

PLANNING AND DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH

SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)

ENVIRONMENT & SOCIAL MANAGEMENT FRAMEWORK (ESMF)









March-2023

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EXECUTIVE SUMMARY

Project Background

Pakistan has been experiencing heavy monsoon rains since June 2022 leading to catastrophic and unprecedented flooding. Almost 15 percent of the country is underwater and just over 33 million people are affected. 541,000 people are in evacuation camps and 1.755 million houses have been damaged or destroyed. Loss of life has also been considered with 1,481 fatalities reported to date. Loss of livestock is also significant at 908,000 animals perished, while over 25,000 animal shelters have been damaged. Just over 12,418 km of roads are reported to have been affected and 390 bridges have been damaged or destroyed, with these numbers expected to rise. Economic impacts are concentrated in the agricultural sector, with over 3.6 million acres of cultivated land destroyed (30 percent of total agricultural land), resulting in significant losses to cotton, date, wheat, and rice crops. Lower agriculture output is expected to negatively impact industrial and services sector activity, especially given the textile sector's reliance on cotton (textiles account for around 25 percent of industrial output). Flooding will impose a lingering drag on output through infrastructure damage, disruption to crop cycles, possible financial sector impacts (microfinance institutions report major solvency problems), and loss of human capital. Preliminary estimates suggest that as a direct consequence of the flood, the national poverty rate will increase by 4.5 to 7.0 percentage points, pushing between 9.9 and 15.4 million people into poverty.

This will have an impact on the economy of Pakistan. Growth is now expected to reach only around 2 percent in FY23. Due to higher energy prices, the weaker Rupee, and flood-related disruptions to agricultural production, inflation is projected to rise to around 23 percent in FY23. With disruptions to exports (especially textiles) and higher import needs (food and cotton), the current account deficit is expected to narrow only slightly to around 4.3 percent of GDP in FY23 (from 4.6 percent in FY22). The fiscal deficit (including grants) is projected to narrow only modestly to around 6.9 percent of GDP in FY23 (relative to a budgeted deficit of 4.7 percent), reflecting both negative revenue impacts from flooding and increased expenditure needs.

Pakistan consistently ranks among the top 10 countries worldwide most affected by climate change.² Extreme weather events have increased in frequency and intensity, impacting ecosystems, people, settlements, and infrastructure. Heatwaves, heavy precipitation events, droughts, and cyclones are prevalent risks. The country experiences some of the highest temperatures in the world, with several areas recording temperatures of over 38 degrees Celsius annually. During the 2015 heatwave, more than 65,000 people were hospitalized with heatstroke, with 1,200 deaths recorded, mostly in Sindh. Projected temperature increases in Pakistan are higher than the global average, as high as 5.3 degrees Celsius by 2081-2100 under the highest emissions Representative Concentration Pathway (RCP8.5), compared to a global average temperature increase of 3.7 degrees Celsius in the same scenario.³ There is

¹ National Disaster Management Authority, as of September 16, 2022

² Germanwatch, Global Climate Risk Index 2021. https://www.germanwatch.org/en/19777.

³ Germanwatch, Global Climate Risk Index 2021. https://www.germanwatch.org/en/19777.

also significant uncertainty surrounding future precipitation rates in Pakistan, underscoring the need for better preparedness for unforeseen extreme precipitation events. Research highlights the risk of increased frequency and intensity of flood and drought events, brought on by changes in the seasonality, regularity, and extremes of precipitation.⁴ The probability of meteorological drought, usually brought on by below-normal precipitation, is set to sharply increase under all emission pathways – from the current probability

Sindh has been disproportionately affected by the 2022 floods. The province alone is estimated to have received rainfall in excess of 400% over the 30-year average. Between June 14 and September 26, 2022, 747 of the 1,638 nationwide casualties were in Sindh, including 319 children, with 8,422 people injured.⁵ Over 1.8 million houses in Sindh were damaged or destroyed, nearly 89 percent of the nationwide total.⁶ Reports estimate that more than 3.9 million hectares of agricultural land have been destroyed in Sindh alone, giving rise to fears of impending food shortages.⁷ To date, several areas in Sindh remain inundated with floodwater accumulating from other parts of the country following glacial melt in the mountainous north and record monsoon rains nationwide. Meanwhile, stagnant water in several districts is giving rise to skin, gastric, and mosquito-borne diseases. Dewatering inundated areas is expected to take several weeks, exacerbating these risks. Emergency rehabilitation is essential to facilitate communities in recovering from the 2022 floods.

Project Development Objectives

The Project Development Objectives are to (a) rehabilitate damaged infrastructure and provide short-term livelihood opportunities in selected areas of Sindh province affected by the 2022 floods, and (b) strengthen the Government of Sindh's capacity to respond to the impacts of climate change and natural hazards.

Project Components

Component 1 - Infrastructure Rehabilitation (US\$ 350 million)

Component 1 aims to enhance physical resilience through the restoration, rehabilitation and improvement of critical flood protection infrastructure, water supply schemes, roads and allied infrastructure. A framework approach based on climate resilience will be used to finalize infrastructure subprojects under this component based on damage data. The approach is being adopted due to the emergency nature of the project.

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⁴ Ibid.

⁵ National Disaster Management Authority (NDMA). 2022. NDMA Monsoon SITREP: Daily SITREP No. 105 Dated 26th Sep, 2022.

⁶ National Disaster Management Authority (NDMA). 2022. NDMA Monsoon SITREP: Daily SITREP No. 105 Dated 26th Sep, 2022.

⁷ Sindh Agriculture Department. 2022. Damaged Agricultural Land (Provisional).

Subcomponent 1.1: Flood Control and Rehabilitation of Irrigation Infrastructure (US\$ 200 million).

Floods have brought about significant damage to the irrigation and flood protection infrastructure in Sindh. Critical flood protection infrastructure will be identified and rehabilitated on a priority basis under the principle of 'build back better' with improved engineering design features including nature- based solutions as applicable. Some damaged flood protection schemes have already been identified such as the Flood Protective (FP) bund, Supriyo bund, and Manchar Containing (MC) embankments in Dadu district of Sindh. The Bank-funded Sindh Resilience Project (P155350) has been financing the construction of small dams in Sindh to serve the dual purpose of groundwater recharge and mitigate the potential flooding in streams that are prone to flash flooding. This subcomponent will take a holistic approach and consider an array of resilience solutions including flood delay dams, leaky dams, flood dispersion dams and off-line storage. The definition of the interventions will be based on watershed/catchment level hydro-economic studies to determine the most beneficial options. Non-structural measures will complement the flood mitigation infrastructure, as described in subcomponent 3.2.

Subcomponent 1.2: Restoration of Roads and Allied Infrastructure (US\$ 100 million).

This subcomponent will support the rehabilitation and reconstruction of the affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst affected areas of the province. More specifically this component will include the following:

Road upgrading and rehabilitation in affected districts, including climate-resilient designs, rehabilitation, maintenance and supervision of works in selected districts. Starting with a long list of roads to be shared by the GoS, final roads and districts will be prioritized for upgrading and rehabilitation based on the criteria that improving these identified roads would ensure all-weather access to public facilities. Improvement of road infrastructure would include but not be limited to the raising of embankments, provision of side drains, improvement of culverts, ditches, vegetation, bridges, enhanced slope protection, adoption of design standards for pavements, and climate investments to mitigate effects of rainfall and high temperatures. In addition, the component will include green techniques, including the use of vegetation, geo mesh, gabions, pavement seals, etc., to mitigate the effects of rainfall and high temperatures. Adaptation measures through resilience planning at the network level will ensure continuous access to schools, health facilities, and markets.

This subcomponent will also support the improvement of road safety infrastructure and equipment in the vicinity of public facilities and marketplaces, including the provision of sidewalks, bike lanes, road markings, and signage. These improvements will also include the provision of traffic calming measures, i.e., rumble strips, marking of reduced speed zones, delineators, traffic lights, and guard rails. In addition, it will also ensure the inclusion of gender approach and universal access features and measures in the design, construction/rehabilitation, of roads and allied infrastructure. This subcomponent will consider the provision of basic fiberoptic infrastructure, i.e., ducts and manholes alongside selected roads to facilitate the

expansion of internet connectivity in the future. This component will be implemented as per the telecom and digital plan of the GoS.

Subcomponent 1.3: Restoration of Water Supply Schemes (US\$ 50 million).

The subcomponent will fund the rehabilitation of selected and prioritized water supply infrastructure that has been destroyed or damaged by the floods. Early estimates of DNA for Sindh province will identify funds required for the restoration of damaged water supply and sanitation infrastructure. Prior to the floods, the damaged infrastructure was not providing safe water and hygienic sanitation. The project will upgrade the damaged infrastructure to provide safe and hygienic services and also reinforce flood resilience aspects in order to avoid future losses to calamities. Currently, a rural water supply and sanitation project is also under preparation which will cover the remaining portion of damaged infrastructure and at the same time, cater for new infrastructure, on a need basis.

Component 2 – Livelihoods Restoration (US\$ 75 million)

This component will support livelihoods through a 'cash for work' program for communities across affected villages, with a help of a Social Mobilization Partner (SMP). Cash for Work (CfW) programs are usually designed to assist the most affected, able-bodied vulnerable communities so that they can quickly earn cash under 'decent work' conditions. Such support enables them to respond to their immediate livelihood needs (food, shelter, etc.), in return for participating in disaster clean up and restoration activities. Cash for Work interventions provides employment to unskilled and semi-skilled workers on labor-intensive locally planned and executed projects, including rehabilitation of community infrastructure and irrigation systems, ecosystems and landscape restoration, soil conservation, and road construction and maintenance. The objectives of the CfW Program will be to:

- Provide income support to poor, vulnerable households through short-term, intensive, semi-skilled and unskilled labor so they can meet their essential needs.
- Build or rehabilitate local-level public/community assets and infrastructure to sustain urgent basic services such as clean water supply, sanitation, roads and other climate-resilient assets that strengthen the resilience of households and communities to climate risks.

Under this component, the prioritization of beneficiaries will be done, following a three-pronged approach:

 Severely impacted districts, talukas and union councils: Based on GoS damage assessment, a list of districts, along with talukas and unions councils (UC) within, will be prioritized to receive livelihoods restoration assistance in the first phase (six months).
 Once these areas have been served completely, the project will move into the remaining areas of Sindh.

- Using National Socioeconomic Registry (NSER) Database for identification of the poorest/vulnerable beneficiaries: Within the prioritized areas, NSER data will be used to identify the poorest beneficiaries at the village/neighborhood level. Where required, their eligibility will be cross-referenced to the existing village/neighborhood level registry (prepared by GoS) or under the one that will have to be prepared under the Cash for Works component.
- Preparation/using village-level household registries to identify the poorest beneficiaries: Most districts of Sindh (including the right bank) have benefited from GoS UC-based Poverty Reduction Project, which conducted wellbeing and wealth ranking across every village, consolidating into a UC-level database. This registry/database has households identified as the poorest and most vulnerable by their communities. The Project, with the help of an SMP, will seek communities' feedback to identify and confirm the most deserving households (confirming the NSER and the wealth and wellbeing rankings) at the village/neighborhood levels. Where such information is not available, the SMP will generate the ranking in collaboration with the communities and maintain a registry.

Accordingly, an inclusive eligibility criterion will be developed and endorsed by the beneficiary community, which will prioritize the vulnerable groups. Attention will be given to women, the elderly and the differently abled who will be given the chance to nominate someone on their behalf to participate in the works and/or to receive inputs. At least 30% of women's participation will be guaranteed in suitable work (for example, general cleanup of the village, meal preparation for labor, making mosquito nets, quilts, etc.).

Component 3 – Institutional Strengthening for Resilience and Technical Assistance (US\$ 65 million)

Subcomponent 3.1: Expansion of Sindh Emergency Rescue Service (US\$ 45 million). The Sindh Emergency Rescue Service (Rescue 1122) was established under SRP with the service operational as of May 2022, and is providing critical lifesaving, emergency response and rescue services to the citizens of Sindh. The service is currently functioning in selected districts including Karachi, Sujawal, Thatta, Hyderabad, Larkana, Dadu and Qambar Shahdadkot. Under SFERP, the service will be expanded to other districts as an integrated and independent service of first responders covering the entire spectrum of emergency response from floods, fires, earthquakes, windstorms, and health emergencies. Districts to be covered under SFERP include Sukkur, Ghotki, Shikarpur, Jacobabad, Badin and Jamshoro which have been badly affected by the floods of 2022.

Subcomponent 3.2: Enhancing Preparedness for Floods (US\$ 20 million). This subcomponent will enhance the preparedness capacity of relevant line departments for better response, planning, and coordination for disaster management. Probable activities include: (i) the preparation of an emergency response plan at the operational level in Sindh; (ii) expansion of the decision support system (DSS) established under SRP to include flash floods, in addition to riverine floods; and (iii) design and implementation of mock drills to test the effectiveness of

plans and standard operating procedures, along with early warning dissemination and first responder systems, in evacuation and early action, and also enhance community capacities by targeting and ensuring access to differently-abled groups, livelihoods, sectors, etc.

Flood mitigation measures are effective when their design (and implementation) includes the right mix of structural and non-structural measures. Considering the two dimensions of risk: i) structural measures can reduce the probability of occurrence of large flooding; ii) non-structural ones can reduce the consequences of flooding. The main structural measure is flooding storage capacity. Without flood storage capacity in the basin, the probability of occurrence of a flood above a certain level cannot be reduced. This sub-component will also support strategic long-term studies (feasibility studies, consulting services for surveys, modeling, environmental and social assessments, etc.) for interventions related to increasing flood mitigation capacity in Sindh. In particular, the studies will focus on the knowledge and infrastructure gaps in the context of the rain and floods of 2022. Studies to inform the preparation of the Bank's pipeline projects will also be supported. Specifically for flood management, activities will include i) flood forecasting and warning, and ii) flood emergency response planning (both being non-structural measures). Flood forecasting systems can multiply the efficiency and capacity of flood mitigation dams, facilitating the following functions:

- a. Anticipation of reservoir depletion, with the objective of optimum flood routing when the flood will arrive at the reservoir.
- b. Coordination of the operations of all reservoirs in the basin during a flood event, with the objective of minimizing downstream damages.
- c. Establishment of alarm systems, to put in place the emergency response plans.

Component 4 – Project Management and Operational Costs (US\$ 10 million)

This component will finance the costs of the Project Implementing Unit's (PIU) and other operational costs at Sindh Irrigation Department (SID) and Planning and Development Department (formerly SRP-PDMA PIU), including, inter alia, project management, procurement, contract management, public outreach and dissemination, financial management (FM) activities, technical audits, compliance monitoring of construction activities, oversight of compliance with social and environmental standards, oversight of compliance with social inclusion targets, monitoring and evaluation (M&E) activities, and a Grievance Redress Mechanism (GRM). M&E entails, inter alia, the preparation of project reports, including mid-term and completion reviews, baseline studies and audits (financial and technical, environmental, and social as needed). This component will also inter alia finance equipment (renting or purchase, as applicable), services and small works necessary for the effective functioning of the PIUs, such as vehicles, information and communication equipment (including laptops, printers, etc), office furniture and materials, renting of premises, upgrade/refurbishment works, etc.

Component 5 – Contingent Emergency Response (US\$0 million)

Following an adverse natural event that causes a major disaster or emergency, the Government may request the Bank to re-allocate project funds to support response and reconstruction. This component would allow the Government to request the Bank to reallocate financing from other project components to partially cover emergency response and recovery costs. This component could also be used to channel additional funds should they become available for such an emergency.

Project Beneficiaries

The project will provide better Irrigation and Drainage infrastructure to the people of Kashmore, Qamber Shahdadkot, Larkana, Dadu, Sehwan, Khairpur Nathan (KN) Shah, Sanghar, Khairpur Mirs, Badin and other parts of Sindh Province, and will ultimately protect the communities residing in the vicinities of aforementioned areas/districts.

It is roughly estimated that around 10 million people would be protected from torrential floods of Kirthar hills and 3.77 million acres of agriculture land along with Public & Private Property, Connecting Roads, Bridges and Railway networks would also be protected, they are the lifeline of Industry, trade and commerce of the country.

Purpose of ESMF

Sindh Flood Emergency Rehabilitation Project (SFERP) is supported by the World Bank for which compliance with the World Bank Environmental and Social Framework (ESF) is required.

The environment and Social Management Framework (ESMF) is an instrument prepared under ESS1 that examines the potential risks and impacts of planned activities of a project where the detailed activities of subprojects and locations have not yet been finalized. Since the exact extent and precise location/footprints of individual interventions are yet to be decided, SFERP adopts a framework approach through this ESMF and sets out the principles, rules, guidelines, and procedures to assess the environmental and social risks and impacts of the project. It also contains measures and plans to mitigate the environmental and social risks and impacts, provisions for estimating and budgeting the costs of these measures, and information on the agencies responsible for mitigation, including their capacity to manage these risks.

Legislation and World Bank Standards

To ensure compliance with National and Provincial legislations and World Bank Environmental and Social Framework (ESF), a detailed analysis of applicable environmental policies, laws, guidelines, acts and legislations of the Government of Pakistan GoP and the Government of Sindh (GoS) has been done. SFERP will follow Sindh Environmental Protection Act, 2014 and Sindh Environmental Quality Standards (SEQS) as well as World Bank's Environmental and Social Standards (ESSs) and guidelines, and other relevant regulations described in this ESMF.

Environmental and Social Baseline

Environmental Baseline

The province of Sindh is situated in a subtropical region; it is hot in the summer and cold in the winter. Sindh is divided into three climatic regions: Siro (the upper region, centered on Jacobabad), Wicholo (the middle region, centered on Hyderabad), and Lar (the lower region, centered on Karachi). Sindh can be divided into four distinct parts topographically: the Kirthar range in the west, a central alluvial plain bisected by the Indus River in the middle, a desert belt in the east and south-east, and the Indus delta in the south.

According to the climatic classification made by UNESCO, the region has been divided into three zones: Coastal- South of Thatta; Southern- from Thatta through Hyderabad to Nawabshah; and Northern-from Nawabshah to Jacobabad. Temperatures frequently rise above 46 °C (115 °F) between May and August, and the minimum average temperature of 2 °C (36 °F) occurs during December and January. The annual rainfall averages nearly 9 inches (230 mm), falling mainly during June and September. The southwesterly monsoon wind begins to blow in mid-February and continues until the end of September, whereas the cool northerly wind blows during the winter months from October to January. Sindh lies between the two monsoons — the southwest monsoon from the Indian Ocean and the northeast or retreating monsoon, deflected towards it by the Himalayan Mountains— and escapes the influence of both. The average rainfall in Sindh is 8-9 in (20-23 cm or 200 - 230 mm) per year. The region's scarcity of rainfall is compensated by the inundation of the Indus twice a year, caused by the spring and summer melting of Himalayan snow and by rainfall in the monsoon season. These natural patterns have recently changed somewhat with the construction of dams and barrages on the Indus River. Parts of southeastern Sindh receive rainfall of up to 36 in (91 cm or 910mm) and some cities have received very heavy rainfall on occasion. In 2005, Hyderabad received 14.4 in (37 cm or 370 mm) in just 11 hours. In Padidan (a town in Naushahro Feroze district) a record rainfall of 1,722 millimeters was recorded in the monsoon season of 2022 which was also part of the massive 2022 Pakistan floods and appears on the list of extreme weather records in Pakistan⁸.

The proposed project interventions are located in a medium-level populated region with no large-scale industrial or commercial activity. Vehicular traffic on dirt roads causes some dust emissions whose effect is fairly localized. The main pollutants emitted by vehicle exhaust pipes are particulate matter, carbon monoxide, sulfur dioxide, and nitrogen oxides. These emissions generally affect the air quality in the vicinity of the roads. However, traffic on the roads in the proposed project intervention's area is low compared to the national highways or other major roads. Vehicle horns and auto rickshaw silencers are two main contributors to growing noise pollution. There is no data available outside of urban centers, but lack of commercial activity and decreased vehicle use likely keep these areas safe from noise pollution.

https://reliefweb.int/report/pakistan/pakistan-2022-monsoon-floods-situation-report-no-03-26-august-2022

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⁸ https://www.arabnews.pk/node/2149331/pakistan

The vegetation of the project area can be classified as a scrub forest (dominated by herbs and shrubs). The plants are best adapted to the ecological conditions either for high or low-temperature fluctuations as well as poor soil and rainfall ranges. The soils of the region are sandy loam to sandy; the soil in the eastern part is alluvial which supports good vegetation.

The project area hosts eight (8) large mammal species including Asiatic Jackal, Indian Fox, Red fox, Honey Badger, Grey Mongoose, Small Indian Mongoose, Jungle Cat and Indian wild boar recorded. All mammalian species-area common and listed as Least Concern (LC) in IUCN red list. 13 small mammals recorded from microhabitats are common and the least concern in IUCN list. Two amphibians and 21 species of reptiles were recorded from the study area.

Kohistan mountain range is adjacent to the Kirthar range, which is the largest mountain range in the country. The Range extends southward for about 190 miles (300 km) from the Mula River in east-central Balochistan to Cape Monze (Muari), near Mubarak Village, Karachi on the Arabian Sea. Kirthar National Park is situated in the Kirthar Range Mountains in Dadu and Jamshoro District in Sindh, Pakistan.

The Kirthar National Park is situated in the Kirthar Range Mountains in Dadu and Jamshoro District in Sindh, Pakistan. It was founded in 1974 and stretches over 3087 km², being the second largest National Park of Pakistan after Hingol National Park, Kirthar National Park lies 80 kms North of Karachi in the South-West of Sindh province within Dadu and Malir Districts. Its headquarter Kerchat is at a distance of 160 km from Karachi. Kirthar National Park is Pakistan's second-biggest National Park. Eleven small flood detention dams have been proposed at Kithar National Park. But these interventions are far away from biodiversity hot spot areas namely Karchat & Khaar Center.

Social Baseline

Sindh is the second-largest province in Pakistan. The 2017 Population Census, carried out over 38,842 Census Blocks in Sindh, has revealed that the province hosts 47.88 million people or 8.59 million households. The rural population stands at 23.0 million or 4.2 million households. The latter reside in 83 rural talukas of the province. There are 134 talukas, of which 83 are rural and 51 are urban. The latter reside in 83 rural talukas of the province.

The average rural population and household per rural taluka work out to 277,108 and 50,602, respectively. The average population density, persons per square kilometer, in the province is reported at 339/km2, up from 135/km2 in 1981 and 213 km² in 1998; reflecting an increase of 151% in 2017 over 1981.

