</p>	<p>The proposed project is aimed towards the introduction of a sustainable flood control infrastructure that will be able to fulfil the needs for the next many decades. The project will result in the drastic improvement of agriculture activities to cater the existing and future food needs. Locals will be benefited by this, as this will contribute to their livelihoods.</p>
9.	Irrigation Department	<p>Community participation is a necessary support for every rehabilitation of flood water management project. The project is an environmentally friendly</p>	<p>The project has prepared a separate SEP, will be updated and implemented throughout the project life cycle.</p>



Sr. No.	Departments	Feedback and Concerns	Response
		developmental project in which many sustainable features are added.	
10.	Forest Department, Dhadar	<p>Consultation with stakeholders in this kind of projects is not just a requirement it is a strategic tool. Consultation creates opportunities to identify key issues that, if left undetected, can threaten the long-term success of a project. Consultation helps project teams, donors, government agencies, and project beneficiaries elaborate on and understand realities at the site. Consultations are opportunities for project designers to capture and build upon local knowledge by involving stakeholders in the design of the project. The official suggested that indigenous plants and environment friendly ornamental trees and shrubs should be planted near the proposed project locations. Unnecessary clearing of vegetation should be strictly prohibited.</p>	<p>The project has prepared a separate SEP, will be updated and implemented throughout the project life cycle. Efforts shall be made to avoid or minimize the cutting of trees/shrubs/herbs and loss of agriculture land. The project will not introduce any alien or non-native species of flora or fauna only selective native species of trees and shrubs will be planted as part of rangeland management.</p>

## ANNEX-C

### WORKERS' CODE OF CONDUCT

I, \_\_\_\_\_, acknowledge that that adhering to environmental, social, health and safety (ESHS) standards, following the project's environmental, social, health and safety (OHS) requirements, preventing GBV/SEA/SH and child abuse/exploitation is important. Any activity, which constitutes acts of gross misconduct is 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:

1. Consent to a security background check;
2. Treat women, children, project staff including other workers, and persons with disability with respect regardless of race, color, language, religion, political or other opinions, national, ethnic, or social origin, property, birth, or another status;
3. Not use language or behavior towards men, women, or children/learners that are inappropriate, harassing, abusive, sexually provocative, demeaning, or culturally inappropriate;
4. Carry out his/her duties competently and diligently;
5. Comply with all applicable national/provincial laws, regulations, and World Bank requirements
6. Comply with the CESMP as approved by the Client to meets its ESHS and OHS objectives as well as preventing and/or mitigating the risks of GBV
7. Maintain a safe working environment including but not limited to:
  - a. Ensuring that workplaces, machinery, equipment, and processes under each person's control are safe and without risk to health, preventing avoidable accidents, and reporting conditions or practices that pose a safety hazard or threaten the environment
  - b. Wearing required personal protective equipment;
  - c. Using appropriate measures relating to chemical, physical and biological substances, and agents; and
  - d. Following applicable emergency operating procedures.
8. Not engage in any form of sexual harassment including unwelcome sexual advances, requests for sexual favors, and other unwanted verbal or physical conduct of a sexual nature at work site, the work site surroundings/nearby communities, or at worker's camps
9. Not participate in sexual activity with children/learners—including grooming or online grooming. Mistaken belief regarding the age of a child and consent from the child is not a defense;
10. Not exchange money, employment, goods, or services for sex, with community members including sexual favors or other forms of humiliating, degrading, or exploitative behavior;
11. Refrain from all forms of GBV, are unacceptable, regardless of whether they take place on the work site, the work site surroundings, at worker's camps or within the local community.

12. Attend training related to HIV and AIDS, SEA/SH, occupational health, and any other relevant courses/Trainings as a part of this project;
13. 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;
14. Regarding children:
  - a. Refrain from hiring children for 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.
  - b. Bring to the attention of my manager the presence of any children on the construction site or engaged in hazardous activities.
  - c. Comply with all relevant local legislation including labor laws and World Bank requirements in relation to child labor and forced labor.
15. Refrain from any form of theft for assets and facilities including from surrounding communities.
16. Remain in the designated working area during working hours;
17. Refrain from possession of alcohol and illegal drugs and other controlled substances in the workplace and being under the influence of these substances on the job and during working hours;
18. Follow prescribed environmental occupation health and safety standards;
19. Channel grievances through the established grievance redress mechanism.

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 prevent and respond to ESHS, OHS, GBV issues. I understand that any action inconsistent with this Code of Conduct or failure to act mandated by this Code of Conduct may result in disciplinary action which could include:

1. Informal warning.
2. Formal warning.
3. Additional Training.
4. Loss of up to one week's salary.
5. Suspension of employment (without payment of salary), for a minimum period of 1 month up to a maximum of 6 months.
6. Termination of employment.
7. Report to the Police if warranted.

Signed by: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

For the Employer/Contractor

Signed by: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## **ANNEX-D**

### **OUTLINE FOR SECURITY MANAGEMENT PLAN**

- Terms and Definitions
- Introduction
- Project Description
- Security Situation in Project Area
- Risk Assessment
- Security Management Team
- Roles and Responsibilities
- Physical Security Measures
- Community Arrangements
- Equipment Security
- Reporting and Documentation
- Standard Operating Procedures
- Incident Response Plan
- Communication Arrangements
- Emergency Response Procedures
- Training and Awareness
- Compliance and Regulations
- Review and Update Procedures
- Annexures

## ANNEX-E

### CHANCE FIND PROCEDURES

Chance Find Procedures Project may involve excavations. Therefore, the possibility of chance find is not ignorable. In case of any chance find, the contractor will immediately report through Supervision Consultant to DG Directorate General of Archaeology, Blochistan and relevant Project Director of PIUs, to take further suitable action to preserve those antique or sensitive remains. Representative of the Director will visit the site and observe the significance of the antique, artefact and Cultural (religious) properties and significance of the project. The report will be prepared by representative and will be given to the Director. The documentation will be completed and if required suitable action will be taken to preserve those antiques and sensitive remains. In case any artefact, antiques and sensitive remains are discovered, chance find procedures should be adopted by contractor workers as follows:

- Stop the construction activities in the areas of chance find.
- After stopping work, the contractor must immediately report the discovery to the Supervision Consultant.
- The Director decides to take over the antiquity for purposes of custody, preservation and protection, the person discovering or finding it shall hand it over to the Director or a person authorized by him in writing.
- Delineate the discovered site or area.
- Consult with the local community and provincial Archaeological Department.
- The Director shall, constitute a team of archaeologists for undertaking preliminary investigation and will decide about further course of action in light of findings of the team.
- The suggestion of the local communities and the concerned authorities will be suitably incorporated during taking the preventive measures to conserve the antique, artefact and cultural (religious) properties; and Secure the site to prevent any damage or loss of removable objects. In case of removable antiquities or sensitive remain, a night guard shall be arranged until the responsible local authorities take over.
- Avoid the use of heavy construction machinery during the excavation process.
- The Contractor staff must have relevant qualification and experience of similar projects.
- Plaster and Painting Works: New Plaster, painting walls and other roof treatment should consider the original color scheme, layout and design to keep the aesthetic and visual impact of the site. Operational Phase: The authority responsible for the O & M of sub project activities will be responsible for housekeeping of the facilities and shall prepare and adopt SOPs for O & M of the subproject facilities. E&S experts/specialists will ensure that O&M plan is operationalized and will do monitoring visits for compliance of O & M plans.
- Training and Capacity Building: The civil work activities shall be carried out by Pre-qualified trained Contractor under supervision of technical staff. The Contractors shall contain team of skilled labors having past experience in similar works. Trainings of the work force should be conducted before start of civil works and during project implementation by the PIUs safeguards specialists and Contractor's. Monitoring and Supervision: Strict Monitoring and supervision as per monitoring plan given in ESMP should be enforced during works.
- GRM: The record of any complaints as per GRM mechanism of the project should be implemented