Sindh is considered the economic hub of Pakistan. The cities of Sindh have remained prominent centers of trade and industry in the region throughout its history. It has a thriving industrial base with natural resources, relatively well-developed infrastructure, competitive

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⁹ https://www.pbs.gov.pk/publication/pakistan-demographic-survey-2020

¹⁰ Poverty Reduction Strategy, P&DD GoS

human resources, two major ports, and functioning communication network and a modernized financial & services sector. Sindh's coastline of approximately 350 km with thick mangrove forests is a very productive resource. Nearly half of the fish export from Pakistan is from Sindh:

The southeast part of Sindh is the poorest region in the province. On the other hand, central Sindh is relatively less poor, whereas the southwest of the province appears to be the least poor region.

Stakeholder Engagement and Disclosure

A Stakeholder Engagement Plan (SEP) has been prepared for the project. It focuses on the identification of, and engagement with project stakeholders, and provides guidance on inclusive and meaningful consultation and information disclosure approaches. It is a 'live' document and will be updated through the life of the project, as and when required, to include newly identified stakeholders, engagement methods, and the changing needs of the project. Institutional stakeholders consulted during project preparation included representatives from related government departments, including district-level staff, NGOs, CSOs, private sector companies, and think-tanks. Several rounds of consultations were carried out, with distance from schools and quality of conveyance infrastructure as primary reasons for poor girls' school attendance.

Environmental and Social Impacts and Mitigations

Initial assessment of potential adverse environmental and social risks and impacts expected during the construction and implementation phases of the project have been identified.

Most of the environmental impacts will be temporary and manageable, and in all cases, tangible mitigation measures exist for each and every impact.

- Design and Construction Phase Impacts may include, Soil pollution, Air pollution, Solid Waste Generation, Traffic and Road Safety, Noise Pollution, Contamination of Water Resources, Wastewater from construction camps, Community health and safety, Impacts on public utilities, Social Exclusion, Livelihood Component (CfW), Land Acquisition and Involuntary Resettlement, Occupational Health and Safety, Disturbance to Ecosystems, Communicable diseases, Lack of Meaningful Community Engagement, Labor Influx, GBV and SEA/SH, Risk in the context of Livelihoods Component (CfW), Forced Labor and Child Labor, Chance Findings of Important Physical and Cultural Resources, and Rehabilitation & Reconstruction of Affected Road Network & Village Road Bridge (VRB) Construction
- Implementation Phase Impacts may include, Institutional Capacity Limitations and Sustainability of Interventions.

The appropriate generic mitigation measures for each impact are also proposed. The risks identified and generic mitigations proposed will guide during the preparation of required E & S instruments (ESIA/ IEE/ ESMP/ Checklist) of the proposed project interventions.

ESMF Implementation

Since the exact extent and precise location/footprints of individual interventions are yet to be decided, a framework approach has been adopted for the present E&S assessment. Under this approach, each subproject will be screened for the severity and extent of E&S impacts. The outcomes of the screening process will guide the selection and preparation of relevant E&S instruments.

The environmental and Social Management of the project will follow the procedures below procedure;

- 1. Preliminary environmental and social information collection, including physical, biological, and socioeconomic baseline data for each subproject.
- 2. E&S screening and categorization of each subproject using the E&S Screening Checklist provided in Annex A: Environmental and Social Screening Checklist.
- Information disclosure and stakeholder consultations.
- Preparation of Environmental and Social Impact Assessment (ESIA) or Environmental and Social Management Plan (ESMP) for each subproject, including risks, mitigation measures, other E&S instruments, and indicative budget for E&S management.
- Clearance/approval of ESIA or ESMP from World Bank and disclosure by World Bank and by both implementing agencies
- 6. Inclusion of ESIA or ESMP and other E&S instruments in bidding documents and agreements with contractors.
- 7. Implementation of ESIA or ESMP and other E&S instruments by implementing agencies/contractors.
- 8. Monitoring the compliance with E&S instruments.

Institutional and Monitoring Arrangement

The two implementing agencies, The PIUs in Sindh Irrigation Department (SID) and Planning and Development Department (P &DD), Government of Sindh Flood Emergency Rehabilitation Project (SFERP) will implement the project activities not limited to, reporting, M&E, social and environmental management, procurement, FM, audit, and disbursements, as well as coordination with the line agencies and the Bank. A dedicated Project Implementation Unit (PIUs) will be created and housed in SFERP. The PIUs will be led by the Project Director (PD), who will be a senior SFERP official. The PD will appoint the remaining members of the PIUs, which will include specialists in procurement, environmental and social management, gender, security, communications, education, and financial management. The PIUs will be supported on technical matters by a Design and Supervision (D&S) consulting firm, as well as by individual

consultants to provide technical backstopping as and when necessary, particularly in the interim period between the formation of the PIUs and the onboarding of its staff. A PSC, chaired by the Chairman of the Sindh Planning and Development Board, will be responsible for overall coordination and oversight of implementation, including recommendation/approval of schemes to be financed by the project.

An Implementation Committee (IC) will also be formed for the implementation of proposed project interventions. The IC will be responsible for the organization and coordination of project activities in this component and will facilitate communication and cooperation between the departments involved in the works. The IC will be led by SFERP and will include representation from project-associated departments. Each department in the IC shall be obliged to provide SFERP with the necessary technical and institutional support for the timely preparation and implementation of the project.

Contractors will be required to prepare E&S instruments as directed by this ESMF prior to the initiation of construction activities. These will include:

- Solid Waste Management Plans
- Traffic Management Plans
- Occupational Health and Safety Plans
- Physical Cultural Resources Management Plans

The PIUs through their specialists and field staff will be responsible for regular monitoring of the implementation of the ESMF. This will include compliance monitoring to check whether the recommendations in this ESMF have been implemented, and effects monitoring to identify the presence and degree of any environmental and social impacts.

The ConstructionSupervision Consultant (CSC) has been engaged by the project proponent, is responsible for day-to-day monitoring of the ESMP on behalf of the PIUs during the execution of the Civil Works for sub-projects under the SFERP, and shall submit periodic reports. In general, the CSC has the following responsibilities regarding the environmental aspects of the project:

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

Grievance Redress Mechanism

The project will have a dedicated three-tier GRM for the implementing agency to receive and facilitate the resolution of concerns and grievances of project-affected parties, particularly concerning the project's environmental, social, and gender performance. Such a mechanism allows for trust-building between the implementers and beneficiaries and could help prevent discontent, conflicts, and unrest arising from the project. The GRM is designed to be accessible, culturally appropriate, and understandable to all project stakeholders.

Tentative Budget

The tentative budget for different cost heads is proposed. The total estimated budget for compliance with Environmental and Social Safeguard requirements is about Rs. 212 million.

CHAPTER - 1. INTRODUCTION

1.1. Project Background

Pakistan has been experiencing heavy monsoon rains since June 2022 leading to catastrophic and unprecedented flooding. Almost 15 percent of the country is underwater and just over 33 million people are affected. 541,000 people are in evacuation camps and 1.755 million houses have been damaged or destroyed.¹¹ Loss of life has also been considerable with 1,481 fatalities reported to date. Loss of livestock is also significant at 908,000 animals perished, while over 25,000 animal shelters have been damaged. Just over 12,418 km of roads are reported to have been affected and 390 bridges have been damaged or destroyed, with these numbers expected to rise. Economic impacts are concentrated in the agricultural sector, with over 3.6 million acres of cultivated land destroyed (30 percent of total agricultural land), resulting in significant losses to cotton, date, wheat, and rice crops. Lower agriculture output is expected to negatively impact industrial and services sector activity, especially given textile sector reliance on cotton (textiles account for around 25 percent of industrial output). Flooding will impose a lingering drag on output through infrastructure damage, disruption to crop cycles, possible financial sector impacts (microfinance institutions report major solvency problems), and loss of human capital. Preliminary estimates suggest that as a direct consequence of the flood, the national poverty rate will increase by 4.5 to 7.0 percentage points, pushing between 9.9 and 15.4 million people into poverty.

This will have an impact on the economy of Pakistan. Growth is now expected to reach only around 2 percent in FY23. Due to higher energy prices, the weaker Rupee, and flood-related disruptions to agricultural production, inflation is projected to rise to around 23 percent in FY23. With disruptions to exports (especially textiles) and higher import needs (food and cotton), the current account deficit is expected to narrow only slightly to around 4.3 percent of GDP in FY23 (from 4.6 percent in FY22). The fiscal deficit (including grants) is projected to narrow only modestly to around 6.9 percent of GDP in FY23 (relative to a budgeted deficit of 4.7 percent), reflecting both negative revenue impacts from flooding and increased expenditure needs.

Pakistan consistently ranks among the top 10 countries worldwide most affected by climate change. Extreme weather events have increased in frequency and intensity, impacting ecosystems, people, settlements, and infrastructure. Heatwaves, heavy precipitation events, droughts, and cyclones are prevalent risks. The country experiences some of the highest temperatures in the world, with several areas recording temperatures of over 38 degrees Celsius annually. During the 2015 heatwave, more than 65,000 people were hospitalized with heatstroke, with 1,200 deaths recorded, mostly in Sindh. Projected temperature increases in Pakistan are higher than the global average, as high as 5.3 degrees Celsius by 2081-2100 under the highest emissions Representative Concentration Pathway (RCP8.5), compared to a

¹² Germanwatch, Global Climate Risk Index 2021. https://www.germanwatch.org/en/19777.

 $^{^{\}rm 11}$ National Disaster Management Authority, as of September 16, 2022

global average temperature increase of 3.7 degrees Celsius in the same scenario. There is also significant uncertainty surrounding future precipitation rates in Pakistan, underscoring the need for better preparedness for unforeseen extreme precipitation events. Research highlights the risk of increased frequency and intensity of flood and drought events, brought on by changes in the seasonality, regularity, and extremes of precipitation. The probability of meteorological drought, usually brought on by below-normal precipitation, is set to sharply increase under all emission pathways – from the current probability

Sindh has been disproportionately affected by the 2022 floods. The province alone is estimated to have received rainfall in excess of 400% over the 30-year average. Between June 14 and September 26, 2022, 747 of the 1,638 nationwide casualties were in Sindh, including 319 children, with 8,422 people injured. Over 1.8 million houses in Sindh were damaged or destroyed, nearly 89 percent of the nationwide total. Reports estimate that more than 3.9 million hectares of agricultural land have been destroyed in Sindh alone, giving rise to fears of impending food shortages. To date, several areas in Sindh remain inundated with floodwater accumulating from other parts of the country following glacial melt in the mountainous north and record monsoon rains nationwide. Meanwhile, stagnant water in several districts is giving rise to skin, gastric, and mosquito borne diseases. Dewatering inundated areas is expected to take several weeks, exacerbating these risks. Emergency rehabilitation is essential to facilitate communities in recovering from the 2022 floods.

1.2. Purpose of the ESMF

Sindh Flood Emergency Rehabilitation Project (SFERP) is supported by the World Bank for which compliance with the Environmental and Social Framework (ESF) is mandatory..

The ESMF is an instrument that examines the potential risks and impacts of planned activities of a project where the detailed activities of subprojects have not yet been finalized. Since the exact extent and precise location/footprints of individual interventions are yet to be decided, SFERP adopts a framework approach through this ESMF, and sets out the principles, rules, guidelines, and procedures to assess the environmental and social risks and impacts of the project. It also contains measures and plans to mitigate the environmental and social risks and impacts, provisions for estimating and budgeting the costs of these measures, and information on the agencies responsible for mitigation, including their capacity to manage these risks.

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¹³ Germanwatch, Global Climate Risk Index 2021. https://www.germanwatch.org/en/19777.

¹⁴ Ibid.

¹⁵ National Disaster Management Authority (NDMA). 2022. NDMA Monsoon SITREP: Daily SITREP No. 105 Dated 26th Sep, 2022.

¹⁶ National Disaster Management Authority (NDMA). 2022. NDMA Monsoon SITREP: Daily SITREP No. 105 Dated 26th Sep, 2022.

¹⁷ Sindh Agriculture Department. 2022. Damaged Agricultural Land (Provisional).

The SFERP PIU will use this ESMF during the planning, design, construction, and operational phases of the project to prepare site specific Environmental and Social Impact Assessments (ESIAs) and Environmental and Social Management Plans (ESMPs) and Environmental Assessment Checklist to ensure E&S compliance at every subproject location.

CHAPTER - 2. PROJECT DESCRIPTION

The proposed Sindh Flood Emergency Rehabilitation Project (SFERP) will respond to the impact of the flood by monsoon 2022 in Sindh by supporting recovery, improving livelihoods, rehabilitating selected infrastructure, and strengthening institutional disaster management capacity, with an aim to improve the climate change and disaster resilience of communities and build back better.

2.1. Project Development Objective

The overarching objective of the project is to rehabilitate infrastructure and restore livelihoods in selected areas affected by the floods and strengthen the Government's capacity to manage disaster risks and climate impacts.

2.2. Project Locations

The location of emergency repair and rehabilitation works are spread in various Districts in Sindh including Sukkur, Larkana, Khairpur, Hyderabad, Mirpurkhas, Sanghar, Shaheed Benazirabad, Jamshoro, while the Flood Detention dams/weirs are located in Malir and Jamshoro Districts.

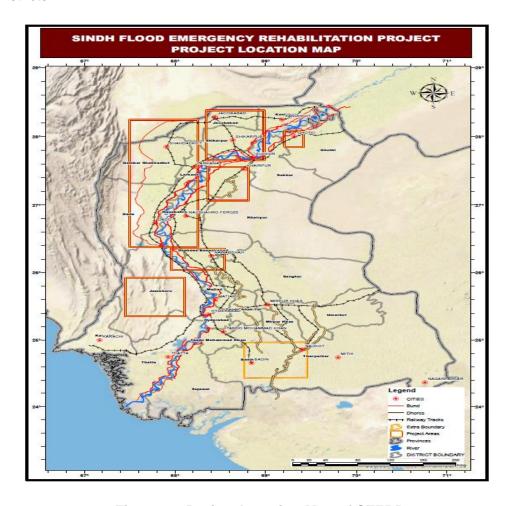


Figure: 2: Project Location Map of SFERP

2.3. **Project Components**

Component-I. Infrastructure Rehabilitation:

This component aims to enhance physical resilience through the restoration, rehabilitation and improvement of critical flood protection infrastructure, water supply schemes, roads and allied infrastructure. A framework approach based on climate resilience will be used to finalize infrastructure subprojects under this component based on damage data. The approach is being adopted due to the emergency nature of the project.

This component has the following two sub-components:

Subcomponent 1.1: Flood Control and Rehabilitation of Irrigation Infrastructure.

Floods have brought about significant damage to the irrigation and flood protection infrastructure in Sindh. Critical flood protection infrastructure will be identified and rehabilitated on a priority basis under the principle of 'build back better' with improved engineering design features including nature-based solutions as applicable. Some damaged flood protection schemes have already been identified such as Flood Protective (FP) bund, Supriyo bund, and Manchar Containing (MC) embankments in the Dadu district of Sindh. The Bank-funded Sindh Resilience Project (P155350) has been financing the construction of small dams in Sindh to serve the dual purpose of groundwater recharge and mitigate the potential flooding in streams that are prone to flash flooding. This subcomponent will take a holistic approach and consider an array of resilience solutions including flood delay dams, leaky dams, flood dispersion dams and off-line storage. The definition of the interventions will be based on watershed/catchment level hydroeconomic studies to determine the most beneficial options. Non-structural measures will complement the flood mitigation infrastructure, as described in subcomponent 3.2.

Part-1: Emergent Works under Retroactive Financing:

Given the exceptional emergency nature of the SFERP and the acute hardships facing the ultimate beneficiaries, the World Bank would consider retroactive financing for all subprojects that, in addition to the selection criteria provided in the project administration manual (PAM), have been procured using Pakistan Engineering Council (PEC) categories and qualification criteria for selecting the contractors and have awarded contracts based upon a percentage variance (plus or minus) from engineers" estimates. Both these methods are being considered under the emergency that applies on the SFERP and only apply to subprojects for which contracts were awarded are not acceptable for any procurement beyond that date.

- a) This includes Plugging/ Closing and strengthening of breaches, relief cuts, repair and restoration of small dams/weirs, and pumping stations before November 2022, to ensure water availability during the Rabi Season 2022.
- b) This includes raising and rehabilitation of Manchar Lake Bund, FP Bund, Aral Left Bank, Dhoro Puran, remodeling of Aral head and tail regulators, rehabilitation of Dhoro Puran regulator at RD 261+000, rehabilitation of escape regulator at RD 210+000, rehabilitation of Danster channel and head-tail regulators. Sindh being the most vul-

nerable province due to Climate Change effects is prone to such or even higher intensity events in the future. To cater or mitigate such events these works are to be executed and completed before the next monsoon season.

This Sub-component includes emergency work for plugging/closing of relief cuts and breaches on the flood protection works, main drains and canals, repair of pumping stations and small dams/weirs. All breaches and relief cuts will be filled with ordinary soil to match the pre-flood section. The Rehabilitation work for strengthening, remodeling of Flood Protection Infrastructure, Irrigation, and Drainage Network already constructed, will be undertaken in this component. Bund lack side slop will be changed to 1:3, berm width will be increased to 30ft.

The Emergent Works (subprojects) will mainly comprise the following works:

- I. Works to immediately restore minimum functionality of the infrastructure. (additional works may be undertaken through a phase Subcomponent 1.1: Flood Control and Rehabilitation of Irrigation Infrastructure);
- II. Works of simple nature not requiring detailed engineering surveys/investigations and designs;
- III. Works not requiring land acquisition and/or resettlement;
- IV. Works where design, procurements and/or award are at the advanced stage; and
- V. Works to be completed before the next monsoon season

The independent Audit for the Emergent works has been carried out by third party audit firm to identify the significant environmental and social issues in Sindh Flood Emergency Rehabilitation Project (SFERP) activities and to assess how well they are performing in terms of meeting the ESS criteria. The audit of 52 sub-projects (including 43 emergent works sub-project sites and 09 emergent rehabilitation works sub-projects sites). This environmental and social audit aims to determine whether the SFERP project's activities, existing facilities, and operations are in compliance with national environmental laws and regulations as well as World Bank safeguard requirements and standards. Additionally, it seeks to make plans for the management of any risks and impacts that could result from the execution of additional project-related tasks.

During the reporting period, it is found that at various locations, work is in progress, a few sub-projects are 100% finished, and a few are almost there, without having a significant materially negative or irreversible impact on the environment. According to the auditing exercise of SFERP, no serious non-compliance issues at the sites were discovered. However, the assessment also reveals that there are slight events of negligence on a few sites which is highlighted in E&S audit reports in detail. A set of recommendations are reflected in the section on mitigation measures.

E&S Management Impacts of Retro Financing.

SFERP is being administered as an emergency assistance, and there is a need to implement subprojects on an urgent basis before the onset of monsoon rains. Proposed sub project of retroactive financing, under ESS1, and Environmental audit has been conducted. Environmental screening through E&S screening checklists of the retroactive financing subproject has been

completed with appropriate mitigation measures and the same will be implemented in all sub project. A brief summary of mitigation measures of retroactive financing is reflected in the section of Impacts and mitigation measures. The progress report shall be submitted with respect to the safeguards implementation status on a quarterly basis. For details refer to Annexure-B and Annexure –G for a detailed review of E&S mitigation measures and TORs of the audit respectively.

Subcomponent 1.2: Restoration of Roads and Allied Infrastructure

This subcomponent will support the rehabilitation and reconstruction of the affected road network to improve accessibility to public facilities and to facilitate socio-economic revival of the worst affected areas of the province. More specifically this component will include the following:

The Road up gradation and rehabilitation in affected districts, including climate resilient designs, rehabilitation, maintenance, and supervision of works in selected districts. Starting with a long list of roads to be shared by the GoS, final roads and districts will be prioritized for upgrading and rehabilitation based on the criteria that improving these identified roads would ensure all-weather access to public facilities. Improvement of road infrastructure would include but not limited to the raising of embankments, provision of side drains, improvement of culverts, ditches, vegetation, bridges, enhanced slope protection, adoption of design standards for pavements, and climate investments to mitigate effects of rainfall and high temperatures. In addition, the component will include green techniques, including use of vegetation, geomesh, gabions, pavement seals, etc., to mitigate the effects of rainfall and high temperatures. Adaptation measures through resilience planning at the network level will ensure continuous access to schools, health facilities, and markets.

This subcomponent will also support the improvement of road safety infrastructure and equipment in the vicinity of public facilities and marketplaces, including the provision of sidewalks, bike lanes, road markings, and signage. These improvements will also include the provision of traffic calming measures, i.e., rumble strips, marking of reduced speed zones, delineators, traffic lights, and guard rails. In addition, it will also ensure the inclusion of gender approach and universal access features and measures in the design, construction/rehabilitation, of roads and allied infrastructure. This subcomponent will consider the provision of basic fiber optic infrastructure, i.e., ducts and manholes alongside selected roads to facilitate the expansion of internet connectivity in the future. This component will be implemented as per the telecom and digital plan of the Government of Sindh. Following are the details of the district wise affected roads.

DISTRICT WISE LIST OF FLOOD AFFECTED ROADS			
S. No	Name of District	No: of Roads	Length (in Km)
1	Jamshoro	17	84.27
2	Dadu	6	72.53
3	Shaheed Benazirabad	12	80.71
4	Naushahro Feroze	14	84.38
5	Hyderabad	3	17.40
6	Matiari	3	15.20
7	Tando Allah Yar	4	29.54
8	Thatta	19	101.60
9	Sujawal	4	13.65
10	Badin	3	24.98
11	Mirpurkhas	3	38.63
12	Umerkot	5	12.49
13	Sanghar	8	33.10
14	Tharparkar	2	15.92
15	Sukkur	8	40.15
16	Khairpur	25	93.50
17	Shikarpur	4	18.00
18	Larkana	14	77.25
19	Kamber-Shahadadkot	14	79.55
	GRAND TOTAL	168	932.85

Subcomponent 1.3: Restoration of Water Supply Schemes

The subcomponent will fund the rehabilitation of selected and prioritized water supply infrastructure that has been destroyed or damaged by the floods. Early estimates of Disaster Need Assessment (DNA) for Sindh province will identify funds required for the restoration of

damaged water supply and sanitation infrastructure. Before floods, the already dilapidated infrastructure was not providing safe water and hygienic sanitation. The project will upgrade the damaged infrastructure to provide safe and hygienic services and also reinforce flood resilience aspects in order to avoid future losses to calamities. Currently, a rural water supply and sanitation project is also under preparation which will cover the remaining portion of damaged infrastructure and at the same time, cater for new infrastructure, on a need basis.

The detailed scope of work for these sub-components is given in below table;

S. No	District	Number of damaged schemes/interventions		
		Water Supply	Drainage	Total Schemes
1.	Hyderabad	8	8	16
2.	Tando Muhammad Khan	7	10	17
3.	Jamshoro	26	0	26
4.	Tando Allah Yar	05	15	20
5.	Badin	46	18	64
6.	Matiari	0	26	26
7.	Sujawal	10	17	27
8.	Thatta	38	11	49
9.	Karachi	37	12	49
10.	Mirpur khas	55	7	62
11.	Tharparkar	9	11	20
12.	UmerKot	17	6	23
13.	Sukkur	4	24	28
14.	Ghotki	6	16	22
15.	Khairpur-I	51	75	126
16.	Khairpur-II	17	43	60

S. No	District	Number of damaged schemes/interventions		
= -		Water Supply	Drainage	Total Schemes
17.	Naushero	23	74	97
18.	Shaheed Benazirabad	32	55	87
19.	Sanghar	38	13	51
20.	Dadu	145	15	160
21.	Larkana	11	55	66
22.	Kashmore@Kandhkot	116	59	175
23.	Shikarpur	3	26	29
24.	Jacobabad	23	6	29
25.	Kamber Shahdadkot	2	3	5
	Total	729	605	1334

Component 2 – Livelihoods Restoration

This component will support livelihoods through a 'cash for work' program for communities across affected villages, with a help of a Social Mobilization Partner (SMP). Cash for Work (CFW) programs are usually designed to assist the most affected, able-bodied vulnerable communities so that they can quickly earn cash under 'decent work' conditions. Such support enables them to respond to their immediate livelihood needs (food, shelter, etc.), in return for participating in disaster clean up and restoration activities. Cash for Work interventions provide employment to unskilled and semi-skilled workers on labor intensive locally planned and executed projects, including rehabilitation of community infrastructure and irrigation systems, ecosystems and landscape restoration, soil conservation, and road construction and maintenance. The objectives of the CFW Program will be to:

- Provide income support to poor, vulnerable households through short term, intensive, semi-skilled and unskilled labor so they can meet their essential needs.
- Build or rehabilitate local level public/community assets and infrastructure to sustain
 urgent basic services such as clean water supply, sanitation, roads and other climateresilient assets that strengthen the resilience of households and communities to climate risks.

Under this component, the prioritization of beneficiaries will be done, following a three-pronged approach:

- Severely impacted districts, Talukas and union councils: Based on GoS damage assessment, list of districts, along with Talukas and unions councils (UC) within, will be prioritized to receive livelihoods restoration assistance in the first phase (six months).
 Once these areas have been served completely, the project will move into the remaining areas of Sindh.
- Using National Socioeconomic Registry (NSER) Database for identification of thepoorest/vulnerable beneficiaries: Within the prioritized areas, NSER data will be used to identify poorest beneficiaries at the village/neighborhood level. Where required, their eligibility will be cross referenced to the existing village/neighborhood level registry (prepared by GoS) or under the one that will have to be prepared under the Cash for Works component.
- Preparation/using village level household registries to identify the poorest beneficiaries: Most districts of Sindh (including the right bank) have benefited from GoS UC based Poverty Reduction Project, which conducted well-being and wealth ranking across every village, consolidating into a UC level database. This registry/database has households identified as poorest and most vulnerable by their own communities. The Project, with the help of a SMP, will seek communities' feedback to identify and confirm most deserving households (confirming the NSER and the wealth and wellbeing rankings) at the village/neighborhood levels. Where such information is not available, the SMP will generate the ranking in collaboration with the communities and maintain a registry.

Accordingly, an inclusive eligibility criterion will be developed and endorsed by the beneficiary community, which will prioritize the vulnerable groups. Attention will be given to women, elderly and the differently abled who will be given the chance to nominate someone on their behalf to participate in the works and/or to receive inputs. At least 30% women participation will be guaranteed in suitable works (for example, general cleanup of the village, meal preparation for labor, making mosquito nets, quilts, etc.)

Component 3 – Institutional Strengthening for Resilience and Technical Assistance

Subcomponent 3.1: Expansion of Sindh Emergency Rescue Service

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

Subcomponent 3.2: Enhancing Preparedness for Floods

This subcomponent will enhance the preparedness capacity of relevant line departments for better response, planning, and coordination for disaster management. Probable activities include: (i) the preparation of an emergency response plan at the operational level in Sindh; (ii) expansion of the decision support system (DSS) established under SRP to include flash floods, in addition to riverine floods; and (iii) design and implementation of mock drills to test the effectiveness of plans and standard operating procedures, along with early warning dissemination and first responder systems, in evacuation and early action, and also enhance community capacities by targeting and ensuring access to the differently abled groups, livelihoods, sectors, etc.

Flood mitigation measures are effective when their design (and implementation) includes the right mix of structural and non-structural measures. Considering the two dimensions of risk: i) structural measures can reduce the probability of occurrence of large flooding; ii) non-structural ones can reduce the consequences of flooding. The main structural measure is flood storage capacity. Without flood storage capacity in the basin, the probability of occurrence of a flood above a certain level cannot be reduced. This sub-component will also support strategic long-term studies (feasibility studies, consulting services for surveys, modeling, environmental and social assessments, etc.) for interventions related to increasing flood mitigation capacity in Sindh. In particular, the studies will focus on the knowledge and infrastructure gaps in the context of the rain and floods of 2022. Studies to inform the preparation of Bank's pipeline projects will also be supported. Specifically for flood management, activities will include i) flood forecasting and warning, and ii) flood emergency response planning (both being non-structural measures). Flood forecasting systems can multiply the efficiency and capacity of flood mitigation dams, facilitating the following functions:

- a. Anticipation of reservoir depletion, with the objective of optimum flood routing when the flood will arrive at the reservoir.
- b. Coordination of the operations of all reservoirs in the basin during a flood event, with the objective of minimizing downstream damages.
- c. Establishment of alarm systems, to put in place the emergency response plans.

Component 4 – Project Management and Operational Costs

This component will finance the costs of the Project Implementing Unit's (PIU) and other operational costs at Sindh Irrigation Department (SID) and Planning and Development Department (formerly SRP-PDMA PIU), including, inter alia, project management, procurement, contract management, public outreach and dissemination, financial management (FM) activities, technical audits, compliance monitoring of construction activities, oversight of compliance with social and environmental standards, oversight of compliance with social inclusion targets, monitoring and evaluation (M&E) activities, and a Grievance Redress Mechanism (GRM). M&E entails, inter alia, the preparation of project reports, including for mid-term and completion review, baseline studies and audits (financial and technical, environmental, social as needed).

This component will also inter alia finance equipment (renting or purchase, as applicable), services and small works necessary for the effective functioning of the PIUs, such as vehicles, information and communication equipment (including laptops, printers etc), office furniture, and materials, renting of premises, upgrade/refurbishment works, etc.

Component 5 – Contingent Emergency Response

Following an adverse natural event that causes a major disaster or emergency, the Government may request the Bank to reallocate project funds to support response and reconstruction. This component would allow the Government to request the Bank to reallocate financing from other project components to partially cover emergency response and recovery costs. This component could also be used to channel additional funds should they become available for such an emergency.

CHAPTER - 3. REGULATORY FRAMEWORK

This chapter provides an overview of the policy framework and legislation that applies to control possible negative environmental and social consequences of the project.

3.1. Relevant National Policies and Regulations

Provincial policies and regulation which covers the applicability with the proposed project are provided in below table.

Table1. Relevant Provincial Policies and Regulations and Relevance to Project

Relevant Provincial Policies and Regulations	Description	Relevance to Project
Sindh Environmental Protection Act, 2014	environment was devolved and the provinces have been empowered for environmental protection and conservation.	fall under Schedule I or II of this Act, the relevant IEE (or EIA where required) will be developed and submitted to SEPA for issuing NOC before commencing any physical
Sindh Climate Change Policy, 2022	The policy aims to identify the effects of climate change, provide solutions and implement framework/ plans to mitigate its effects, among other objectives - all of which are in line with the National Climate Change Policy.	project is developed due the Climate change impact, which is severe floods, has damaged infrastructure, communities, and

Sindh climate change policy objectives;

- Formulate a nuanced province-specific policy that is line with National Climate Change Policy (September 2012) and Twelfth Five Year Plan (2018-23) of the federal government that combines inclusive growth with green development.
- Enhance awareness of the impacts of climate change among all stakeholders for necessary appropriate measures to combat and minimize these impacts.
- Embed the concepts of Climate Compatible
 Development and Sustainable Development
 Goals in the climate change policy in order to improve the understanding of the policy makers.
- Link the province's needs to the National Climate Change Policy Framework for Implementation.
- Enhance interdepartmental coordination and cooperation for effective climate action.
- Ensure water, food, and energy security for Sindh province in the face of a changing climate.
- Address climate change risks particularly those

arising from climate-induced disasters. Ensure the interests of vulnerable groups and that gender aspects are adequately addressed in climate development strategies and planning. Develop bases to secure sufficient financial and technological support, and strengthen institutional and human resource capacities to achieve policy objectives; and to be able to tap financial and technological opportunities available internationally. Wildlife Wildlife Sindh Protection Sindh Protection This Act relevant is Ordinance. 2001 Sindh Ordinance 2001 provides for because the proposed Wildlife Act 2020 the Preservation, Protection, project interventions are and Conservation of wildlife located in and around resources directly and specifies National Parks, Protected restrictions areas and areas rich in hunting/poaching of wild fauna. biodiversity wildlife and habitats. Project has to Furthermore, this Act prohibits obtain NOC from Sindh logging and felling or removing Wildlife Department. any plant or tree; and clearing or breaking up any land for quarrying of stones, borrowing earth or for any other purpose in a National Park. The Sindh Forest Act, 2012. This Ordinance prohibits the This Ordinance is relevant construction of any building or because some proposed shed, road or enclosure, or any sub-projects are located in infrastructure, or altering or or around forested areas, enlarging any existing road or especially during construction, infrastructure in a reserved the forest. It also bans any cutting, contractors will need to strictly felling or uprooting any tree or abide by its

brushwood listed in Schedule -I. Furthermore, it also disallows quarry stones from reserved number of reserved forests, forests.

provisions. Due the to proximity with close the mentioned provisions of this law will need to be taken into account.

Antiquity Act, 1975

ensures the protection cultural resources in Pakistan. This act is designed to protect construction activities to be antiquities from destruction. theft. negligence, unlawful excavation, trade and export. Antiquities have been defined in this act as "Ancient products be identified in the primary of human activity, historical sites, sites of anthropological or cultural interest and national monuments etc."

The Sindh Antiquities Act is adopted from the Pakistan Antiquities Act of 1975 with a few minor changes. The Antiquities Act of 1975 (amended in 1990) states the following:

- "Ancient" is any object that is at least 75 years old;
- · All accidental discoveries of artifacts must be reported to the Federal Department of Archaeology;
- The Government is the owner of all buried antiquities discovered any site, whether protected or otherwise;
- All new construction within a distance of 200 feet from

The Antiquities Act of 1975 This Act will be applicable the physical interventions such carried out for the subprojects covered under this ESMF. Protected unprotected antiquity could impact zone of the subproject areas that may be affected by the project interventions. However a find chance procedure would be included in this ESMF in case of any antiquity identified.

The

protected antiquities is forbidden: No changes or repairs can be made to a protected monument, even if it is owned privately, without the approval of the responsible authorities; and The cultural heritage laws of Pakistan are uniformly applicable to all categories of sites regardless of their state of preservation and classification as monuments of national or world heritage. The Sindh Occupational; Safety This project shall involve in Sindh Occupational Safety and Health Act, 2017 and Health Act is to make multi-dimensional works occupational and workers shall involve in provision for safety and health conditions at occupational and health all workplaces for the protection related risks, therefore this of persons at work against risk act shall be applicable to of injury arising out of the the proposed project to activities at work places and for cover and protect their the promotion of safe, healthy rights. and decent working environment adapted to the physical, physiological psychological needs of all persons at work. Sindh Irrigation Act with This unanimously The was project might be Amendments in 2011 amended in 2011 with a view to involved in such type of remove encroachments from hurdles; like artificial encroachments the natural or depression courses on the embankments, waterways government lands. Due to therefore this act shall be heavy rains of 2011 severe applicable to the proposed damage was caused because project. of inadequate flow of water

> through natural or artificial depression n courses which

> > bv

the

obstructed

were

	encroachments thereon. With a view to remove the encroachments from the natural or artificial depression courses on government lands for smooth flow of rain water, it is expedient to make some suitable amendments to the Sind Irrigation Act, 1879 by providing severe punishment therein so that the encroachment is removed in the public interest.	
The Sindh Solid Waste Management Board Act, 2014	Management Board Act, 2014 passed unanimously in March	solid and liquid wastes; therefore this act shall be applicable to the proposed project to deal with relevant
The Sindh Payment of Wages Act, 2015	The Sindh Payment of Wages Act, 2015 was enacted to regulate the payment of wages to certain classes of persons employed in factories, Industrial and commercial establishments in the Province of Sindh and to provide for matters ancillary.	proposed project, number of unskilled, semi-skilled and skilled labors would be involved directly and
The Sindh Prohibition of Employment of Children Act, 2017.	This act was passed to prohibit the employment of children and to regulate employment of adolescents in certain occupations and works.	involve different Contractors and sub-

contractors, therefore this
act is applicable in the
proposed project to cover
such type of issues.

3.2. World Bank Environmental and Social Framework (ESF)

The World Bank has defined specific environmental and social standards, compiled in the Environmental and Social Framework (ESF), which are designed to avoid, minimize, reduce, and/or mitigate the adverse environmental and social risks and impacts of a project. These standards apply to projects supported through Investment Project Financing (IPF). A summary of the environmental and social standards and their relevance to the project is provided in Table 1 below.

Table 2: World Bank Environmental and Social Standards and Relevance to the Project

Environmental and Social Standards	Relevance to the Project
ESS1 – Assessment and Management of Environmental and Social Risks and Impacts	Relevant.
ESS2 – Labor and Working Conditions	Relevant.
ESS3 - Resource Efficiency and Pollution Prevention and Management	Relevant.
ESS4 – Community Health and Safety	Relevant.
ESS5 - Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant.
ESS6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant.
ESS7 – Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not-relevant.
ESS8 – Cultural Heritage	Relevant.
ESS9 – Financial Intermediaries	Not relevant.
ESS10 – Stakeholder Engagement and Disclosure	ESS10 is relevant

3.3. Gap Analysis of Relevant ESS and Local Regulations

The table below summarizes the gaps identified between the World Bank's ESF, and the relevant national and provincial laws and regulations.

Table 3: Gap Analysis of ESF and Local Regulations

Environmental and Social Standards	Relevant Local Regulations	Gaps Identified
ESS1 – Assessment and Management of Environmental and Social Risks and Impacts	Sindh Environmental Protection Act, 2014 Guidelines for Environmental Assessment, Pakistan EPA	The criteria mentioned in the Acts for classifying environmental and social risk is different than in the ESF.
	Review of IEE and EIA Regulations, 2021	Review of IEE and EIA Regulations, 2021 mainly focus on environmental assessment and management through Environmental Impact Assessment (EIA) and Initial Environmental Examination (IEE) whereas social assessment is cursory. 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.
ESS2 – Labor and Working Conditions	Occupational Health and Safety Laws Employment of Child Act 1991	National and Provincial laws address most of the requirements of the ESS2.
	Factories Act 1934 Workmen Compensation Act 1923 and Rules 1961. The Sindh Payment of Wages Act, 2015.	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

		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. There is no specific requirement for employers to establish a workers' grievance mechanism.
ESS3 – Resource Efficiency and Pollution Prevention and Management		National and provincial laws address most of the requirements of ESS3, particularly on pollution prevention
ESS4 – Community Health and Safety	Pakistan Penal Code, 1860 National Disaster Management Act, 2010	ESS4 recommends borrower to take measures to avoid or minimize the transmission of communicable diseases due to the influx of temporary or permanent project labor. However, there is no law (national and/or provincial) dealing with the transmission of water-borne, water based, water-related, and vector-borne diseases, communicable and non-communicable diseases that could result from labor influx for project activities.
ESS5 – Land Acquisition, Restrictions on Land Use and	Land Acquisition Act 1894 The Land Acquisition	Screening is limited to physical survey of land, there is no

Involuntary Resettlement	(Amendment) Act, 2009	consideration of social risks in the LAA
		No formal stakeholder consultations required by the LAA, or in host communities in case of resettlement
		No provisions are made for vulnerable groups in the LAA
		No provisions for livelihood restoration and improvement, and no additional assistance beyond compensation for land acquired and loss of livelihood in the LAA
		Land assets and structures are valued at market value in the LAA, instead of replacement cost in the ESS
		No compensation for non-titleholders in the LAA, while ESS5 requires all parties affected by land acquisition to be compensated.
ESS6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources	National Forest Policy, 2015 The Forest Act, 1927 Sindh Wildlife Protection Ordinance, 2001 The Sindh Forest Act, 2012	Forest Ordinance does not provide a regulatory basis enabling to meet the social needs of forest-dependent communities while preserving forest ecosystems, preventing forest degradation and depletion of its resources.
		Ecosystem services are not referred in the provincial legislation.
		Forest conservation practices do not meet the international principles and criteria of sustainable forest

		management.
ESS7 – Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	N/A	A significant gap is represented here—there is no law, national or provincial, dealing with the rights and protection of Indigenous Peoples
ESS8 – Cultural Heritage	Antiquities Act, 1975 The Antiquities Act, 1975 (amended in 1990)	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.
ESS10 – Stakeholder Engagement and Disclosure	Review of IEE and EIA Regulations, 2000 Sindh Environmental Protection Act, 2014 Guidelines for Environmental Assessment, Pakistan EPA	Stakeholder engagement in public sector development projects is not done effectively. It is also not carried out throughout the project lifecycle on issues that could potentially affect relevant parties. Also, there is no proper mechanism to record the grievances. However, to cover ESS10, Stakeholder Engagement Plan will be prepared for this proposed project on later stages.

CHAPTER - 4. ENVIRONMENTAL AND SOCIAL BASELINE

4.1. Physical Environment

4.1.1 Geography

Sindh can be divided into four distinct parts topographically: the Kirthar range on the west, a central alluvial plain bisected by the Indus River in the middle, a desert belt in the east and south-east, and the Indus delta in the south Figure – 1. Proposed subproject interventions are located in all distinct parts.

4.1.2 Climate & Rainfall

According to the climatic classification made by UNESCO, the region has been divided into three zones: Coastal- South of Thatta; Southern- from Thatta through Hyderabad to Nawabshah; and Northern-from Nawabshah to Jacobabad. Temperatures frequently rise above 46 °C (115 °F) between May and August, and the minimum average temperature of 2 °C (36 °F) occurs during December and January. The annual rainfall averages nearly 9 inches (230 mm), falling mainly during June and September. The southwesterly monsoon wind begins to blow in mid-February and continues until the end of September, whereas the cool northerly wind blows during the winter months from October to January. Sindh lies between the two monsoons— the southwest monsoon from the Indian Ocean and the northeast or retreating monsoon, deflected towards it by the Himalayan Mountains— and escapes the influence of both. The average rainfall in Sindh is 8-9 in (20-23 cm or 200 - 230 mm) per year. The region's scarcity of rainfall is compensated by the inundation of the Indus twice a year, caused by the spring and summer melting of Himalayan snow and by rainfall in the monsoon season. These natural patterns have recently changed somewhat with the construction of dams and barrages on the Indus River. Parts of southeastern Sindh receive rainfall of up to 36 in (91 cm or 910mm) and some cities have received very heavy rainfall on occasion. In 2005, Hyderabad received 14.4 in (37 cm or 370 mm) in just 11 hours. In Padidan (a town in Naushahro Feroze district) a record rainfall of 1,722 millimeters was recorded in the monsoon season of 2022 which was also part of the massive 2022 Pakistan floods and appears on the List of extreme weather records in Pakistan¹⁸.

https://reliefweb.int/report/pakistan/pakistan-2022-monsoon-floods-situation-report-no-03-26-august-2022

¹⁸ https://www.arabnews.pk/node/2149331/pakistan

The map shown in **Figure – 2** indicates that all of the project interventions are falling in Zone 2A & 2B, with peak ground acceleration (PGA) varying from 0.08 to 0.16 & 0.16 to 0.24g (Pakistan Building Code of Pakistan, 2007). While no site is falling in Zone 4 which is called the High Damage Risk Zone and covers areas liable to MSK VIII.