**ANNEX – F**  
**ENVIRONMENTAL AND SOCIAL SCREENING CHECKLIST**

Name of proposed subproject			
ID of proposed project interventions			
Proposing agency			
Proposed project interventions objective			
Proposed project interventions objective			
Estimated cost			
Proposed date of commencement of civil work			
<b>Screening Question</b>	<b>Yes</b>	<b>No</b>	<b>Remarks</b>
<b>PHYSICAL ENVIRONMENT</b>			
Will the proposed subproject pose the risk of <b>clearance of vegetation</b> that may result in an increase in the level of suspended solids washing into nearby water bodies?			
Will the proposed subproject pose a risk of <b>contaminating water sources</b> due to construction activities?			
Will the proposed subproject <b>deplete groundwater</b> because of the water used during road construction activities?			
Will the proposed subproject result in an increase in <b>ambient air pollution</b> , including chemical and particulate matter due to the construction and operation of related machinery?			
Will the proposed subproject result in an increase in <b>ambient noise levels</b> and vibrations due to the operation of construction machinery/vehicles?			
Will these ambient noise levels be beyond the specifications in the <b>SEQS</b> ?			
Will the proposed subproject lead to <b>erosion hazards</b> ?			
Will the proposed subproject lead to increased <b>soil erosion</b> ?			
Will the proposed subproject result in the generation of <b>hazardous and/or non-hazardous waste</b> ?			
Will the proposed subproject result in ...potential increased health risks for <b>project workers and communities</b> (e.g. COVID-19)?			
Is the proposed subproject being implemented in an area with <b>high natural hazard risk</b> ? (e.g. floods, earthquakes, landslides)			
<b>ECOLOGICAL ENVIRONMENT</b>			

Will the proposed subproject potentially cause any adverse impacts on <b>habitats, ecosystems, and/or ecosystem services</b> ?			
Will any rehabilitation & improvement works be located in areas that would promote the <b>conversion of natural habitats</b> ?			
Will any proposed subproject interventions be located <b>in or near sensitive environmental areas</b> , including national parks and protected areas?			
Are the proposed subproject activities likely to pose risks to any <b>endangered species</b> ?			
<b>SOCIAL ENVIRONMENT</b>			
Will the proposed subproject involve <b>land acquisition</b> ?			
Are there any <b>forced labor or child labor</b> risks associated with contractors or other third parties involved in implementing this proposed subproject?			
Is labor influx expected during the implementation of the proposed subproject? Please estimate the strength of the anticipated <b>outside labor force</b> .			
<b>Will local labor</b> be used for the proposed subproject activities? Please estimate the strength of the anticipated local labor force.			
Will there be any <b>temporary or permanent displacement</b> as a result of the proposed subproject activities?			
Are there expected to be any <b>traffic-related issues</b> as a result of the proposed subproject activities, particularly during the construction phase?			
Are there any recognized <b>Indigenous Peoples</b> present in the proposed subproject area, and are they likely to be impacted by the project, <b>either positively or negatively</b> ?			
Are the proposed subproject likely to have <b>impacts on important religious/cultural heritage sites</b> ?			
Have there been any past <b>security-related issues</b> at the proposed subproject site?			
Has <b>stakeholder engagement</b> taken place in the proposed subproject area?			
Were <b>vulnerable and indigenous groups</b> involved in stakeholder consultations? (e.g. women, minorities, economically			



disadvantaged individuals, etc.)			
<b>RISK CLASSIFICATION</b>			
<b>Step</b>		<b>Recommendations/Findings</b>	
Summary of screening findings			
Nature of E&S Risks (substantial, moderate, low)			
Indicative E&S Management instruments required.			
Name of person conducting screening			
Name of the person endorsing screening findings			

## ANNEX – G TEMPLATE OF ESMP

### Proposed ESMP Structure

The content of the ESMP will include, but not limited to the following:

- **Abbreviations And Glossary**
- **Executive Summary:** Concisely discusses significant findings and recommended actions including summary Table of ESMP.
- **Introduction**, including background, objective of ESMP, Approach and Methodology, Project Area; Study Team
- **Legal and policy framework**, GoP/ Balochistan requirements (legislation; guidelines and rules; policies; international treaties signed by Pakistan; national and provincial authorities; environmental procedures), their applicability, and compliance status for the Project. World Bank requirements (ESF and ESS; and WBG Environmental Health and Safety guidelines) and their triggering and compliance status for the Project.
- **Description of the proposed subprojects**, including need of the project, layout and location, salient features, resource requirements, wastes to be generated, manpower requirement, a brief description of construction activities, and a brief description of operation and maintenance activities.
- **Baseline description**, primarily describing the proposed site and its immediate surrounding aided with maps, photographs and schematics, key environmental and social aspects/resources of the surroundings such as land form and land use, water resources, settlements, any critical habitat or protected area, any cultural heritage sites or graveyards, any sensitive receptor such as schools and hospitals, access routes, and other relevant details.
- **Stakeholder consultations**, recording the key concerns and suggestions of the community regarding the proposed subprojects and its potential impacts, and a description of the way these concerns will be addressed.
- **Impact assessment:** methods and techniques for analyzing the anticipated environmental and social impacts.
- Discussion of the potentially adverse **environmental and social impacts** of the proposed sub-project along with their significance.
- **Mitigation plans**, listing all the impacts, their mitigation measures, assigning responsibility of implementing these measures, and also assigning responsibility for monitoring. Also identifying cumulative impacts if applicable.
- **Institutional Arrangement** including roles and responsibilities and capacity available
- **Monitoring plan**, describing the monitoring requirements, frequency, and responsibility of conducting the monitoring.
- **Capacity development and training plan**, describing the training requirements, contents, frequency, training recipients, and responsibility of conducting the desired trainings.
- **Documentation and reporting**, describing the requirement, frequency, and responsibility of documentation and reporting.
- **Grievances redress mechanism (GRM)**, a mechanism to define roles and responsibilities of the persons responsible to address the grievances of the affectees.
- **ESMP implementation budget**, providing the cost estimate of its implementation.