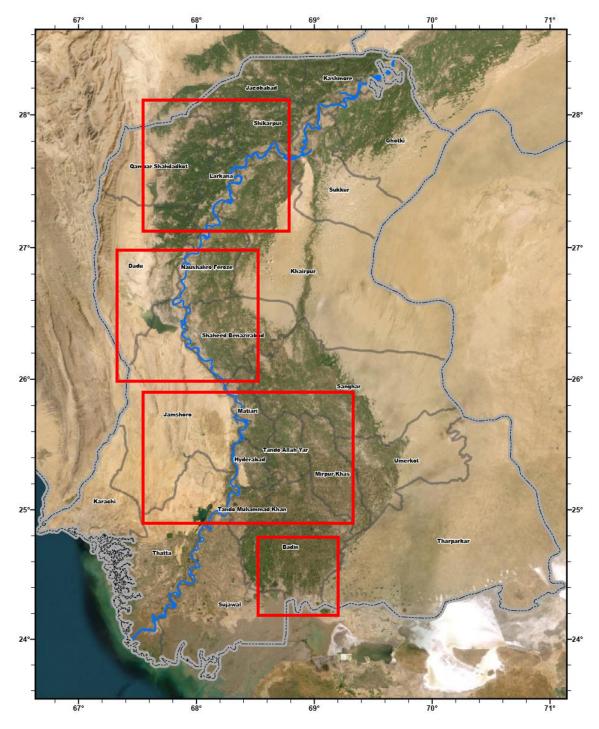


Figure 1: Geographical Map

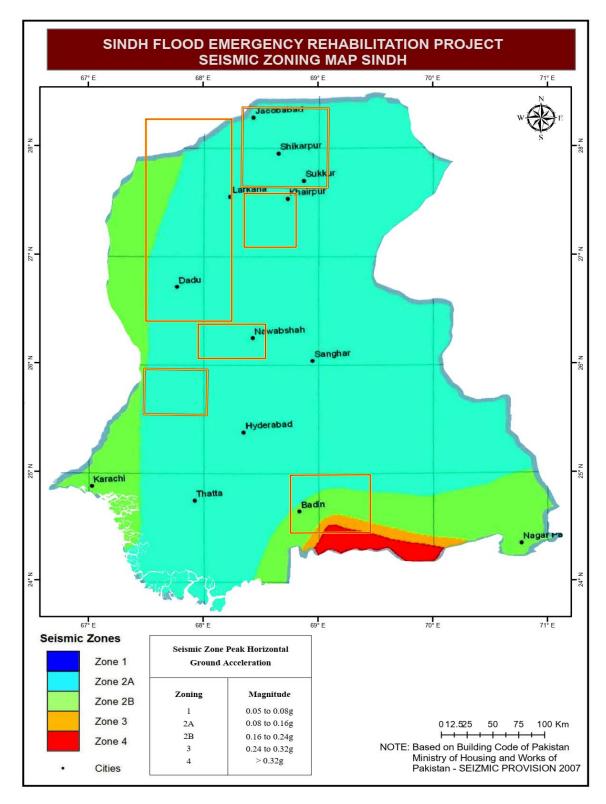


Figure 2: Seismic Zone map

4.1.3 Water Resources

Sindh is one of the primary beneficiaries of the Indus Basin Irrigation System (IBIS). It has three major barrages on the Indus River that divert approximately 48 MAF of water annually to the 14 main canal commands in Sindh. These canal systems have an aggregate length of 13,325 miles and serve a gross command area of 14.391 million acres. There are about 42,000 watercourses, which have an aggregate length of about 75,000 miles. The only perennial surface water channel in the area is the Nara Canal. The Nara Canal is one of the fourteen main canal systems in Sindh with the largest Cultivated Command Area (CCA) of all. It originates from Sukkur Barrage and was built in 1932 as part of the establishment of the Lower Indus Irrigation System. The canal system comprises the upper Nara Canal, which lies between the Sukkur Barrage and Jamrao head-works (the first diversion structure at the canal) and the Jamrao, Mithrao, Khipro, and Thar Canal systems that lie south of the Jamrao head-works¹⁹.

More than 80% of the irrigated land in Sindh is underlain with brackish water unfit for agriculture. The shortage of irrigation water coupled with drought conditions in Sindh has increased the importance of groundwater exploitation wherever fresh water is available.

4.1.4 Air Quality

The proposed project interventions are located in a medium-level populated region with no large-scale industrial or commercial activity. Vehicular traffic on dirt roads causes some dust emissions whose effect is fairly localized. The main pollutants emitted by vehicle exhaust pipes are particulate matter, carbon monoxide, sulfur dioxide, and nitrogen oxides. These emissions generally affect the air quality in the vicinity of the roads. However, traffic on the roads in the proposed project intervention's area is low compared to the national highways or other major roads.

4.1.5 Noise

Vehicle horns and auto rickshaw silencers are two main contributors to growing noise pollution. There is no data available outside of urban centers, but lack of commercial activity and decreased vehicle use likely keep these areas safe from noise pollution.

4.2. Floods

Compared to other provinces, Sindh is especially vulnerable to climate change given its terrain and topography. The poor communities which were still struggling and recovering from the 2010, 2011 and 2012 floods were again affected by torrential rain, flood flows of hill torrents and canal breaches. Flash floods triggered by heavy rains caused widespread destruction across vast areas of Sindh. Due to the lack of resilient infrastructure, these natural calamities have also impacted lives, and livelihoods and disrupted access and connectivity between districts and rural communities. In the upper part of the Indus Basin, floodwater spills over the high banks of the rivers and generally returns to the river. However, in the lower part of the Indus River (Sindh

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¹⁹ https://documents1.worldbank.org/curated/en/261201468780970963/pdf/multi0page.pdf

Province), which is flowing at a higher elevation than adjoining lands, spills water does not return to the main river channel. This largely extends the extent and period of inundation resulting in more damage. Although flood protection by embankments has been provided almost along the entire length of the Sindh Province and many locations in the upper parts of the country, however, sometimes, the bund breaches occurred or are overtopped. The existing flood flows discharging capacity of important structures (Barrages and Rail or Road Bridges) on the river, is inadequate. During exceptionally high floods stage this results in afflux on the upstream side, which sometimes results in breaches in the flood embankments. At times, the flood embankments have to be breached at pre-selected locations to save the main structures.

4.3. Biological Resources

4.3.1 Flora of the Sub-Projects Area

The vegetation of the sub-project area can be classified as a scrub forest (dominated by herbs and shrubs). The plants are best adapted to the ecological conditions either for high or low-temperature fluctuations as well as poor soil and rainfall ranges. The soils of the region are sandy loam to sandy; the soil in the eastern part is alluvial which supports good vegetation. The monsoon rain provides enough water for the annual herbs and grasses to flourish in the study area. The herbs abundantly grow around the region, and this type of vegetation may raise on the water temporarily adsorbed in the topsoil layer, synchronic to precipitation. Further, this is supported by the added layer of moisture present in the subsurface soil and the sandstone lying beneath the soil. However, the dominance of perennial may indicate the resistance of species towards the harsh climate or access to plentiful moisture for long periods after monsoon rains

The common plants of the project area are (*Euphorbia caducifolia*), Phog (*Calligonum polygonoides*), and (*Calotropis gigantea*). In irrigated tracts, Babul (or Babur), *Acacica nilotica*), Talhi (*Dalbergia sissoo*) Nim (*Azadirachta indica*), Jar (*Salvadora oleoides*), and Lai (*Tamarix gallica*) are found.

Dunes are represented by xerophytic plants because of their topographical features. They are all of deserted nature with sandy soil makeup. The dominant and frequent species like Euphorbia caducifolia, Calligonum polygonoides, Aerva javanica, Salvadora oleoides, Indigofera Spp., Aristida Spp and Tribulus longipetalus were forming common vegetation on them.

4.3.2 Fauna of the Sub-Projects Area

In general, the sub-project area hosts eight (8) large mammal species including Asiatic Jackal, Indian Fox, Red fox, Honey Badger, Grey Mongoose, Small Indian Mongoose, Jungle Cat and Indian wild boar recorded. All mammalian species-area common and listed as Least Concern (LC) in IUCN red list. 13 small mammals recorded from microhabitats are common and the least concern in the IUCN list. Two amphibians and 21 species of reptiles were recorded from the study area. These include one Buffo toad, one Skittering frog, six lizards, three geckos, two agamas and four snakes. Out of four snake species, two are poisonous and two non-poisonous. The recorded species belong to 11 Genres and 10 families. 64 bird species are present near

the sub-project area and its surrounding area, among them crested lark, Common many, grey shrike, Black redstart, Indian roller, Indian house crow, Bush babbler and Red-wattled lapwing. All recorded avian species are Least Concern (LC) by IUCN red list.

4.3.3 SFERP's Interventions at Kirthar National Park

Kohistan mountain range is adjacent to the Kirthar range, which is the largest mountain range in the country. The Range extends southward for about 190 miles (300 km) from the Mula River in east-central Balochistan to Cape Monze (Muari), near Mubarak Village, Karachi on the Arabian Sea.

The Kirthar National Park is situated in the Kirthar Range Mountains in Dadu and Jamshoro District in Sindh, Pakistan. It was founded in 1974 and stretches over 3087 km², being the second largest National Park of Pakistan after Hingol National Park, Kirthar National Park lies 80 kms North of Karachi in the South-West of Sindh province within Dadu and Malir Districts. Its headquarter Kerchat is at a distance of 160 km from Karachi. Kirthar National Park is Pakistan's second-biggest National Park. It is also the first National Park from Pakistan to be included in the 1975 United Nations' list of National Parks around the world. Kirthar is an area of outstanding beauty and cultural heritage that provides important habitat for a variety of mammals, birds, and reptiles characteristic of the arid subtropics. The park is part of a 447,161ha protected areas complex, being contiguous with Mahal Kohistan Wildlife Sanctuary (70,577ha) to the south and Hab Dam Wildlife Sanctuary (27,219ha) to the south-west. Surjan, Sumbak, Eri and Hothiano Game Reserve (40,632ha) lies just to the east of the park. Both these protected areas (KNP & MKS) and other protected areas are habitats for threatened and endangered species. The livestock and wildlife are living in harmony for ages. There are two tourist centers in the Park managed by Sind Wildlife Management Board, namely Khar and Karchat. The centers offer cottage and dormitory accommodation and guides are available. There is some 671km of non-metallic/ dirt roads within the park, mostly motorable only by 4X4vehicle.

Furthermore, during the screening stage proposed sub-project interventions will be validated and confirmed regarding there impacts on Protected Area.

Table 1: Proposed Small Flood Detention Dams – SFERP at Kirthar National Park

Sr.	Sr. Proposed Small Dams - Location/Coordinates Stream/Nadi	Approximate Arial distar (KM) form Wildlife Hot S Area			
No	SFERP	250ation/500ramates	Sti earri/Naur	Karchat Center	Khaar Center
1	DD/W-M01	25°40.2920' N 67°25.3900'E	Mol River	35	50
2	DD/W-M2	25°38.3380'N 67°24.9440'E	Mol River	34	42
3	DD/W-M3	25°35.0840'N 67°26.9700'E	Mol River	33	40
4	DD/W-M4	25°33.8750'N 67°26.2710'E	Mol River	38	38
5	DD/W-M5	25°31.1970'N 67°26.6460'E	Mol River	42	36
6	DD/W-M6	25°28.6280'N 67°28.7240'E	Mol River Tributary	40	38

7	DD/W-M7	25°25.0030'N 67°27.0230'E	Mol River	48	28
8	DD/W-M8	25°22'39.04"N 67°25'59.13"E	Mol River Tributary	54	30
9	DD/W-M9	25°20.9430'N 67°27.6710'E	Mol River	55	28
10	DD/W-M10	25°16.9360'N 67°25.9100'E	Mol River	62	30
11	DD/W-M12	25°16.6280'N 67°25.0360'E	Mol River	64	25

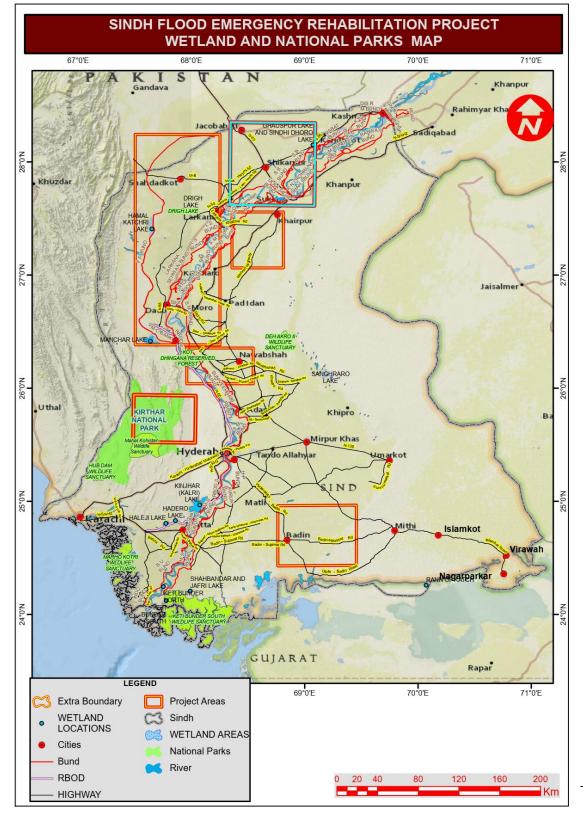


Figure 3: Location Map of Wetland and National Parks

4.4. Social Baseline

4.4.1 Poverty, Social & Gender Assessment

Sindh is the second-largest province of Pakistan. The 2017 Population Census, carried out over 38,842 Census Blocks1 in Sindh, has revealed that the province hosts 47.88 million people or 8.59 million households. The rural population stands at 23.0 million or 4.2 million households. The latter reside in 83 rural talukas of the province. There are 134 *talukas*, of which 83 are rural and 51 are urban.²⁰

The average rural population and household per rural taluka work out to 277,108 and 50,602, respectively. The average population density, persons per square kilometer, in the province is reported at 339/km2, up from 135/km2 in 1981 and 213 km2 in 1998; reflecting an increase of 151% in 2017 over 1981.

Sindh is considered the economic hub of Pakistan. The cities of Sindh have remained prominent centers of trade and industry in the region throughout its history. It has a thriving industrial base with natural resources, a relatively well-developed infrastructure, competitive human resources, two major ports, a functioning communication network and a modernized financial & services sector. Sindh's coastline of approximately 350 km with thick mangrove forests is a very productive resource. Nearly half of the fish exported from Pakistan are from Sindh: 71% of marine fish resources, 65% of fresh fish resources, and 100% of brackish water fish resources are located in Sindh. Around 60% of the country's oil fields and 44% of gas fields are located here and contribute 56% of oil and 55% of Pakistan's daily gas production. It has one of the largest coal reserves in the world (185b tones) and a huge potential for renewable energy with a 60 km wide and 180 km deep wind corridor.

The country's largest port city, Karachi, is the financial capital of the country. The province comprises of 23% of Pakistan's population and 18% of its land area. It has the highest concentration of urban population at 49% as compared to an overall country average of 32.5%, making it the most urbanized province in the country. Its contribution to the national GDP is around 33%. Sindh collects 70% of Pakistan's Income Tax and 62% of Sales Tax. Sindh has 54% of the country's textile units, 45% of its sugar mills, 20% of pulp & paper mills and 35% of edible oil processed locally. Sindh accounts for 34% of the total industrial capacity in large-scale manufacturing and 25% of small-scale manufacturing. Sindh's diversified economy also comprises a well-developed agricultural base supported by an effective irrigation network on the Indus. Around 14% wheat, 30% rice, 30% sugar cane, 25% cotton and 30% of vegetable crops grown in Pakistan are from Sindh. While average poverty levels in Sindh exceed that of the average in Pakistan, poverty levels vary within the province as well.

The southeast part of Sindh is the poorest region in the province. On the other hand, central Sindh is relatively less poor, whereas the southwest of the province appears to be the least poor region. Analysis of inter-district poverty levels in Sindh shows that the south-eastern districts of Tharparker, Mirpurkhas, Badin, Tando Mohammed Khan and Thatta are the poorest,

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²⁰ Poverty Reduction Strategy, P&DD GoS

followed by the northern districts of Shaheed Benazirabad (formerly Nawabshah), Larkana, Qamber-Shadadkot, and Jacobabad. Other districts that rank high on the poverty scale are Jamshoro, Tando Allah Yar and Matiari. Together they account for half the districts in Sindh. Karachi and Hyderabad are major cities in the province and rank among the least poor. Ironically, Thatta is located adjacent to Karachi, the least poor, but ranks 5th on the poverty scale. Similarly, Jamshoro, Tando Mohammed Khan, Tando Allah Yar and Matiari are all located adjacent to Hyderabad, but among the poorest districts. The pattern indicates a failure of the multiplier effect, geographically; i.e., a failure of development in the large urban centers to extend benefits to surrounding small cities and towns/rural areas. The situation justifies targeted poverty reduction measures in periurban and rural areas.

Human Development in Sindh is hampered by poor indicators in education. Primary enrolment and retention rates have only marginally improved in Sindh over the decade. They drop drastically at the middle and high school levels. Pakistan is reported to have the world's second-highest number of out-of-school children (OOSC), with an estimated 22.8 million children aged 5-16 not attending school. The Pakistan Social and Living Standards Measurement (PSLM) 2018-2019 Survey states that 44 percent of OOSC belong to Sindh, with a disturbing majority of girls in rural areas. At the district level, school participation rates vary but are low for most districts.²¹ The indicators for primary education show an overall 49 percent of attainment with high urban/rural and extreme gender disparities. The persistent gender gap in both early and secondary levels of education is reflected in literacy too, with a low incidence of literacy in rural areas and the lowest amongst females. Many factors discourage children and in particular girls, from attending schools. Inadequate access to water and toilets in schools are among the top reasons. The 2019 Profiling of Schools by Sindh Education and Literacy Department (SELD) shows that only 47 percent of public schools have water, 60 percent toilets and only 13 percent have hand-washing facilities.

Sindh is in protracted crises with high levels of food insecurity characterized by recurrent disasters and prolonged food crises, the breakdown of livelihoods and insufficient institutional capacity to react to emergencies. Consecutive disasters have a severe long-term impact on livelihoods and food security, as well as contribute to reversing gains in alleviating poverty, agricultural development and reducing hunger. The yearly cost of natural resource losses and disasters in the province equals 4 to 6 percent of the estimated GDP, with crop losses resulting from salinity and waterlogging contributing about 46 percent of the total annual cost, disasters about 33 percent, and the rest the result of different types of natural resource depletion.²²

4.4.2 Gender Analysis

The Global Gender Gap Report 2021 by the World Economic Forum (WEF) ranks Pakistan 153rd out of 156 countries on the gender parity index. Economic participation and opportunity remain severely limited for women because of their lack of educational attainment, poor health, little or no ownership/control of land and restrictive cultural norms. Though Employment Trends

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²¹ The Pakistan Social and Living Standards Measurement (PSLM) 2018-2019

²² Climate-Smart Agriculture for Disaster Risk Reduction in Sindh, Pakistan, FAO, 2019

2018, PBS on labor participation rate states overall female participation to be 22.8 percent, there is a growing debate that women's work in agriculture remains largely unrecognized, unpaid, or underpaid. It is argued that their economic contribution is not properly reflected in official statistics. A 2015 FAO publication, Women in Agriculture in Pakistan, states that in Sindh, women's involvement is more than men's in crop production, livestock and dairy production, forestry and fisheries. Empirical evidence also suggests that women are increasingly getting involved in agriculture as men migrate to urban centers for more lucrative earning opportunities. This has been reaffirmed at length in Rural Women in Pakistan, Status Report 2018 by the National Commission on Status of Women, a statutory body. Despite women's overwhelming participation in the agriculture sector of Sindh, the enabling environment for rural women remains abysmally weak to help them transition to more progressive means of farming.

CHAPTER - 5. STAKEHOLDER ENGAGEMENT AND DISCLOSURE

5.1. Objectives of Stakeholder Engagement

Environmental and Social Standard 10 (ESS10: Stakeholder Engagement and Information Disclosure), the ESF requires the timely, relevant, understandable, and accessible disclosure of project information in a way that is free of manipulation, interference, coercion, discrimination, and intimidation.

The requirements of ESS10 are addressed through the Stakeholder Engagement Plan (SEP) which outlines the ways in which the project team will communicate with stakeholders and includes a mechanism by which stakeholders can raise concerns, provide feedback, and make grievances related to project activities. It does this by:

- Establishing a systematic approach to stakeholder engagement that will help Borrowers identify stakeholders and build a constructive relationship with them, particularly with project-affected parties (PAPs)
- Assessing the level of stakeholder interest and support for the project, and enabling stakeholder views to be taken into account in project design and environment and social performance
- Promoting and providing means for effective, inclusive engagement with project APs throughout the project lifecycle
- Ensuring that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible, and appropriate manner

The SEP will focus on the identification of, and engagement with project stakeholders, and guides inclusive and meaningful engagement. It is a 'live' document and is updated throughout the life of the project as required to include newly identified stakeholders, engagement methods, and changing needs of the project.

5.2. Stakeholder Identification

For the purposes of effective and tailored engagement, stakeholders of the proposed project(s) can be divided into the following core categories:

- 1. Affected Parties
- 2. Other Interested Parties
- 3. Disadvantaged/Vulnerable Individuals or Groups

5.2.1 Affected Parties (APs)

Affected Parties are those groups of people that are directly influenced (actually or potentially) by the project and/or have been identified as most susceptible to potential risks and impacts associated with the project and who need to be closely engaged including local community members and other parties that may be subject to direct impacts from the Project. Specifically, the following individuals and groups fall within this category:

Sector	Affected Parties	Impact Level
		4 11: 1
Government of	1. Sindh Irrigation Department	1. High
Sindh	2. Agriculture, Supply and Prices Department	2. High
	3. Livestock & Fisheries Department	3. High
	4. Provincial Disaster Management Authority, Sindh	4. High
	5. Food Department	
	6. Health Department	5. High
	7. Public Health Engineering & Rural Development De-	6. Low
	partment	7. High
	Local Government Department	8. Medium
	School Education & Literacy Department	9. High
	10. Sindh Coastal Development Authority	10. Low
	11. Environment, Climate Change & Coastal Development Department	11. High
Community	1. Villagers and residents of towns who lost their houses,	1. High
	crops and other assets, and livelihoods	2. High
	2. Agriculture farmers and workers	3. High
	3. Farmers Organizations/ Water Users Associations	4. High
	4. Livestock/dairy farmers	5. High
	5. Fishing community	
Private Sector	1. Sindh Balochistan Rice Millers and Traders Association	1. High
	2. Dates processing unit owners	2. High
	3. Mango Growers Association	3. Low
	4. Sugarcane Farmers associations	4. High
	5. Traders Associations	5. Medium
	6. Shop Keepers	6. High
	7. Daily wage earners	7. High
	8. Livestock and dairy Traders	8. High
	9. Poultry farmers and poultry traders	9. Medium
	10. Seed, Fertiliser and Pesticide Dealers	10. High
	11. Agriculture Machinery Owners	11. High
	12. Artisans of rural markets	12. High
	13. Road side and street vendors	13. High
	14. Archard contractors	14. Medium
	15. Micro-Finance Institutions (Banks/NGOs)	15. High

	16. Sindh Goods Transporters Association	16. Medium
	17. Fish Farm Owners	17. Medium
	18. Veterinary service providers	18. High
	19. Middle men in markets	19. High
Others	Local NGOs involved in disaster response work	1. High
	2. Donor organisations	2. High
	3. Charity groups	3. High
	4. Sindh Abaadgar Board	4. High
	5. Sindh Chamber of Agriculture	5. High
	6. Contracted workers, consultants	6. Low

5.2.2 Other Interested Parties (OIPs)

Other parties interested in the Project are identified as individuals, groups, or organizations who may not be directly affected by the Project but who can help play a role in identifying potential risks, impacts, and opportunities for the Borrower to consider and address in the assessment process and throughout project preparation. The following Other Interested Parties (OIPs) have been identified as stakeholders of the Project:

Sector	Other Interested Parties (OIPs)	Impact Level
Government	National Disaster Management Authority	1. High
	(NDMA)	2. Low
	2. Federal Flood Commission	3. Low
	3. Pakistan Meteorological Department	4. Low
	4. Indus River System Authority	5. High
	5. Politicians (local leadership in affected areas)	6. Medium
	6. Federal Ministry of Water Resources	7. Medium
	7. Federal Ministry of Food Security	8. Low
	8. Economic Affairs Division	9. Medium
	9. Social Protection Unit and Social Welfare De-	10. High
	partment, Sindh	11. Low
	10. Planning and Development Department,	12. Low
	Sindh	13. Medium
	11. Sindh Police Department	14. Medium
	12. Federal Ministry of Climate Change	
	13. Social Welfare Department, Sindh	
	14. Revenue Department, Sindh	
Community	General Public	• High
Private Sector	Pakistan Cotton Ginners Association	1. High
	2. Rice Exporters Association of Pakistan	2. High
	3. The All Paki-	3. Low

	stan Fruit &Vegetable Exporters, Importers &	4. Low
	Merchants Association (PFVA)	5. Low
	4. All Pakistan Textile Mills Association	6. High
	5. All Pakistan Ginners Association	7. High
	6. Pakistan Sugar Mills Association	8. High
	7. Private sector companies providing agriculture	9. Low
	inputs/ support:	10. High
	a. Seed producers/suppliers	11. Low
	b. Pesticide manufacturers	12. Medium
	c. Fertilizer manufacturers	13. High
	d. Agriculture equipment/machinery	14. Low
	manufacturers	15. High
	8. Construction contractors	16. Medium
	9. Property dealers	17. High
	10. Construction material suppliers	
	11. Insurance companies	
	12. Cargo Companies	
	13. Public Transporters	
	14. Pakistan Pharmacist Association	
	15. Telecommunication companies	
	16. Courier Service Companies	
	17. Goods Transporters Association	
Others	1. UN Agencies (e.g WHO, WFP, UNICEF)	1. High
	2. Media Groups	2. High
	3. Sindh Culture & Tourism Department	3. High
	4. Cultural Organisations, writers, archeologists	4. High
	5. Universities and research institutions, e.g.:	5. Medium
	 Mehran University of Engineering & 	
	Technology, Jamshoro	
	Sindh Agriculture University, Tando	
	Jam	
	Liaquat University of Medical & Health	
	Sciences, Jamshoro	
	International Water Management Insti-	
	tute	
L		

5.2.3 Disadvantaged/Vulnerable Individuals or Groups

Disadvantaged or vulnerable individuals or groups are those people or groups highly vulnerable to potential project impacts and often do not have a voice to express their concerns or understand the impact and risk of the project. They may be disproportionately impacted or further disadvantaged by the project as compared with any other groups due to their vulnerable status, and usually require special arrangements to ensure their equal representation in the consultation and decision-making process associated with the project. Their vulnerability may

stem from a person's origin, gender, age, health condition, disability, economic deficiency and financial insecurity, disadvantaged status in the community (e.g. ethnic and religious minority groups, Indigenous peoples), dependence on other individuals or natural resources, etc.

Awareness raising and stakeholder engagement with disadvantaged or vulnerable individuals or groups on the project must consider such groups' or individuals' sensitivities, concerns and cultural differences to ensure a full understanding of project activities and benefits. Engagement with these vulnerable groups and individuals often requires the application of specific measures and assistance aimed at the facilitation of their participation in the project related decision-making so that their awareness of and input to the overall process are commensurate to those of the other stakeholders.

Within the proposed Project, the vulnerable or disadvantaged groups may include, but not limited to, the following:

Sector	Disadvantaged/Vulnerable Individuals or Groups	Impact Level	
Community	Women agriculture and livestock farmers	1. High	
	2. Pastoralists	2. High	
	3. Indigenous Peoples	3. High'	
	4. Ethnic/religious/gender minorities	4. High	
	5. Elderly people in hard-hit areas and facing	5. High	
	food shortages	6. High	
	6. Female-headed households	7. High	
	7. Lactating mothers and pregnant women	8. High	
	8. Children and youth heads of households	9. High	
	9. Agriculture labor dependent on share-	10. High	
	cropping (<i>Haaris</i>)	11. High	
	10. Communities practicing subsistence farm-	12. Medium	
	ing	13. High	
	11. People with special needs such as Preg-	14. High	
	nant women, children, and those in poor	15. Low	
	health	16. Low	
	12. Illiterate persons	17. Low	
	13. Women Artisans (handicraft makers etc)	18. High	
	14. Differently abled/physically challenged people		
	15. Infants/children		
	16. Local folk artists		
	17. Prisoners		
	18. Casual/Informal labor force (coolies, construction workers, bus conductors etc)		

Vulnerable groups within the communities affected by the project will be further confirmed and consulted during Environmental and Social Assessment preparation through dedicated means, as appropriate.

5.3. Stakeholder Engagement Plan

The standalone Stakeholder Engagement Plan (SEP) has been prepared and disclosed for the project and provides a detailed list of stakeholders consulted and to be consulted during project design and implementation, the mode of consultations, frequency and responsibilities. The SEP, being a live document is to be updated throughout the life of the project to ensure active, robust and transparent stakeholder engagement.

5.4. Key Findings from Stakeholder Engagement

The project preparation included a detailed mapping of the stakeholders. Individuals and groups likely to be affected (direct beneficiaries) were identified. Initial mapping of other interested parties such as other relevant Government departments, national organizations and private sector organizations has been completed. Following initial disclosure and with the commencement of implementation of the project, the SEP will be updated based on subsequent consultations with various stakeholder groups. These will include key informant interviews and in-depth discussions to learn about their expectations and concerns.

The SEP initially prepared by the client and disclosed publicly (website of the implementing agency) will be updated during the early implementation phase. SFERP will also strengthen its existing GRM to enable stakeholders to air their concerns/ provide feedback/ suggestions.

Preliminary discussions with the project proponent/parent department were held during the preparation stage of the framework. Information on positive and negative impacts associated with the construction and operational stages and mitigation of adverse impacts was also shared at these consultations.

The SFERP PIU-SID team held consultation meetings with relevant Government departments in Karachi and Hyderabad in October-November 2022. The team met with the officials of Sindh Resilience Project (PDMA component), Sindh Environment Protection Agency (EPA), Sindh Irrigation & Drainage Authority (SIDA), and Sindh Barrage Improvement Project (SBIP). The SEPA suggested that the rehabilitation work should be undertaken by adhering to the environmental protection standards set by the department and that NOC should be obtained for all the project interventions. The other stakeholders suggested that SFERP should avoid duplication and supplement ongoing projects being implemented in Sindh. They suggested that an integrated approach may be adopted for the implementation of the project.

While separate consultations were conducted by PIU-P&DD with relevant Government departments in Districts of Sindh Province in October-November 2022. The team met with the officials of XEN Highway Department, Public Health and Engineering Department (PHED), Social Welfare Department (SWD), Elementary and Secondary Education Department, Sindh Resilience Project (SID component), Sindh Environment Protection Agency (EPA), Sindh

Irrigation & Drainage Authority (SIDA) and Sindh Barrage Improvement Project (SBIP). The SEPA suggested that the rehabilitation work should be undertaken by adhering to the environmental protection standards set by the department and that NOC should be obtained for all the project interventions. The other stakeholders suggested that SFERP should avoid duplication and supplement ongoing projects being implemented in Sindh. Further, it is suggested that an integrated approach may be adopted for the implementation of the project. The majority of the stakeholders expressed their positive views related to the rehabilitation works specifically flood-affected roads. The stakeholders suggested that the rehabilitation works would lead to improvement in overall socioeconomic conditions in the sub-project areas.

As part of the process, stakeholder engagement will be continued during the course of project implementation.

5.5. Proposed Strategy for Information Disclosure

Information disclosure will follow the World Bank disclosure protocol. As a disclosure requirement, the Environmental and Social Management Framework. (ESMF) will be uploaded on the SFERP /SRP Sindh Irrigation Department website, while an executive summary of ESMP of the reported proposed project interventions will be translated into Sindhi after approval from the World Bank and will be uploaded on the website of SRP Sindh Irrigation Department.

Table 2: Methods for Information Disclosure

Project stage	Target stakeholders	Information to be disclosed	Methods proposed
Preparation	SFERP affected parties, interested groups, the public at large, vulnerable groups, Government entities	Appraisal stage SEP, Appraisal stage ESCP ESMF and other safeguards docs (e.g. RF, E&S audit report)	Website of SFERP/SRP before project effectiveness One-on-one meetings,
			Consultation meetings
Implementation	SFERP, and other relevant Government ministries and entities	E&S principles and obligations, Consultation process/SEP, ESCP, project information	Website of SFERP/SRP One-on-one meetings
			Consultation meetings

Local communities and Vulnerable groups (including minorities, women, and people with disabilities)	Regular updates on project activities and specific interventions for vulnerable groups, SEP and GRM procedures.	Outreach through local community organizations Public notices
		Press releases in the local media and on the project website
		Airing of key messages through programs on local FM radio, television and text messages
		Dissemination of information through social media
Other ministries and relevant public agencies	Project overview, Progress reports, SEP and GRM procedures.	Consultation meetings Electronic publications Information leaflets and brochures
NGOs, Farmers,	Scope of Project, social protection interventions, opportunities for collaboration, updated SEP and GRM procedures. ESMF and other safeguards docs	Information Resource portal on the project website Bi-Annual Project Dissemination

	(e.g. RF, E&S audit report	Workshops
		Press releases and announcements in the media, notifications of the disclosed materials to local, regional, and national NGOs
General public	Farmers, Updated SEP and GRM procedures ESMF and other safeguards docs (e.g. RF, E&S audit report	Website of SRP-SFERP Print, electronic, broadcast, and social media
		Brochures, leaflets, posters, nontechnical summary documents and reports
		Mosque announcements in areas
		Local influential people (councilors, community workers, etc.)

CHAPTER - 6. ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION

This chapter identifies the initial assessment of potential adverse environmental and social risks and impacts expected during the construction and implementation phases of the project. The appropriate generic mitigation measures for each impact are also proposed. The risks identified and generic mitigations proposed will guide during the preparation of required E & S instruments (ESIA/ IEE/ ESMP/ Checklist) of the proposed project interventions.

6.1. Design and Construction Phase Impacts and Mitigation

6.1.1 Soil Erosion and Pollution

The proposed interventions and associated activities will potentially involve some excavation, quarrying/creation of borrow areas, land clearing, and land leveling. These activities can disturb and destabilize the surrounding soil, making it more susceptible to erosion due to wind or rain, and degrading its quality, as well as increasing the chance of degradation which can put road users and project labor. Erosion can also lead to silt runoff which can accumulate in nearby water bodies and cause blockages in rainwater and municipal drainage systems.

These impacts are expected to be limited to the immediate vicinities of proposed project interventions.

Mitigation:

- Sites for construction camps will be selected to avoid or minimize vegetation removal/clearing.
- Access roads at each proposed project intervention site will be selected to minimize soil erosion and impact on landscapes.
- Sites disturbed by construction activities will be restored to their original conditions.
- Slope protection measures are included in the project design as part of the protection bund & road rehabilitation/improvement activities. These will be implemented based on the level of risk, which will be assessed by the contractor before construction.

6.1.2 Solid Waste Generation

The civil works anticipated are likely to generate construction waste such as waste concrete and asphalt, empty containers (e.g. cement bags, asphalt drums), excavated material, and municipal waste from construction camps. Construction waste, if not properly managed and disposed of, can have negative impacts on the surrounding area including causing blockages in drainage channels, contamination of nearby water bodies, and soil contamination. Discarded materials and equipment may also pose traffic safety risks if left on or near transport routes.

Mitigation:

- Construction waste will be routinely collected and safely disposed of in clearly demarcated waste disposal sites located near each proposed project intervention site following international best practices.
- Waste disposal will be carried out following international best practices, and will ensure that
 there are no negative impacts on soil, water bodies, existing waste management systems,
 transport routes, and the aesthetic value of the area.
- Waste construction materials should be reused at other proposed project intervention sites if possible.
- The labor workforce will be trained in the handling, storage, and disposal of construction waste.
- Site-specific Solid Waste Management Plans (SWMPs) will be developed and implemented by contractors.

6.1.3 Traffic and Road Safety

The rehabilitation/up gradation activities carried out are likely to cause traffic disruptions due to road closures and the movement of construction machinery. These disruptions may cause inconvenience to local communities and other road users. Traffic congestion and road closures may also increase the traffic load on alternative routes, causing disturbances beyond the proposed project intervention locations. The increased traffic can also pose a community and occupational health and safety risk, which can be exacerbated by poor traffic management.

Mitigation:

- Contractors will prepare a comprehensive Traffic Management Plan (TMP) for each proposed project intervention site. The indicative contents and objectives of the TMP are provided in Annex C: Traffic Management Plan (TMP)
- Movement of vehicles carrying construction materials and heavy equipment will be restricted
 to the nighttime to distribute traffic load and reduce inconvenience to local communities and
 other road users.
- At construction sites, vehicles and other machinery will be parked in designated areas to minimize congestion.
- Operators of construction vehicles will be trained on safe driving and will be required to strictly adhere to local traffic laws.
- Damage to roads as a result of construction works will be repaired immediately upon the conclusion of the works.

- Clear signage will be provided within and around construction sites notifying drivers of alternative routes, construction schedules, road closures, and any other relevant information.
- Residents living adjacent to construction sites will be directly notified about construction schedules, road closures, safety precautions, etc.

6.1.4 Noise Pollution

An increase in ambient noise and the vibration is expected due to the operation of heavy construction machinery such as bulldozers, excavators, pneumatic machinery, etc. Noise pollution generated by the activities is likely to have impacts on sensitive receptors located within 500 meters of the construction area. High ambient noise can have adverse psychological and physiological effects (increased blood pressure, sleep disturbance, etc.) on communities near construction sites, and can also cause significant disturbance to local wildlife.

While noise pollution impacts are expected during the construction phase of the project, these will likely be short-term in nature and are unlikely to have any lasting effects once the construction is completed.

Mitigation:

- Construction vehicles and machinery will be kept in good working condition and be properly tuned and maintained throughout construction work to minimize excessive noise/vibration.
- Noisy construction work will be limited to normal working hours to minimize disturbance to nearby communities.
- When possible, noisy construction activities (e.g. concrete mixing) will be displaced from the construction sites to a distance of at least 2 kilometers from the nearest sensitive receptors.
- Construction schedules will be disclosed to communities in a 2-kilometer vicinity of proposed project intervention sites before beginning construction work.
- Ambient noise will be regularly measured to ensure that the thresholds set in the SEQS are not exceeded.

6.1.5 Air Pollution

Ambient air quality in the proposed project intervention areas is expected to deteriorate during the construction phase due to the emission of carbon monoxide (CO), sulfur oxides (SO_x), nitrogen oxides (NO_x), and other greenhouse gases as well as fine particulate matter from machinery and construction activities, including quarrying and stone crushing activities. Emissions may also be carried over longer distances depending on atmospheric conditions. These emissions can have potentially adverse impacts on human and animal life.

The critical sources of air pollution during the construction phase for rehabilitation and reconstruction of the affected road network & village road bridge (VRB) construction are listed below:

- Asphalt and batching plants that generate emissions containing un-burnt hydrocarbons and particulates, sulfur compounds, and dust from aggregate preparation.
- Quarry areas generate fugitive dust during the rock blasting and crushing.
- Earth haulage trucks generate, particularly during the loading and unloading processes.
- The overall impact on air quality will be short-term in nature and will be unlikely to have lasting impacts after the conclusion of the construction phase.

Mitigation:

- Asphalt and concrete batching plants will be equipped with dust control equipment such as fabric filters or wet scrubbers to reduce the level of particulate emissions.
- The SEQS applicable to gaseous emissions generated by the construction vehicles, equipment, and machinery will be enforced during the construction of works.
- Construction machinery and vehicles will be kept in good working condition. Maintenance schedules will be developed and will be followed throughout construction to minimize excessive emissions.
- Construction sites and access roads will be regularly sprinkled with water to suppress excessive dust emissions.
- Air quality monitoring will be carried out on a quarterly basis in each respective subproject to ensure that the thresholds set in the SEQS are not exceeded.

6.1.6 Contamination of Water Resources

The project may operate in areas containing important local water resources which may be at risk of contamination from construction site runoff. Runoff is likely to contain oil and other automotive/mechanical fluids, as well as chemicals and materials used in the construction process. Contamination of local water resources can have adverse impacts on their productivity (as fisheries, for example), and can also pose health and livelihood risks to communities that depend on them for household and agricultural use.

Mitigation:

 Construction machinery will be kept in good working condition and be properly tuned and maintained throughout construction to avoid spills and leaks.

- Wastewater from construction sites will be disposed of at designated sites selected to avoid impact on surface or groundwater. Wastewater will be tested against SEQS and WHO guidelines before discharge/disposal.
- Leakages/spills at construction sites will be immediately cleaned up using the appropriate international best practices to avoid a runoff.
- Water quality monitoring of water resources near proposed project intervention sites will be conducted before, during, and after the construction activities to quantify and characterize any impacts.

6.1.7 Wastewater from construction camps

A secondary adverse impact is the improper disposal of wastes (organic and inorganic) at the camp and work sites. The groundwater, which is a source of drinking in some areas, maybe potentially contaminated by the release of untreated sewage from construction camps and offices.

Mitigations

A contractor will make his arrangement, would not rely on existing community resources, and would not extract from sources currently used by the community. Moreover, the Contractor must provide the following facilities at each campsite: Latrines; lined washing areas; septic tanks, and soaking pits for toilet waste. key mitigation measures are listed below.

- There should be proper septic tanks and soaking pits for sewage treatment and disposal, sewage/sanitation at work camps and proper wastewater collection facilities. Wastewater effluent from contractors will be passed through an oil skimmer and to gravel/sand beds to remove oil/grease contaminants before discharging it into the water body. The Septic tank and soak pit shall be covered properly to avoid any obnoxious smell in the surrounding areas. The soak pit will be built in absorbent soil and located 300m away from a water well. Soak pits will be designed to accommodate wastewater generated during the total operation. Soak pit will be constructed such that surface runoff cannot enter the pits. At the time of restoration, septic tanks will be dismantled in place and backfilled with at least 1m soil cover keeping in view the landscape of the surrounding natural surface
- The E & S team of PIU. shall carry out regular monitoring of water quality as per SEQS.
 Wastewater from laundry, kitchen washings and showers will be disposed of in separate soak pits.
- In case the soak pits are filled, greywater will be sprinkled over access tracks. A sprinkling
 of greywater will be done in a manner such that ponding of water is avoided.
- Water consumption will be monitored during the construction stage and records will be maintained to avoid any wastage.

 Community liaison will be maintained and GRM will be established to address complaints related to waste disposal.

6.1.8 Community health and safety

During the construction stage of the proposed sub-project, there shall be impacts on the health, safety and hygienic conditions of the local community. The potential impacts on the local communities shall be direct, such as being struck by moving vehicles within and outside the sub-project area and indirect through the decrease in air quality surrounding the sub-project area. The air quality will reduce as a result of increased dust generated from construction and on transport routes, as well as due to emissions from plants and vehicles. The impact will continue for the duration of the works and can be mitigated by using water bowsers.

Community Health and Safety-Related Mitigations

All works shall be excluded from within 500 m of any residential area. The following steps are suggested for the proper management of traffic on routes to be used for material transport within the sub-project area:

- The contractor will have to prepare Site Specific Labour Management Plan/an Occupational Health and Safety Plan according to Sindh Occupational Safety and Health Act 2017 while adhering the ESS2 Labor and Working Conditions as well as Labour Management Procedure (LMP) and will submit it to the PIU for review and approval. When approved, the contractor will implement the plan during the construction period. This plan will need to describe all jobs, their risks, and the controls that will reduce risks; these controls may include PPEs, restrictions on activities or locations, and other measures. The plan also needs to describe what type of training will be given to the workers. Those who work near water, at heights, and with heavy equipment will need special training so those hazards can be managed and minimized.
- The Contractor will display signboards and banners about traffic diversion at places on detour routes; Provision of speed breakers at appropriate places in consultation with/approval of the Engineer which should be removed after completion of the project; Establish and obey speed limits;
- Community liaison will be maintained during the construction stage and GRM will be established to address complaints related to safety hazards.

6.1.9 Impacts on public utilities

If Community infrastructure like bridges, telephone & power lines, cultural buildings, archaeological monuments, etc., will disrupt by the Project these will be compensated on a replacement cost basis in consideration of the current construction cost of the facilities, if not better, at least of a level similar to the one disrupted.

6.1.10 Social Exclusion

The project is likely to generate some additional employment opportunities during the construction phase. Vulnerable groups and historically underserved communities may fail to benefit from employment opportunities due to discrimination and exclusion. This risk can be compounded by elite capture and selection bias in the hiring process. The social exclusion of vulnerable groups in project employment may be expected in the livelihood Component (CfW)

6.1.11 Livelihood Component (CfW)

Sources of livelihood were severely affected due to floods in 2022 as the damage to households and livelihoods was enormous. The damage to crops due to the floods was quite significant.

Cash for Work for communities will also engage the communities in semi-skilled or unskilled work like cleaning, minor rehabilitation activities and restoration activities.

Mitigation:

This will include the entitlement matrix, list of the affectees, compensation amount, payment procedures, institutional arrangements for livelihood restoration plan implementation, and monitoring arrangements. A grievance redress mechanism (GRM) will be established to address community complaints relating to misappropriation hwith the beneficiaries. The component will provide immediate financial assistance to vulnerable communities through the following interventions.

- Cash for work to the affected communities to rehabilitate small community structures and damaged Houses with the coordination of SFERP.
- Provision of Labor Kits to skilled and semi- skilled labors to rehabilitate their Houses and allied structures.
- Provision of Non-Conditional Grants to affected Households to restore their productive assets i.e livestock, poultry and kitchen gardens, etc.
- Female committee organizations will be used to mitigate the risk of cfw and livelihood grants.
- For livelihood nonconditional grants livelihood restoration plan for every beneficiary household will be developed.
- All the cfw transactions would be made through banking channels. During cash-for-work payments, the beneficiaries will withdraw their wages by verification of their thumb impression.
- A third-party monitoring and validation firm will be hired to address the misappropriation issues if any.
- A supervisory consultant firm will be hired to supervise and validate the social mobilization process and transactions to beneficiaries.
- The component will be implemented through the hiring of Social Mobilization Partners (SMP).
- Identification of beneficiary communities of severely impacted Districts, Talukas and Union councils by using National Socioeconomic Register (NSER) database.