**ANNEX – H**  
**INCIDENT REPORTING FORM**

<b>B1: Incident Details</b>			
<b>Date of Incident:</b>	<b>Time:</b>	<b>Date Reported to PIU:</b>	<b>Date Reported to WB:</b>
<b>Reported to PIU by:</b>	<b>Reported to WB by:</b>	<b>Notification Type:</b> Email/'phone call/media notice/other	
<b>Trading Name of Main Contractor:</b>		<b>Trading Name of Subcontractor:</b>	
<b>B2: Type of Incident (please check all that apply)</b>			
Fatality <input type="checkbox"/> Lost Time Injury <input type="checkbox"/> Displacement Without Due Process <input type="checkbox"/> Child Labor <input type="checkbox"/> Acts of Violence/Protest <input type="checkbox"/> Disease Outbreaks <input type="checkbox"/> Forced Labor <input type="checkbox"/> Unexpected impacts on heritage resources <input type="checkbox"/> Unexpected impacts on biodiversity resources <input type="checkbox"/> Environmental pollution incident <input type="checkbox"/> Dam failure <input type="checkbox"/> Other <input type="checkbox"/>			
<b>B3: Description/Narrative of Incident</b>			
<i>Please replace text in italics with brief description, noting for example:</i> <ol style="list-style-type: none"> <li>I. <i>What is the incident?</i></li> <li>II. <i>What were the conditions or circumstances under which the incident occurred (if known)?</i></li> <li>III. <i>Are the basic facts of the incident clear and uncontested, or are there conflicting versions? What are those versions?</i></li> <li>IV. <i>Is the incident still ongoing or is it contained?</i></li> <li>V. <i>Have any relevant authorities been informed?</i></li> </ol>			
<b>B4: Actions taken to contain the incident</b>			
Short Description of Action	Responsible Party	Expected Date	Status
<b>For incidents involving a contractor:</b> Have the works been suspended ( <i>for example, under Contract GCC7.6 or GCC8.9 of Works</i> )? Yes <input type="checkbox"/> ; No <input type="checkbox"/> ; <b>Please attach a copy of the instruction suspending the works.</b>			
<b>B5: What support has been provided to affected people</b>			
<b>C1: Investigation Findings</b>			
<i>Please replace text in italics with findings, noting for example:</i> <ol style="list-style-type: none"> <li>I. <i>where and when the incident took place</i></li> <li>II. <i>who was involved, and how many people/households were affected</i></li> <li>III. <i>what happened and what conditions and actions influenced the incident</i></li> <li>IV. <i>what were the expected working procedures and were they followed</i></li> <li>V. <i>did the organization or arrangement of the work influence the incident</i></li> <li>VI. <i>were there adequate training/competent persons for the job, and was necessary and suitable equipment available</i></li> <li>VII. <i>what were the underlying causes; where there any absent risk control measures or any system failures</i></li> </ol>			
<b>C2: Corrective Actions from the investigation to be implemented (to be fully described in Corrective Action Plan)</b>			
Action	Responsible Party	Expected Date	