- At least 30% of Women beneficiaries will be ensured.
- All project-related employment, including employment by third-party contractors, will adhere to federal and provincial labor laws and regulations.
- All project staff with functions related to recruitment will be trained on social inclusion and the relevant government and Bank regulations.
- All project workers will be trained on the Grievance Redress Mechanism and will be encouraged to use it in case of complaints related to employment.

6.1.12 Land Acquisition and Involuntary Resettlement

The proposed project will support the rehabilitation and improvement of the existing irrigation and drainage infrastructure including bunds, roads & buildings and hence there is no Land acquisition expected. However, for construction activities of Rescue 1122 buildings Additional channels planned under the irrigation component, and roads may have land acquisition but not involuntary resettlement issues. While the removal of minor encroachments may result in the temporary economic displacement of roadside stalls and vendors at Village road bridges areas...

Mitigation:

 A Resettlement Framework will be prepared as per Sindh Resettlement & Rehabilitation Policy, 2022 draft as well as in compliance with ESS5 – Land Acquisition, Restrictions on Land Use and Involuntary Resettlement. The RF provides guidance on the preparation of site-specific Resettlement Plans (RPs) that will be prepared for all proposed project interventions. The RF also describes the eligibility requirements and compensations for parties that are economically displaced by the construction activities.

6.1.13 Occupational Health and Safety (OHS)

The health and safety risks which could impact the construction workers are primarily associated with the construction activities of the sub-project. In particular, the various risks of injuries and accidents for workers are related to the rehabilitation of flood-affected infrastructures and associated activities. The typical risks include exposure to the physical hazards of using the construction equipment, working near running traffic, operating equipment, working on and near scaffolding, tripping and falling, handling bitumen, burns, exposure to noise and dust, falling objects, traffic hazards associated with the operation of project-related vehicles, exposure to hazardous materials and exposure to electrical hazards related to the use of tools and machines as well as the prevalence of the incidence of respiratory diseases as a result of dust and emissions.

6.1.14 Health and Safety-Related Mitigations

The following steps are suggested for the proper management of occupational health & Safety within the sub-project area:

• The contractor will have to prepare Site Specific Labour Management Plan, an Occupational Health and Safety Plan as well as a Community Health & Safety plan according to Sindh

Occupational Safety and Health Act 2017 while adhering to the ESS2 – Labor and Working Conditions as well as Labour Management Procedure (LMP) exclusively prepared for SFERP and will submit it to the PIU/s for review and approval. When approved, the contractor will implement the plan during the construction period. This plan will need to describe all jobs, their risks, and the controls that will reduce risks; these controls may include PPEs, restrictions on activities or locations, and other measures. The plan also needs to describe what type of training will be given to the workers. Those who work near water, at heights, and with heavy equipment will need special training so those hazards can be managed and minimized.

- The contractor will ensure the use of Personal Protective Equipment (PPEs) for his labours during the construction period; OHS Training
- The contractor will train his crews on the aspects covered in the above-described Plan;
- The contractor shall fence the working area and unauthorized shall not be allowed to enter the area;
- The contractor will hire an HSE officer with adequate experience to address the above impacts.
- The Contractor will display signboards and banners about traffic diversion at places on detour routes;
- Provision of speed breakers at appropriate places in consultation with/approval of the Engineer which should be removed after completion of the project;
- Establish and obey speed limits;
- The Contractor will maintain workers' hygienic conditions in labour camps.
- 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.
- Drivers will fix the net on containers while transporting stones and sand etc.
- Community liaison will be maintained during the construction stage and GRM will be established to address complaints related to safety hazards.

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

6.1.15 Disturbance to Ecosystems

Project construction activities (including the establishment of labor camps, quarries, and borrow areas) may have the potential to adversely impact these areas, particularly due to vegetation removals (and associated impacts such as soil erosion), environmental pollution, and disturbance to wildlife.

Additionally, the influx of labor, increased activity, and improved accessibility due to proposed project intervention activities may increase incidents of poaching and illegal harvesting of forest products.

Mitigation:

- Proposed project interventions will not be implemented inside protected areas, national parks, and any ecologically important habitats except small dams which have been proposed to serve the dual purpose of groundwater recharge and mitigate the potential flooding in streams that are prone to flash flooding.NOC will be obtained from Sindh Wildlife Department.
- A detailed baseline of the main habitats and mammals, reptiles, amphibians and birds will be developed. During the baseline survey, the primary impact zone, as well as the secondary impact zone, will be delineated. Furthermore, the development of new tracks will be avoided existing tracks will be used. Use of local vegetation as fuel by labor will be prohibited. The workforce while working along will concentrate within a corridor of 4.5m. Biodiversity Management Plan will be prepared by PIUs within ESIA (High & Substantial risk category subprojects) before the initiation of civil work and got approval from the competent authority.
- Sites for construction camps and storage areas will be chosen to minimize vegetation removal and land clearing.
- Any vegetation removal or land clearing will be cleared by the appropriate bodies, as specified in Table 6: Approvals and Permits Required during Project Implementation.
- All relevant national and provincial regulations will be followed.
- Compensatory plantation of 10 trees of the same species for each tree removed.

6.1.16 Communicable Diseases

The project will involve direct contact of project staff with beneficiaries, which puts both parties at risk of contracting Communicable Diseases and further spreading it within their respective communities. Additionally, project staff may be at a higher risk of contracting COVID-19 as they are likely to be in contact with many individual beneficiaries throughout the project. The COVID-19 risk is also present at labor camps, which will be located at or near proposed project intervention sites. COVID-19 outbreaks in labor camps may cause significant delays and other operational issues.

Mitigation:

- Contractors and project labor will follow the guidelines provided in the MoNH's & Health
 Department of Sindh guidelines for the health and safety of building and construction
 workers.
- Project staff will be trained in identifying the symptoms of Communicable Diseases and on necessary self-protection measures. Additional training will be provided in personal hygiene for disease avoidance, PPE use, and COVID-19 SOPs.
- Contact details and attendance registers will be maintained to allow project management staff to trace and manage incidences.
- Social distancing measures will be implemented, especially in labor camps.
- Project staff will be provided with hand-wash facilities and alcohol-based hand sanitizers.

- Project staff will be screened for Communicable Diseases by providing health fitness certificates.
- Lunch/tea breaks for project workers will be staggered to avoid large gatherings.

6.1.17 Lack of Meaningful Community Engagement

Comprehensive and inclusive stakeholder engagement is a key feature of the ESF. The presence of poor and marginalized communities and indigenous peoples in the project area will require careful attention to be paid to stakeholder engagement. 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. This risk is proportionate to their degree of disadvantage/vulnerability and is additionally relevant for communities living in remote or historically underserved areas.

Mitigation:

- A comprehensive Stakeholder Engagement Plan (SEP) will be developed to guide stakeholder identification, modes of engagement, disclosure requirements, implementation arrangements, and other relevant information.
- The PIUs will have dedicated staff responsible for the implementation of the SEP.
- Project staff will be trained on social inclusion and stakeholder engagement.

6.1.18 Labor Influx

The proposed project activities are likely to require the use of labor from outside the proposed project intervention. This labor influx can have several potentially 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 and SEA/SH.

Mitigation:

- Labor management will be done while following the ESS2 Labor and Working Conditions. This standard applies to all project workers, including full-time, part-time, temporary, seasonal, and migrant workers.
- A Labor-Management Procedures will be prepared which will include project GRM for communities in and around the proposed project intervention areas to raise concerns and make complaints, including on labor influx-related grievances.
- Communities local to the proposed project intervention areas 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.

6.1.19 GBV and SEA/SH

Gender-based violence (GBV), sexual exploitation and abuse (SEA), and sexual harassment (SH) risks are expected throughout the project. These may stem from contact between local communities and project workers. Increased worker wages in the project areas as a result of employment opportunities generated by the project may lead to an increase in transactional sex and sexual exploitation of vulnerable individuals in the community.

Female project staff may also be at risk of GBV and SEA/SH, especially those working on field assignments in remote and hard-to-reach areas.

Risk in the context of the Livelihoods Component (CfW)

Some potential risks are expected in the context of GBV and SEA/SH regarding the livelihood component (CfW);

- Abuse of power by Government officials, Project staff and partners, financial service providers, etc.
- Increased household tensions and violence after women in the household receive cash.
- Violence, exploitation, abuse, and harassment while traveling to markets to spend cash.
- Violence, exploitation, abuse, and harassment during journeys to and from cash distribution points.
- Women and girls may face barriers to registering for CfW, such as a lack of civil documentation.

Mitigation:

- A GBV Action Plan will be developed and implemented, and systems will be set up to work with the project GRM to address any GBV, SEA/SH-related complaints. Guidance for this is provided in Annex F: GBV/SEA/SH Action Framework.
- GBV, SEA/SH-related complaints received through the GRM will be redirected to the dedicated staff who are trained on the GBV Action Plan with the required sensitivities and confidentiality.
- Deliver training to staff and partners on GBV risk mitigation.
- Conduct regular consultations with women and girls
- Establish safe, confidential, and accessible accountability mechanisms for complaints with feedback channels to recipients and effective referral protocols for reports of GBV
- Background checks and screening will be carried out for all project workers who may be in direct contact with the female

6.1.20 Forced Labor and Child Labor

Project activities, particularly in the case of third-party contractors, may involve the use of forced labor, which is defined as any work or service that is obtained from an individual under threat of force or penalty. This includes indentured labor, bonded labor, and trafficked persons. There is

also a risk that child labor may be used by third-party contractors. These risks are likely to be higher in economically disadvantaged and remote areas of the province.

Mitigation:

- Contractors will be prohibited from hiring children below the age of 15 for any type of labor, and below the age of 18 for hazardous work.
- Project staff will monitor sites to check for child labor.
- International standards that will be followed by the contractor, relevant to labor and working conditions include:
- ILO Declaration on Fundamental Principles and Rights at Work (International Labour Organization, 1998)
- Voluntary Principles on Security and Human Rights (Secretariat for the Voluntary Principles on Security and Human Rights, 2000)
- United Nations Global Compact

6.1.21 Chance Findings of Important Physical and Cultural Resources

During construction activities, the Project may encounter the chance finding of important physical and cultural resources. These are defined as: "movable or immovable objects, sites, structures or groups of structures having archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance". These may be at risk of damage during construction activities, which can result in community unrest and dissatisfaction.

Mitigation:

- Proposed project interventions will be screened for the presence of physical and cultural resources prior to the commencement of construction work.
- If a risk of damaging physical cultural resources is determined, the contractor shall prepare a detailed Physical Cultural Resources Management Plan (PCRMP). Guidance for this plan, including chance, and finding procedures to be followed are provided in Annex E: Physical Cultural Resources Management Framework (PCRMF).

6.1.22 Rehabilitation and Reconstruction of Affected Road Network & Village Road Bridge (VRB) Construction

The rehabilitation and reconstruction of affected road network & village road bridge (VRB) construction as climate resilience measures for rural roads where needed. Depending on the nature of the work, this may include groundbreaking/excavation, soil compaction, placement of beams and girders, as well as other activities that are common with road rehabilitation such as paving, etc. These activities may have additional impacts on top of those related to road rehabilitation related to the degree of civil works necessary to construct the bridge. Since the roads selected for this project are small rural roads, and bridge construction is expected to be of a small scale, and additional impacts are expected to be minor. The primary additional risk is associated with the soil compaction and introduction of pylons/girders, which may destabilize the

underlying earth, potentially increasing the risks of erosion. Poorly designed bridges or designs not suitable to the physical context may also put road users at risk.

Mitigation:

- Slope protection measures are included in the project design as part of the rehabilitation/improvement activities. These will be implemented based on the level of erosion risk which will be assessed by the contractor before construction.
- The designs will be confirmed by the competent authority before the commencement of civil works.

6.2. Implementation Phase Impacts and Mitigation

6.2.1 Institutional Capacity Limitations

Despite sufficient previous experience (E & S Team of SFERP) working with the ESF, there is a need for capacity building to adapt to the new guidelines i.e. World Bank Environmental and Social Framework (ESF). Without adequate capacity building, many of the risks in this document may go unmitigated, potentially reducing project effectiveness significantly.

Mitigation:

• The proposed project involves project management institutional capacity strengthening activities. These activities will include the hiring of dedicated staff for the implementation of the ESMF (including at a minimum a gender specialist, an environmental specialist, and a social safeguard specialist) as well as training of all E&S staff hired by the project, including those that will be involved in implementing the ESMF at the field level.

6.2.2 Sustainability of Interventions

Construction works may also lack long-term sustainability. Rehabilitated & Improvement of protection bunds and flood affected roads, VRB and buildings may fall into disarray if they are not regularly maintained according to industry best practices. This risk may be particularly relevant in remote areas, where access and routine maintenance may be challenging.

Mitigation:

- Continued maintenance of the proposed project interventions after project closure will be included in the Environmental and Social Commitment Plan (ESCP).
- Rehabilitated and Improvement interventions will be built using industry-accepted green techniques and climate-resilient approaches (including raising embankments, improving drainage, enhancing slope protection, and adopting climate-resilient standards) to minimize deterioration caused by climate impacts.
- Under SFERP all the existing damaged schemes will be rehabilitated which are already under the line department of GoS. 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.

CHAPTER - 7. ESMF IMPLEMENTATION

7.1. Steps for Environmental and Social Management

Environmental and social management of the project will follow the procedures below:

- 1. Preliminary environmental and social information collection, including physical, biological, and socioeconomic baseline data for each proposed project intervention.
- 2. E&S screening and categorization of each proposed project intervention using the E&S Screening Checklist.
- 3. Information disclosure and stakeholder consultations.
- 4. Preparation of Environment & Social E & S instruments i.e. Environmental Impact Assessment, (EIA), Initial Environmental Examination (IEE), Environmental and Social Management Plan (ESMP), Environmental Management Plan (EMP) & Checklist for emergent works) for proposed project interventions, including risks, mitigation measures, other E&S instruments, and indicative budget for E&S management.
- 5. Preparation of Resettlement Action Plan (RAP) for proposed project interventions, including risks, mitigation measures, and indicative budget for E&S management
- 6. Clearance/approval of ESIA/ IEE / ESMP/EMP from Sindh EPA and Sindh Wildlife Department
- 7. Clearance/approval of E & S instruments from World Bank.
- 8. Inclusion of E&S instruments in bidding documents and agreements with contractors.
- 9. Implementation of E&S instruments by implementing agencies/contractors.
- 10. Monitoring the compliance with E&S instruments.

7.2. Proposed project interventions Screening

Proposed project interventions will be classified using the Bank's risk categories: high, substantial, moderate, and low. For all proposed project interventions, the appropriate risk classification will be determined and shall take into account relevant issues such as the type, location, sensitivity, and scale of the proposed project interventions; the nature and magnitude of the potential environmental and social impacts; and the capacity of the implementing agency to manage environmental and social risks in a manner consistent with the ESMF.

In order to determine the proposed project interventions' risk classification, all proposed project interventions will be screened for E&S impacts using the screening checklist provided in **Annex A:** Environmental and Social Screening Checklist.

After proposed project interventions have been screened and the risk classification identified, the preparation of additional E&S instruments may be required, depending on the classification:

High-risk proposed project interventions that have the potential for severe adverse environmental and social impacts would be excluded from Sindh Flood Emergency Rehabilitation Project.

Substantial-risk 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 approval of an Environmental and Social Impact Assessment (ESIA) The ESIA shall identify site- and proposed project intervention-specific risks and propose mitigation measures for all, as well as detailed implementation arrangements (if required) at the field level.

Moderate-risk 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 may also be prepared if needed.

Low-risk proposed project interventions will have negligible to no negative impacts, and no further environmental assessment will be needed following the initial screening process and followed by monitoring and supervision through a monitoring checklist.

7.3. Information Disclosure and Stakeholder Consultations

Stakeholder consultations will be carried out during all phases of the project in accordance with ESS10 and the project SEP. These consultations are aimed at identifying additional opportunities and risks for the project, improving proposed project interventions design and implementation, and increasing stakeholder ownership in the project.

The SEP has identified stakeholders in three categories:

- Affected Parties: those who are likely to be affected by the project because of its actual impacts, or potential risks to their physical environment, health, security, cultural practices, well-being, or livelihoods.
- Other Interested Parties: those stakeholders which are likely to have an interest in the project and may be able to assist in informed decision-making for the project, or otherwise influence the outcomes of the project.
- Disadvantaged/Vulnerable Individuals and Groups: these may be more likely to be adversely affected by project impacts and may be more limited than others in their ability to take advantage of the project's benefits.

Stakeholder consultations will be carried out during the preparation of the E&S instruments to obtain feedback and address concerns.

The ESMF and other E & S documents after review and clearance from the bank will be disclosed on the P&DD/SFERP/ SRP website, and shall also be available in World Bank repositories. ESIA/ESMP and other site-specific E&S instruments (such as Resettlement Plans - RPs) will also be disclosed through the same channels. Executive summaries of each instrument will be translated into Sindhi and will also be made available.

7.4. Preparation of ESMPs and Other Site-specific Instruments

Site-specific Environmental & Social management Plans, Physical Cultural Resource Management Plans, Solid Waste Management Plans, Traffic Management Plans, and Resettlement Plans will be prepared for each proposed project intervention, as directed by this ESMF. These E & S instruments will be submitted to the World Bank for clearance and approval before the start of the bidding process. The ESMPs / ESIA / EMP will also be shared with the Sindh EPA for environmental approval of construction works.

Additionally, the proposed project interventions will require various approvals from relevant government departments during implementation, summarized in **Table 6** below.

Table 6: Approvals and Permits Required during Project Implementation

Approval Required	Issuing Authority	Requirements	Responsible Agency	Schedule
Environmental approval for the construction works	NOC for IEE/ESIA from EPA Sindh	Submission of IEE/ESIA	Both PIUs SFERP	Before the initiation of civil works
Approval for Wildlife Conservation & Protection	NOC from Wildlife Department	Submission of request with detailed proposed project interventions layout/plans	PIU SID SFERP	Before the initiation of civil works
Approval for the use of quarry and excavated material	Valid License or NOC from Sindh Mines and Mineral Department, GoS.	Submission of request with location map of the quarry area	Contractors of both PIUs	Before mobilization of the contractor/Durin g the construction phase
Approval for the use of	NOC or permits	For disposal of	Contractor	Before

public resources	from Tehsil	Solid/Liquid	r	mobilization	of
	Municipal	wastes to be	t	the	
	Administration	generated from	(contractor/Dui	rin
		camps/sites.	(g t	the
			(construction	
			ŗ	phase	

7.5. Environmental and Social Requirements in Bidding Documents

SFERP will include the following Environmental, Social, Health and Safety (ESHS) conditions in the bidding documents to ensure all mitigation measures proposed in the ESMPs are effectively implemented.

Table 7: E&S Requirements in Bidding Documents

Condition	Rationale	Specifications to be Included in Bidding Documents
Past performance of the Contractor on ESHS	The contractor's past performance on comp with ESHS is an indic the contractor's comm and capability for implementation of the	ator of hitment
The Contractor shall propose E&S Specialists in its team	The Contractor's staff include E&S specialis will be responsible for implementation of the mitigation measures in compliance with the E	ts who the proposed, suitably the qualified E&S Specialists
The contractor shall obtain a performance bond for compliance with E&S obligat	financial implication if	
The contractor shall impleme construction-related mitigation measures provided in the ES	n site-specific ESMPs w	vill be contain site-specific
Code of Conduct for all site	All workers hired by the	ne The Contractor will submit a

personnel	Contractor should sign a	Code of Conduct with the
	Code of Conduct to ensure	bidding documents
	compliance with E&S	
	requirements	

7.6. Institutional Arrangements for Implementing the E & S Instruments

7.6.1 Project Management Responsibilities

Implementation of the EMP (either in ESMP, ESIA, or any E&S Instrument prepared for the subproject) will be a contractual obligation between the Contractor and the Project Implementation Units (PIU), SFERP. The Contractor shall engage full-time technical staff capable of carrying out the monitoring activities as proposed in the ESMP as contractual obligations under the contract agreement.

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

The overall responsibility for the SFERP project as well as the Environmental and Social Team will rest with the PIUs, to be headed by their respective Project Directors. Besides, the PIUs will be supported during ESMP implementation by E & S team/s to be established within PIUs respectively.

The specific responsibilities of the institutions involved in the EMP implementation are shown in Figure – 3 and described below.

7.6.2 Project Implementation Unit (PIU)

The overall responsibility for the supervision of ESMP will rest with the PIUs SFERP to take care of Social/Gender, Ecological and Environmental issues and to take policy decisions at the project level. An Environmental and Social Management team (E&S Team) has been established within PIUs under the supervision of an Additional Director Coordination and Technical Assistant. Key positions within the E&S Team include Environment Specialist & OHS Expert and Social/Resettlement Specialist.

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

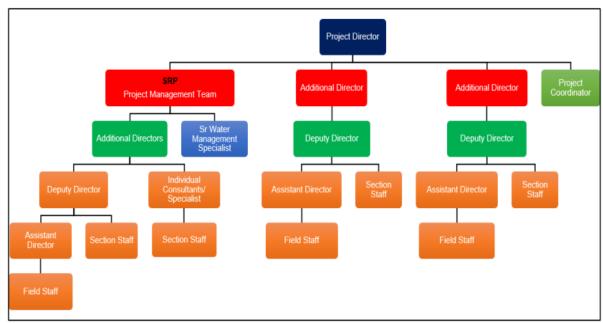


Figure 4: Organizational Chart of Sindh Resilience Project (SFERP)

.The Contractor will be responsible for the on-field implementation of the E&S instruments as well as maintaining responsibility for environmental protection liabilities under Sindh Environmental Protection Act (SEPA), 2014, World Bank ESS, ESMF of SFERP, sub-project specific ESMPs, and other applicable national as well as provincial policies and regulations.:

7.6.3 ConstructionSupervision Consultant (CSC)

The ConstructionSupervision Consultant (CSC) has been engaged by the project proponent, is responsible for day-to-day monitoring of the ESMP on behalf of the PIUs during the execution of the Civil Works for sub-projects under the SFERP, and shall submit periodic reports. In general, the CSC has the following responsibilities regarding the environmental aspects of the project:

- Review the documents prepared by the Contractor regarding E&S implementation.
- Monitor the implementation of ESMP regularly during the execution of civil works by the Contractor. The CSC must have the following key positions:
 - a) Environmental Specialist
 - b) Ecologist (for sub-projects that lies in a protected area)
 - c) Social and Resettlement Specialist
 - d) HSE experts

7.6.4 Contractor Responsibilities

This Environmental and Social Management Plan (ESMP) has been prepared before the Contract award, and therefore, certain mitigations, which are dependent upon the methodology chosen by any Contractor to deliver the project, could not be specified in it. For example,

haulage routes are dependent upon the exact campsite locations chosen by the Contractor. Therefore, it is required that the Contractor shall prepare plans before mobilization and implement the plans described below with the help of mitigation measures. Once approved by the Engineer and Environment Specialist of relevant PIUs, these documents will become part of the Site-Specific Environmental Management Plan -SSEMP for the Contract.

- Solid Waste Management Plans
- Traffic Management Plans
- Occupational Health and Safety Plans
- Physical Cultural Resources Management Plans

7.7. Monitoring and Reporting

P&DD & SID, Govt of Sindh

Monitoring will be carried out at the proposed project interventions level, with field staff responsible for visiting proposed project intervention sites. A separate monitoring checklist will be developed by PIUs based on the generic ESMPs, which will be used by field monitors. Proposed project intervention monitoring will be conducted as specified in the generic ESMMPs in **Table 8** and **Table 9**.

Prepare and submit to the World Bank regular monitoring reports on the environmental, social, health and safety (ESHS) performance of the Project, including but not limited to the implementation of the ESCP, status of preparation and implementation of E&S instruments required under the ESCP, stakeholder engagement activities, functioning of the grievance mechanism(s), and contractors' quarterly reports. Contractors should submit monthly reports to the PIU.

7.7.1 Incidents and Accidents Reporting

Promptly notify the World Bank of any incident or accident related to the Project which has, or is likely to have, a significant adverse effect on the environment, the affected communities, the public, or workers, including, inter alia, cases of sexual exploitation and abuse (SEA), sexual harassment (SH), and accidents that result in death, serious or multiple injuries, or exposure to hazardous waste. Provide sufficient detail regarding the scope, severity, and possible causes of the incident or accident, indicating immediate measures taken or that are planned to be taken to address it, and any information provided by any contractor and/or supervising firm, as appropriate. Subsequently, at the World Bank's request, prepare a report on the incident or accident and propose any measures to address it and prevent its recurrence.

Notify the World Bank no later than 48 hours after learning of the incident or accident. Provide a subsequent report on details of the incident and mitigation actions taken to the World Bank within 30 days of the incident.

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CHAPTER - 8. GENERIC ENVIRONMENTAL AND SOCIAL MITIGATION AND MONITORING PLAN

8.1. Generic Design and Construction Phase Mitigation and Monitoring Plan

The table below provides a list of potential environmental and social impacts during the design and construction phases of the project and provides an overview of mitigation measures, indicators to be monitored, and responsibility for implementation.

Table 8: Generic Design and Construction Phase Mitigation and Monitoring Plan

Impact	Mitigation measures	Mitigation responsibility	Monitoring indicators	Monitoring frequency	Monitoring responsibility
Land Acquisition	 Payment of compensation for acquisition of land at the current market price or negotiated price as defined in Land Acquisition Act and as per 'ESS5 – Land Acquisition, Restrictions on Land Use and Involuntary Resettlement of World Bank Environmental and Social Framework (ESF) Prompt payment to affectees before the start of construction work. * Ensure transparency in the land acquisition process Job opportunities to affectees and 	in charge of the land acquisition and resettlement operations/Land Revenue Department (LAC)		Monthly till finalization of land acquisition at all project interventions	

Impact	Mitigation measures	Mitigation responsibility	Monitoring indicators	Monitoring frequency	Monitoring responsibility
	Iocals. •Temporary land will be hired on a rental basis after negotiation with the owner.				
Soil erosion and pollution	Sites for construction camps will be selected to avoid or minimize vegetation removal/clearing		Survey reports, environmental and social baseline reports		PIUs E&S Team
	Access roads at each subproject site will be selected to minimize soil erosion and impact on landscapes.	D&S consultants	Transport route maps	Once before the finalization of subproject sites	
	Sites disturbed by construction activities will be restored to their original conditions.	Contractors	Physical inspections	Once upon completion of subproject construction work	
Solid waste generation	Construction waste will be routinely collected and safely disposed of in clearly demarcated waste disposal sites located near each subproject site following		Physical inspections	Weekly throughout the construction phase	PIUs E&S Team

Impact	Mitigation measures	Mitigation responsibility	Monitoring indicators	Monitoring frequency	Monitoring responsibility	
	international best practices.					
	Site-specific Solid Waste Management Plans (SWMPs) will be developed and implemented by contractors.	Contractors	The solid waste management plan		PIUs E&S Team	
			Physical inspections	Weekly throughout the construction phase		
	Waste disposal will be carried out following international best practices and will ensure that there are no negative impacts on soil, water bodies, existing	Contractors	Solid waste management plan		PIUs E&S Team	
	waste management systems, transport routes, and the aesthetic value of the area.		Physical inspections	Weekly throughout the construction phase		
	The labor workforce will be trained in the handling, storage, and disposal of construction waste.	environmental	Training plans, training attendance registers		PIUs E&S Team	
Traffic and road	Contractors will prepare a comprehensive Traffic Management Plan	Contractors	Traffic	Before the commencement of	PIUs E&S	

Impact	Mitigation measures	Mitigation responsibility	Monitoring indicators	Monitoring frequency	Monitoring responsibility
safety	(TMP) for each sub-project site		management plans	construction work	Team
	Movement of vehicles carrying construction materials and heavy equipment will be restricted to the nighttime to distribute traffic load and reduce inconvenience to local communities and other road users.	Contractors	Traffic management plans	Before the commencement of construction work	PIUs E&S Team
	At construction sites, vehicles and other machinery will be parked in designated areas to minimize congestion.		Construction site plans	Before the commencement of construction work	PIUs E&S Team
	Operators of construction vehicles will be trained on safe driving and will be required to strictly adhere to local traffic rules	environmental	Training plans, training attendance registers	Before the commencement of construction work	
	Damage to roads as a result of construction works will be repaired immediately upon the conclusion of the works.		Physical inspections	After construction work	PIUs E&S Team
	Clear signage will be provided within and around construction sites notifying drivers of alternative routes, construction		Design files for signage	Upon finalization of construction traffic plans	PIUs E&S Team

Impact	Mitigation measures	Mitigation responsibility	Monitoring indicators	Monitoring frequency	Monitoring responsibility
	schedules, road closures, and any other relevant information.		Physical inspections		
	Residents living adjacent to construction sites will be directly notified about construction schedules, road closures, safety precautions, etc.		List of residents identified Details of notifications		PIUs E&S Team
Noise pollution	Construction vehicles and machinery will be kept in good working condition and be properly tuned and maintained throughout construction work to minimize excessive noise/vibration.	Contractors	Maintenance records of all construction vehicles Physical inspections	Monthly throughout construction work	PIU environmental specialist
	Noisy construction work will be limited to normal working hours to minimize disturbance to nearby communities.	Contractors	Construction schedules		PIUs E&S Team

Impact	Mitigation measures	Mitigation responsibility	Monitoring indicators	Monitoring frequency	Monitoring responsibility
	When possible, noisy construction activities (e.g. concrete mixing) will be displaced from the construction sites to a distance of at least 2 kilometers from the nearest sensitive receptors.		Construction site plans	Before the commencement of construction work	PIUs E&S Team
	Construction schedules will be disclosed to communities in a 2-kilometer vicinity of subproject sites prior to beginning construction work.	specialist	Construction schedules List of communities to notify	Before the commencement of construction work	
	Ambient noise will be regularly measured to ensure that the thresholds set in the SEQS are not exceeded.	Contractors	Noise monitoring records	Weekly, throughout the construction phase	PIUs E&S Team
Air pollution	Asphalt and concrete batching plants will be equipped with dust control equipment such as fabric filters or wet scrubbers to reduce the level of particulate emissions. Construction machinery (including batching and asphalt plant) and vehicles will be kept in good working condition. Maintenance schedules will be developed and will be followed		Maintenance records of all construction vehicles Physical inspections	Monthly throughout construction work	PIUs E&S Team

Impact	Mitigation measures	Mitigation responsibility	Monitoring indicators	Monitoring frequency	Monitoring responsibility	
	throughout the duration of construction to minimize excessive emissions.					
	Construction sites and access roads will be regularly sprinkled with water to suppress excessive dust emissions.	Contractors	Physical inspection	Monthly throughout construction work	PIUs E&S Team	
	Air quality monitoring will be regularly carried out to ensure that the thresholds set in the SEQS are not exceeded.	Contractors	Air quality monitoring records	Weekly, throughout the construction phase	PIUs E&S Team	
Contamination of water resources	Construction machinery will be kept in good working condition and be properly tuned and maintained throughout the duration of construction to avoid spills and leaks.	Contractors	Maintenance records of all construction vehicles	Monthly throughout construction work	PIUs E&S Team	
			Physical inspections			
	Wastewater from construction sites will be disposed of at designated sites selected to avoid impact on surface or groundwater. Wastewater will be tested against SEQS and WHO guidelines	Contractors	Water quality testing records Physical	Weekly throughout the construction phase	PIUs E&S Team	

Impact	Mitigation measures	Mitigation responsibility	Monitoring indicators	Monitoring frequency	Monitorir responsib	_
	before discharge/disposal.		inspections			
	Leakages/spills at construction sites will be immediately cleaned up using the appropriate international best practices to avoid a runoff.	Contractors	Physical inspections	Weekly throughout the construction phase	PIUs E Team	E&S
	Water quality monitoring of water resources near subproject sites will be conducted before, during, and after the construction activities to quantify and characterize any impacts.	Contractors	Site impact reports Water quality testing records	Once before the commencement of the construction phase		E&S
			tooting rooordo	Weekly throughout the construction phase		
				Once after completion of the construction phase		
Exclusion vulnerable groups project	All project-related employment, including employment by third-party contractors, will adhere to federal and provincial labor laws and regulations.	Contractors, PIU	Employment agreements		PIUs E Team	E&S

Impact	Mitigation measures	Mitigation	Monitoring	Monitoring frequency	Monitoring
		responsibility	indicators		responsibility
employment	All project staff with functions related to	Contractors, PIU	Training plans	Prior to the	PIUs E&S
	recruitment will be trained on social			commencement of	Team
	inclusion and the relevant government			project activities	
	and Bank regulations.		Attendance		
			records of training		
			Toolus or training		
	All project workers will be trained on the	PIU social	Training plans	Prior to the	PIUs E&S
	Grievance Redress Mechanism and will	specialist		commencement of	Team
	be encouraged to use it in case of			project activities	
	complaints related to employment.		Grievance redress		
			mechanism		
			medianism		
Land	A Resettlement Framework (RF) will be	PIU social	RF document	Prior to the project	PIUs E&S
acquisition and	prepared which provides guidance on the	specialist		appraisal	Team
involuntary	preparation of site-specific Resettlement				
resettlement	Plans (RPs) or Abbreviated Resettlement				
	Action (ARAP) that will be prepared for				
	all subprojects where applicable. The RF				
	also describes the eligibility requirements				
	and compensations for parties that are				
	economically displaced by the				
	construction activities.				
	The project will aim to minimize private	PIU social	RF document	Prior to subproject site	PIUs E&S
	,				

Impact	Mitigation measures	Mitigation responsibility	Monitoring indicators	Monitoring frequency	Monitoring responsibility
	land acquisition by screening all potential sites for road construction and rehabilitation	•		selection	Team
Occupational health and safety of project workers	Contractors will be required to prepare site-specific OHS plans. The OHS plans will be prepared in accordance with the World Bank EHS Guidelines and local laws and regulations.		Site-specific OHS plans	Prior to the commencement of construction work	
	Contractors will also prepare site-specific SWMPs, which will include guidance on the safe handling of hazardous materials encountered during construction activities.	Contractors	Site-specific SWMPs	Prior to the commencement of construction work	PIUs E&S Team
	Workers will be provided with all necessary safety equipment such as hard hats, gloves, goggles, respirators, boots, etc.	Contractors	Physical inspections	Monthly throughout the construction phase	PIUs E&S Team
	Workers will be trained on the handling, storage, and disposal of hazardous materials used for or encountered during construction activities.	PIU environmental and social specialists	Training plans/reports	Prior to the commencement of construction work	

Impact	Mitigation measures	Mitigation responsibility	Monitoring indicators	Monitoring frequency	Monitoring responsibility
			Attendance records for pieces training		
	Basic medical facilities will be provided on-site by the contractors, and designated staff will be trained in workplace first aid.	Contractors	Training plans/reports and attendance records for trainings held	Prior to the commencement of construction work	PIUs E&S Team
			Physical inspections	Monthly throughout the construction phase	
Disturbance to ecosystems	Following the guidance in the ESF, subprojects will not be implemented inside protected areas or national parks.	D&S consultants	Survey reports, environmental and social baseline reports	Before finalization subproject sites	PIUs E&S Team
	Sites for construction camps and storage areas will be chosen to minimize vegetation removal and land clearing.	D&S consultants	Survey reports, environmental and social baseline		PIUs E&S Team

Impact	Mitigation measures	Mitigation responsibility	Monitoring indicators	Monitoring frequency	Monitoring responsibility
			reports	and storage areas	
	Compensatory plantation of 10 trees of the same species for each tree removed.	Contractors	Environmental and social monitoring reports	Immediately after the completion of construction work	PIUs E&S Team
Security issues	Subproject construction sites and labor camps will be properly fenced, with tight access restrictions in place.	Contractors	Construction site and labor camp plans Physical	Before finalization of subproject construction and labor campsites Monthly throughout the	PIU social specialist, security specialist
			inspections	construction phase	
Natural hazards	An Emergency Response Plan will be prepared and implemented.	PIU environmental specialist	An emergency response plan document	Before the commencement of construction work	PIUs E&S Team
	Project activity design will take disaster risk reduction into consideration, and will employ approaches to improve disaster resilience where possible.	D&S consultants, PIU environmental specialist	Project design documents	During project design and as necessary during project implementation	PIUs E&S Team

Impact		Mitigation measures	Mitigation responsibility	Monitoring indicators	Monitoring frequency	Monitor responsib	_
COVID-19		Contractors and project labor will follow the guidance provided in the MoNH's guidelines for the health and safety of building and construction workers. This will be included on all project contracts for construction work.	Contractors	Contracts/agreeme nts signed with the project	Prior to engaging contractors	PIUs Team	E&S
		Project staff will be trained in identifying the symptoms of COVID-19 and on necessary self-protection measures. Additional trainings will be provided in personal hygiene for disease avoidance, PPE use, and COVID-19 SOPs.	PIU environmental and social specialists	attendance	Prior to beginning each subproject activity as required		E&S
		Project staff will be provided with hand- wash facilities and alcohol-based hand sanitizers.	Contractors	Physical inspections	Monthly throughout the construction phase	PIUs Team	E&S
		Project staff will be screened for COVID-19 by routine temperature checks.	Contractors	Records of COVID screening	Monthly throughout the construction phase	PIUs Team	E&S
		Lunch/tea breaks for project workers will be staggered to avoid large gatherings.	Contractors	Physical inspections	Monthly throughout the construction phase	PIUs Team	E&S
Lack meaningful	of	A comprehensive Stakeholder Engagement Plan (SEP) has been	PIU social	SEP document	Before Appraisal	PIUs	E&S

Impact	Mitigation measures	Mitigation responsib		Monitoring indicators	Monitoring frequence	-	Monito espons	_
community engagement	developed to provide guidance on stakeholder identification, modes of engagement, disclosure requirements, implementation arrangements, and other relevant information.	specialist				Т	Геат	
	The PIU will have dedicated staff responsible for the implementation of the SEP.	PIU		The hiring of relevant staff	Before proj commencement	ect F	PIUs F Director	Project
	Project staff will be trained on social inclusion and stakeholder engagement.	PIU specialist	social	Training plans Records of training attendance	Before proj commencement	ect F	PIUs specialis	social t
Labor influx	Labor management procedures (LMP) will be prepared for the project. This document contains guidance on assessing labor risks and proposes detailed mitigation measures and implementation arrangements.	PIU specialist	social	LMP document	Before Appraisal		PIUs specialis	social t
	A project GRM will be established for communities in and around the	PIU	social	Project GRM	Before proj	ect F	PIU s	social

Impact	Mitigation measures	Mitigation responsibility	Monitoring indicators	Monitoring frequency	Monitoring responsibility
	subproject areas to raise concerns and make complaints, including on labor influx-related grievances.	specialist		commencement	specialist
	Communities local to the subproject areas will be given preference in hiring where possible, for both skilled and unskilled labor.	Contractors	Hiring records of project labor	Before subproject commencement	PIU social and procurement specialists
	Contractors and their employees will be required to respect local cultural norms and will receive training on cultural sensitivity and conduct.	PIU social specialist	Training plans Records of training attendance	Before subproject commencement	PIU social specialist
GBV and SEA/SH	A GBV Action Plan will be developed and implemented, and systems will be set up to work with the project GRM to address any GBV, SEA/SH-related complaints.	PIU gender specialist	GBV Action Plan document	Prior to project effectiveness	PIUs gender specialist
	GBV, SEA/SH-related complaints received through the GRM will be redirected to the dedicated staff who are trained on the GBV Action Plan.	PIU gender specialist	GRM	Throughout the project construction and implementation phases	PIUs gender specialist

Impact	Mitigation measures	Mitigation responsibility	Monitoring indicators	Monitoring frequency	Monitoring responsibility
Forced labor/child labor	The LMP includes details on mitigating the risk of child labor and forced labor.	PIU social specialist	LMP document		PIUs social specialist
	Contractors will be prohibited from hiring children below the age of 15 for any type of labor, and below the age of 18 for hazardous work.	PIU procurement specialist	Contract agreements with contractors		PIUs social specialist
	Project staff will monitor sites to check for child labor	PIU social specialist	Physical inspections	Monthly throughout the construction phase	PIUs social specialist
Adverse impacts on indigenous communities	Subproject sites will be screened for the presence of indigenous communities	Contractors	Subproject screening checklist		PIUs social specialist
	If the subproject is assessed to have potential environmental and/or social impacts on indigenous communities, the contractor will be required to prepare an Indigenous Peoples Plan	Contractors	Indigenous Peoples Plan		PIUs social specialist
Chance findings of important	Subprojects will be screened for the presence of physical cultural resources prior to the commencement of	PIU social specialist	Subproject screening checklist		PIUs social specialist

Impact	Mitigation measures	Mitigation responsibility	Monitoring indicators	Monitoring frequency	Monitoring responsibility
physical and cultural resources	If a risk of damaging physical cultural resources is determined, the contractor shall prepare a detailed Physical Cultural	Contractor	Physical Cultural Resources Management Plan		PIUs social specialist
	Resources Management Plan (PCRMP), which will include chance-find procedures.		Management Flan	Subproject activities	
Village Road Bridge construction	Erosion risks to down-slope communities will be mitigated by the installation of safety barriers at construction sites and monitoring and informing down-slope communities of weather events that might exacerbate this risk.	Contractors	Physical inspections	Weekly throughout the construction phase	PIUs E&S Team
	The D&S firm will confirm VRB designs before the commencement of civil works.	D&S Firm	Review of bridge design	Prior to the commencement of VRB-related civil works	PIUs E&S Team

8.2. Generic Implementation Phase Mitigation and Monitoring Plan

The table below provides a list of potential environmental and social impacts during the implementation phase of the project and provides an overview of mitigation measures, indicators to be monitored, and responsibility for implementation.

Table 9: Generic Implementation Phase Mitigation and Monitoring Plan

Impact	Mitigation measures	Responsibility	Monitoring indicators	Monitoring frequency	Responsibility
Institutional capacity limitations	These activities will include the hiring of dedicated staff for the implementation of the ESMF (including at a minimum a gender specialist, an environmental specialist, and a social specialist) as well as training of all E&S staff hired by the project, including those that will be involved in implementing the ESMF at the field level.	PIU Project Director	The hiring of gender, environmental, and social specialists Training plans and training attendance records	Before project commencement	PIU
	Continued maintenance of proposed project interventions after project closure will be included in the Environmental and Social Commitment Plan (ESCP).	PIU, SFERP	ESCP	Before the project contract signing	PIU
	Rehabilitation & improvement of protection bunds and roads will be built using industry-accepted green techniques and climate-resilient approaches (including raising embankments, improving drainage, enhancing slope protection, and adopting climate-resilient standards) to minimize deterioration	D&S consultants	Project design documents	Before the implementation of each discrete construction activity	PIU environmental specialist

	caused by climate impacts.				
GBV and SEA/SH	A GBV Action Plan will be developed and implemented, and systems will be set up to work with the project GRM to address any GBV, SEA/SH-related complaints.	PIU gender specialist	GBV Action Plan document	Prior to project effectiveness	PIU gender specialist
	GBV, SEA/SH-related complaints received through the GRM will be redirected to the dedicated staff who are trained on the GBV Action Plan	SFERP	GRM records	Throughout project implementation	PIU environmental, social, and gender specialists
	Background checks and screening will be carried out for all project workers who may be in direct contact with female students.	Contractors	Results of background checks. Records of relevant workers	Prior to the commencement of subproject activities	PIU social specialist

CHAPTER - 9. GRIEVANCE REDRESS MECHANISM (GRM)

The project will have a dedicated GRM for the implementing agency to receive and facilitate the resolution of concerns and grievances of project affected parties, particularly with regard to the project's environmental, social, and gender performance. Such a mechanism allows for trust-building between the implementers and beneficiaries, and could help prevent discontent, conflicts, and unrest arising from the project. The GRM is designed to be accessible, culturally appropriate, and understandable for all project stakeholders.