<b>C3a: Fatality/Lost time Injury information</b>						
<b>Cause of fatality/injury for worker or member of the public (please check all that apply):</b>						
1. Caught in or between objects <input type="checkbox"/> 2. Struck by falling objects <input type="checkbox"/> 3. Stepping on, striking against, or struck by objects <input type="checkbox"/>						
4. Drowning <input type="checkbox"/> 5. Chemical, biochemical, material exposure <input type="checkbox"/> 6. Falls, trips, slips <input type="checkbox"/> 7. Fire & explosion <input type="checkbox"/>						
8. Electrocution <input type="checkbox"/> 9. Homicide <input type="checkbox"/> 10. Medical Issue <input type="checkbox"/> 11. Suicide <input type="checkbox"/> 12. Others <input type="checkbox"/>						
<b>Vehicle Traffic:</b> 13. Project Vehicle Work Travel <input type="checkbox"/> 14. Non-project Vehicle Work Travel <input type="checkbox"/> 15. Project Vehicle Commuting <input type="checkbox"/>						
16. Non-project Vehicle Commuting <input type="checkbox"/> 17. Vehicle Traffic Accident (Members of Public Only) <input type="checkbox"/>						
Name	Age/DOB	Date of Death/Injury	Gender	Nationality	Cause of Fatality/Injury	Worker (Employer)/Public
<b>C3b: Financial Support/Compensation Types (To be fully described in Corrective Action Plan template)</b>						
1. Contractor Direct <input type="checkbox"/> 2. Contractor Insurance <input type="checkbox"/> 3. Workman's Compensation/National Insurance <input type="checkbox"/>						
4. Court Determined Judicial Process <input type="checkbox"/> 5. Other <input type="checkbox"/> 6. No Compensation Required <input type="checkbox"/>						
Name	Compensation Type		Amount (US\$)		Responsible Party	
<b>C4: Supplementary Narrative</b>						
<b>For incidents involving a contractor:</b>						
Have the works been suspended in part or whole (for example, while corrective actions are put in place under Contract GCC7.6 or 8.9 of Works)? Yes <input type="checkbox"/> ; No <input type="checkbox"/> ;						
<b>Please attach a copy of the instruction suspending the works.</b>						

**ANNEX-I**  
**ENVIRONMENTAL AND SOCIAL MONITORING CHECKLIST**

Project Name: \_\_\_\_\_

Activities Inspected \_\_\_\_\_

Location \_\_\_\_\_

Weather Condition \_\_\_\_\_

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Sr. No.	Performance Indicators	Yes	No	N/A	Description	Remarks
<b>Environment</b>						
1.	Heavy Dust					
2.	Excessive noise or vibration					
3.	Water sprinkling at the construction and disposal sites					
4.	Discharge of waste water to nearby water course/water body					
5.	Soil erosion					
6.	Any spillage of fuel/oil observed					
7.	Dumping of solid waste at designated Site					
8.	Dumping of construction waste/spoil at designated Site					
9.	Burning of waste materials					
10.	Unattended borrow areas					
11.	Awareness and training					
<b>Ecological</b>						
12.	Protection of Flora/Fauna					
13.	Cutting of trees / vegetation					
14.	Compensatory plantation					
15.	Hunting, trapping or poaching					
16.	Introduction alien or non-native species					
17.	Awareness and training					
<b>Social</b>						
18.	Availability of Drinking water					
19.	Site housekeeping					

Sr. No.	Performance Indicators	Yes	No	N/A	Description	Remarks
20.	Warning signs displayed near construction zone.					
21.	Use of PPEs by the beneficiaries and workers					
22.	Any incident/accident (use separate proforma)					
23.	Labour influx					
24.	Any GBV/SEA and privacy related complaints					
25.	Availability of first aid boxes at site					
26.	Any land acquisition					
27.	Any involuntary resettlement under the project					
28.	Disturbance due to construction camp, if any					
29.	Security issues					
30.	Proportion of local labor in the project					
31.	Child/Forced Labor					
32.	Is the GRM properly in place					
33.	Regular monitoring of complaint register is in practice					
34.	Training and awareness					
35.	Any exclusion, specially to women, disadvantaged groups and marginalized people from project forums					
36.	Any elite capture related grievance					
37.	Participation of women, children, and vulnerable groups in consultations and project activities					
38.	Any Unusual Conditions (e.g., heavy rain, extreme weather)					
39.	Chance finds during construction					
40.	Unanticipated impact, if any					
<b>Note If any:</b>						
<b>Filled By:</b>  _____		<b>Extra Note if needed:</b>				
<b>Signature</b>						

Sr. No.	Performance Indicators	Yes	No	N/A	Description	Remarks
Name: _____ Position: _____						