The Sindh Resilience Project (SRP) Irrigation component has already developed GRM. The existing GRM of SRP has worked well and therefore the SFERP will adapt and build on the existing GRM of Sindh Resilience Project (SRP). The key components of SRP GRM are as follows:

- A Public Complaints Centre (PCC), is responsible to receive, log, and resolve complaints;
- A Grievance Redress Committee (GRC), is responsible to oversee the functioning of the PCC
- A non-judicial decision-making authority e.g., Project Management Team or Secretary Irrigation Government of Sindh for resolving grievances that cannot be resolved by PCC;

9.1. Objectives and Scope of the GRM

A grievance redress mechanism (GRM), consistent with the requirements of the World Bank safeguard policies will be established to prevent and address community concerns, reduce risks, and assist the project to maximize environmental and social benefits. In addition to serving as a platform to resolve grievances, the GRM has been designed to help achieve the following objectives:

Open channels for effective communication, including the identification of new environmental issues of concern arising from the project;

Demonstrate concerns about community members and their environmental well-being; and Prevent and mitigate any adverse environmental impacts on communities caused by project implementation and operations.

The GRM will be accessible to diverse members of the community, including more vulnerable groups such as women and youth. Opportunities for confidentiality and privacy for complainants are to be honored where this is seen as important.

9.2. Review of Existing Grievance Redress Systems

A number of existing grievance redress mechanisms are available within relevant government departments for citizens to lodge complaints. The SFERP GRM may leverage these existing mechanisms, which may be supplemented as needed with project-specific arrangements. However, considering the substantial environmental and social risks associated with the

project, the dedicated project GRM will be the primary avenue for grievance resolution, with existing systems being leveraged as and when required.

An overview of existing grievance redress mechanisms is provided in the table below.

Table 3: Existing Grievance Redress Mechanisms

Department/Scope	Mechanism	Mode
National	Pakistan Citizen's Portal	Mobile application
Chief Minister's Complaint Cell	Sindh Citizen's Portal	Website

Further details on the existing grievance redress mechanisms are provided in the SEP.

9.3. GRM Framework

The GRM framework for SFERP will provide mechanisms for project beneficiaries, citizens, and project staff (including contractor staff) to lodge their concerns and complaints. Given that the nature of complaints and resolution mechanisms for different stakeholders may vary, the SFERP project GRM will house the following sub-GRMs:

- Community GRM to handle grievances from local communities and beneficiaries as directed by the SEP
- Project staff GRM for handling grievances raised by project workers, including direct and indirect workers, as directed by the LMP
- GBV and SEA/SH GRM as per the requirements of the GBV Action Plan

Use of audio-visuals including photos, video materials with captions and edutainment materials will be encouraged for outreach and dissemination of information on the project and the GRM, and the step-by-step GRM submissions for the illiterate or undereducated people or people with disabilities. Call centers will be provided as uptake channels for digitally illiterate people and people who do not own or have access to internet or smart phones. For grievances related to Gender-Based Violence, all levels of GRM should have a male/female officer who will be specially trained in the handling of GBV and SEA/SH related grievances.

The GRM will be disclosed to the stakeholders through written and verbal communication. The modes of engagement for different stakeholders are specific in the SEP.

9.4. GRM Structure

The GRM will function as a multi-tier system with designated staff at the PIU, district, and field levels. Formal Grievance Redress Committees (GRCs) with members nominated by the Project Director will be set up at each level. An electronic database of grievances will be maintained at the PIU, with data fed in by the field and district level GRCs. Field level GRCs may choose to maintain electronic, or written registers for grievances received. District GRCs will—in addition to directly receiving grievances—compile and digitize (if field GRCs maintain written registers) field level grievances and share those with the PIU GRC. The GRCs will also be responsible for tracking and recording the status of all grievances received.

To address GBV and SEA/SH related complaints, the project will ensure the availability of specially trained female staff at each GRM level. The PIU gender specialist will be responsible for managing GBV and SEA/SH related complaints at the project/PIU level. SFERP PIU will develop specific procedures to ensure complainants to register their grievances anonymously, and in a discreet manner.

9.5. Complaint Process

9.5.1. Step 1: Receive the Complaint/Grievance

Grievances from stakeholders or their representatives may be lodged at the project, district, or field level. Stakeholders will be able to raise their grievances verbally (in person, or through a dedicated phone number), or in written form. All grievances will be recorded at the level they are received. Field level grievances may be recorded in written registers and will be shared with the district level GRC on a monthly basis, while district and project level grievances should be immediately entered into a digital grievance register. All grievances will have unique identifiers (UIDs) to allow for easy tracking.

Grievances related to GBV and SEA/SH will be forwarded to the staff specifically trained to handle these types of complaints.

Once a grievance is recorded, the UID will be shared with the complainant, as well as a tentative timeline for its resolution. This should take place on the same day the grievance is received.

9.5.2. Step 2: Initial Review of Grievance

The Grievance Officer (who will be a member of the relevant GRC) will identify the party responsible for resolving the grievance. The responsible party and the Grievance Officer will then conduct an inquiry into the grievance to identify its root cause, and subsequent resolution measures.

At this stage, grievances related to GBV and SEA/SH will be supervised by the PIU's gender specialist.

9.5.3. Step 3: Resolution or Escalation of Grievances

At this stage, the relevant GRC, in consultation with the responsible party, will identify a suitable resolution to the issue. In case the issue is unresolvable at the level it is received, the GRC shall elevate it to the higher tier GRC, the complainant shall be notified of its elevation, and an updated resolution timeline shall be communicated.

For grievances that are resolved, the details of the resolution should be entered into the register/database, and the decision will be communicated to the complainant within 3 days. The resolved grievance shall also be flagged for follow-up, and the relevant GRC will check in on the complainant's level of satisfaction with the resolution within 14 days. This feedback from the complainant shall also be added to the register/database.

9.5.4. Step 4: Monitoring and Follow-up

The Grievance Officers at the district and field levels will update the Complaint/Grievance Register on a weekly basis to indicate resolved (closed-out) and unresolved cases, those pending with the GRC or with courts. The Grievance Officer/Social Officer will ensure that the status of all complaints/grievances is kept current and will brief the Project Director on a weekly basis on the status of all current complaints/grievances. On a monthly basis, the district and field Grievance Officers/Social Officer will produce a summary status report and share with the PIU. An annual sex-disaggregated qualitative review of a sample of complaints processed (ensuring variation such as along type of complaint, resolution status etc.) will also be undertaken to analyze the efficacy of the system. Regular monitoring of the grievance mechanism and its outcomes, particularly of trends and patterns, will be critical to ensuring to identify of systemic problems and adapting practices accordingly.

CHAPTER - 10. TENTATIVE BUDGET FOR ESMF IMPLEMENTATION

The table below presents the estimated cost of ESMF implementation that includes E&S training to be conducted by PIU during the project implementation of the project.

Table 4: Indicative Budget

Item	Estimated Cos (Millions)t (PKR)	Remarks		
Environment Specialist PIU	8.64	240,000 PKR per month for 3 years		
Social Development Specialist PIU	8.64	240,000 PKR per month for 3 years		
Gender Specialist PIU	8.64	240,000 PKR per month for 3 years		
Trainings for project staff and contractor's staff	10	20 trainings at 500,000 PKR per training, including all setup costs		
ESMP Preparation Cost	100	Covers ESMP of all sub-projects		
Supervision Cost	165	E&S Staff cost		
Thirdparty Audist	60			
Cost of PPEs	10	Cost of PPEs		
TOTAL	212 millions			

ANNEX A: ENVIRONMENTAL AND SOCIAL SCREENING CHECKLIST

ENVIRONMENTAL AND SOCIAL SCREENING CHECKLIST

Sindh Flood Emergency Rehabilitation Project Sub-projects:

Environmental And Social Screening Checklist

Environment and Social (E & S) Screening Checklist

Sindh Flood Emergency Rehabilitation Project

SECTION 1: GENERAL PROJECT AND SITE INFORMATION

INSTITUTIONAL & ADMINISTRATIVE					
District	Dadu		Taluka		
Name of subproject					
Date of screening					
Proposed subproject budget					
Construction Period					
Implementation arrangements (Name and contacts)	Project Director	Project Manager	E&S Specialist	Contractor	
SITE DESCRIPTION	J				
Name of site	1.				
Describe site location					
Scope of Work					
Location (Site coordinates)/ site map					
Land ownership status (Government/Private)					
Important geographic feature if any					
Important biological feature if any (Protected areas, critical habitat)					
Important hydrographic feature if any					
Important socio- economic feature if any					

Environmental And Social Screening Checklist

Distance from sensitive receptors (mosque, temple, church, graveyard, hospital, school)				
LEGISLATION				
SEPA NOC Required	[] Yes [] No, if Yes, select the required study from below			
Assessment Required for NOC	EIA [] , IEE [] , Environmental Checklist []			
Any other NOC from GoS Required	[] Yes [] No, if Yes, please specify			
PUBLIC CONSULTATION				
Number of consultation meetings with community	[] Yes [] No, if Yes, list to be attached			
Consultations with Government Departments	[] Yes [] No, if Yes, select the name of department from below list			
Provincial level consultations with GoS Departments				
District level consultations with GoS Departments				
Consultations with NGOS	[] Yes [] No, if Yes, please mention the name of NGOs			
INSTITUTIONAL CAPACITY BUILDING				
Will there be any E&S capacity building?	[] Yes or [] No, if Yes, attach E&S capacity building program			

Environmental And Social Screening Checklist

SECTION 2: ENVIRONMENTAL/SOCIAL SCREENING CHECKLIST

- Please fill the following checklist keeping in mind the impacts of the activity without implementation of any mitigation measures.
- In case risk category against any question / parameter is significant or moderate the activity/scheme will not be supported under the project.
- In case of minor risks, mitigation actions will be triggered as given in the last column.
- $\bullet \quad \textit{In case of no / rare risk, no further action is required}.$

	TECHNICAL AREAS/ IMPACTS ESS-1: ASSESSMENT & MANAGEMENT OF ENVIRONMENTAL & SOCIAL RISKS & IMPACTS		E&S IMPACTS SIGNIFICANCE				
TECH			Minor/ Small	Moderate/ Medium	Significant/ Large	Triggered Actions	
ESS-1							
Environmental Parameters							
1.1	Sub project is adjacent to or within any protected area, wetland, mangroves or critical and sensitive habitat.	· · · · · ·					
	Remarks/Observation: The sub project is located near Indus River which is not a protected area.	· · · · · · · · · · · · · · · · · · ·					
1.2	Impact on soil, landscape, and visual aesthetic (due to vegetation clearance, deep excavations, Borrow Area, soil erosion from construction activities, fuel spills, ponding of water, effect to agriculture land, illegal landfilling/disposal of waste, e-waste etc.)						
	Remarks/Observation: No tree cutting, no vegetation clearance only borrow area no impacts were observed.						
1.3	Impact on surface water and groundwater (due to spillage of chemicals, fuel and oil leakage from construction machinery, mishandling of hazardous substance, release of pollutants and improper waste storage etc.)						
	Remarks/observation: Groundwater source is not found. Effects monitoring will be carried out during construction phase.						
1.4	Impact on ambient air quality and air emissions (due to generation of dust from construction activity, vehicular/ machinery exhaust emissions, release of gases etc.)			:			

Sindh Flood Emergency Rehabilitation Project

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Environmental And Social Screening Checklist

		E	&S IMPAC	TS SIGNIFICA	NCE	Triggered
TECH	ECHNICAL AREAS/ IMPACTS		Minor/ Small	Moderate/ Medium	Significant/ Large	Actions
	Remarks/observation: 16 dumpers, 4 excavators, 3 rollers and other machinery are working at the sites. Water is being sprinkled regularly to avoid dust spreading due to the movement of the machinery. Machinery will be checked through a checklist for their performance also and exhaust emissions will also be monitored during construction phase.					
1.5	Noise and vibration (due to vehicular/ machinery movement, construction activities etc.)					
	Remarks/observation: Considerable noise of vehicles was observed. Effects monitoring will be carried out during construction phase.					
Socia	Parameters					
1.7	Elite capture and exclusion of vulnerable and disadvantaged groups (e.g., people living with disabilities, religious, ethnic and marginalized groups when accessing health and education services).					
	Remarks/observation: None					
1.8	Inequitable or discriminatory impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups, including persons with disabilities					
	Remarks/observation: None is affected with the project activities					
1.9	Risk of Sexual Exploitation and Abuse (SEA), Violence Against Children (VAC), Sexual Harassment (SH), and Gender Based Violence (GBV) for women, children and other project beneficiaries.					
	Remarks/observation: Due to nature of work of earth filling, machinery is used extensively, majority of the unskilled labor is local (10), the drivers and other technical staff's movement is restricted by contractor.					
2.0	Theft of project resources and materials.					

Environmental And Social Screening Checklist

	ECHNICAL AREAS/ IMPACTS		E&S IMPACTS SIGNIFICANCE			
TECH			Minor/ Small	Moderate/ Medium	Significant/ Large	Triggered Actions
	Remarks/observation: The contactor has employed 2 watchmen at each working site to protect the material from theft and no any theft case is reported so far.					
ESS-2	: LABOUR & WORKING CONDITION	Relevant				
2.1	Risks and vulnerabilities related to occupational health and safety (OHS) cause due to physical and chemical hazards, biological (waterborne diseases) hazards, and spread of COVID-19 pandemic and its variants during project implementation and operation.					
	Remarks/Observation: Due to nature of work of earth filling, machinery is used extensively, majority of the unskilled labor is local (10), the drivers and other technical staff's movement is restricted by contractor. PPEs to all workers is ensured regularly.					
2.2	Risk of spread of disease like Malaria, Typhoid, Dengue, and other water related disease.					
	Remarks/Observation: Clean water will be provided. Mosquito nets and mosquito repellants will be provided to the labor and staff.					
2.3	Social and gender issues due to the influx of labor by induction of outside labor and establishment of labor camps.					
	Remarks/observation: No cases have been reported so far.					
2.4	Risk of use of child and force labor in project activities.					
	Remarks/observation: No child labor was observed at the site					
ESS-3: RESOURCE EFFICIENCY, POLLUTION PREVENTION & MANAGEMENT		Relevant				
3.1	Risk of release of pollutants to the environment due to routine or non-routine circumstances.					
	Remarks/observation: Vehicular exhaust emissions, which will be monitored.					
3.2	Generation of waste (both hazardous and non-hazardous) including solid waste, health care/medical waste.					

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Environmental And Social Screening Checklist

	E&S IMPACTS SIGNIFICANCE			NCE	Triggered	
TECH	NICAL AREAS/ IMPACTS	None/ Rare	Minor/ Small	Moderate/ Medium	Significant/ Large	Actions
	Remarks/observation: No toilets available for staff and labour. No hazardous waste would be generated.					
3.3	Does the project include activities that require significant consumption of raw materials, energy, and/or water?					
	Remarks/observation: Water is available in abundance whereas the fuel is used for vehicles.					
ESS-4	: COMMUNITY HEALTH & SAFETY	Relevant	:			
4.1	Risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials (e.g., health care waste, construction waste, fuel and other chemicals during construction and operation).					
	Remarks/observation: None, community is not dwelling near the working sites.					
4.2	Increased health risks (e.g., from waterborne, vector-borne diseases, communicable infections such as HIV/AIDS, and/or spread of COVID-19 pandemic and its variants).					
	Remarks/observation: No one is found affected?					
4.3	Risk of Sexual Exploitation and Abuse (SEA), Gender Based Violence (GBV), and Sexual Harassment (SH) risks for female community members.					
	Remarks/observation: No community or flood affected people living in the close proximity of the working site.					
4.4	Risk of increase in traffic and pedestrian/road safety due to construction vehicle movement, especially close to socioeconomic sensitive receptors like schools, colleges and, BHU, hospitals.					
	Remarks/observation: Sparse the pedestrian and persons traveling on motor bikes are passing through the Right of way but contractor has put in place tragic management arrangement to reduce the risk.					

Environmental And Social Screening Checklist

				E&S IMPACTS SIGNIFICANCE			
TECH	ECHNICAL AREAS/ IMPACTS		Minor/ Small	Moderate/ Medium	Significant/ Large	Triggered Actions	
5.1	Will there be land acquisition? If yes, is the site for land acquisition and ownership status and current usage of land to be acquired known?						
	Remarks/observation: Government land						
5.2	Will there be loss of shelter and residential land due to land acquisition or due to clearance of existing right of way?						
	Remarks/observation: No shelter or residential land is found on site or near the site.						
5.3	Are there any informal settlers, flood affected persons present on the project site where works have been or are to be carried out?						
	Remarks/observation: No informal settlers or flood affected were found near the site or on the right of the way						
	Has there been any Anti Encroachment Drive to forcefully evict/move people at the site where the works have been carried out or are planned to be carried out?						
	Remarks/observation: No anti encouragement drive was undertaken						
5.4	Will there be losses of agricultural land, crops, trees, and fixed assets due to land acquisition?						
	Remarks/observation: Government land and the community land are submerged in flood water.						
5.5	Will there be loss of income sources and means of livelihoods due to land acquisition?						
	Remarks/observation: none						
5.6	Will people lose access to natural resources, communal facilities and services due to involuntary restriction of land use or on access to legally designate parks/protected area?						
	Remarks/observation:						
5.7	Will access to land and resources owned communally or by the state be restricted						
	Remarks/observation:						

Sindh Flood Emergency Rehabilitation Project

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Environmental And Social Screening Checklist

		E	&S IMPAC	TS SIGNIFICA	NCE	Triggered
TECH	CHNICAL AREAS/ IMPACTS		None/ Minor/ Moderate/ Rare Small Medium		Significant/ Large	Actions
5.8	Any estimate of the likely number of persons that will be affected by the Project? [NO] If yes, approximately how many?					
	Remarks/observation: none					
5.9	Are any of them poor, female-heads of households, or vulnerable to poverty risks					
	Remarks/observation: None					
ESS-6	: BIODIVERSITY CONSERVATION & SUSTAINABLE MANAGEMENT OF LIVING NATURAL RES	SOURCES				
6.1	Will the project activities can change land use in the area and conversion of habitat to other uses?					
	Remarks/observation: No any conversion of habitat would be carried out and no land use would be affected with the project activities.					
6.2	Will any of the project activities can result in reduction of population of wildlife or damage to biodiversity					
	Remarks/observation: The wildlife will not be affected with the project activities because the surrounding area of the working site is submerged with water.					
ESS-8	: CULTURAL HERITAGE					
5.8	Will the construction activities cause the socio-cultural issues and damage to any cultural heritage?					
	Remarks/observation:					
ESS-7	: INDIGENOUS PEOPLE/LOCAL COMMUNITIES	Not Rele	vant			
ESS-9	: FINANCIAL INTERMEDIARIES	Not Rele	vant			
ESS-1	0: STAKE-HOLDER ENGAGEMENT & INFORMATION DISCLOSURE	Relevant	:			Please refer

ANNEX B: CONCLUSION, MEASURES AND SUGGESTION OF E&S AUDIT REPORT



1. Audit's Conclusion

This report outlines the audit of 52 sub-projects (including 43 emergent works sub-projects sites and 09 emergent rehabilitation works sub-projects sites) supported by the World Bank in accordance with the Environmental and Social Standards sets by the World Bank with the vision of sustainable development for making the society climate resilient. The conclusions drawn through this E&S Audit are given below:

- i. Collectively, the project's compliance is satisfactory. The efforts in all the relevant dimensions appeared to be working positively. The related officials and the resident engineer provided assistance throughout the field visits and agreed to put the suggestions into practice. Any observed noncompliance was not only taken seriously, but it was also corrected or minimized in letter and spirit. The summarized results of Audit Compliance and Analysis of 'Emergent Works Sites' is presented in Table-7 and 'Emergent Rehabilitation Works Sites' in Table-8.
- ii. The audit's follow-up revealed significant improvement in safety and procedural implementations. At the time of site visits the management was at reasonable standard, considering of safety protocols, site specific management plans are also available. The sites visit highlights number of items that requires rectifications on few sites as identified in above analysis like a slight negligence in carrying the PPE's, lack of fire extinguishers and other related equipments, some sites has slight lacking in consistency of toolbox talks, unmarked fuel storage, uncovered soak pits, messy water consumption records, lacking of awareness among some workers regarding the environmental sensitivity and related limits, shredded mosquito nets, negligence in carrying safety boots etc.
- iii. The majority of the campsites have copies of the Campsite Guidelines, Grievance Register, and monthly EMP Compliance Checklists. To manage the implementation of EMP guidelines and any first aid or other related difficulties, a representative from the contractor side was present at each site.

- iv. There were no noises or vibration-related complaints from the general public or employees. Measures were taken to reduce the impact of noise, very few construction operations close to the populated areas were only permitted during the day. The operations time inventory on the site shows that no intense noise generating activity is performed during the prayers (namaz) time and school timings.
- v. There were no reports of borrow pits or topsoil erosion causing harm to the agricultural land, except the one caused by the flood itself.
- vi. Sites locations are not found near the main road arteries therefore traffic management and safety doesn't obstructed by the project activities.
- vii. There were no recorded complaints about the spread of communicable diseases (such as Covid19, ARI, STIs and HIV/AIDS etc).
- viii. No issues regarding the GBV, SH and SEA are found at any site, reporting mechanism and response protocols (Annexure-6) are satisfactory.
 - ix. Overall, there were no significant disputes with the community. With the local community, cordial relationships are maintained.
 - x. Almost all the sites are away from the critical habitats, no mangroves, wetlands, protected areas, cultural heritage sites, or estuaries are located in the project's alignment.

2. Proposed Environmental & Social Measures

This section outlines the suggested actions to address the findings in light of the audit's conclusions. These findings will be the part of the Project's Environmental and Social Commitment Plan (ESCP). The measures included in this section are measures to minimize or mitigate any negative environmental and social risks or impacts connected with the project activities. The sub-project implementations have conformed to some extent with legislative requirements and general good practices. However, the indicated measures must be put into action in order to create a sustainable environment and an acceptable social impact on the beneficiaries.

The work is in progress on a number of places without having a materially detrimental or long-lasting effect on the environment. A sizeable portion of a project's components are completely finished, while smaller portions are halfway there. It is suggested that the following measures will be incorporated in the next sub projects. In the light of audits conclusion some of the recommendations are as follows;

- i. It is suggested that to prevent any societal unrest, the contractor must uphold the prior agreement from the formal and informal community structures like village councils (panchait). Agreement for leasing of private land for borrow area or for the camp establishment, where the use of agricultural land is unavoidable private land will not be taken until a prior written agreement (with local tradition) and documentation of relevant details of compensation (on prevailing market rates) are signed between the owner/s, village councils (local community), and relevant authorities
- ii. During the reporting period, there were no serious evidence of leakages of oil from the construction related machinery, solid waste dumps, or tar left lying around that was reported to have contaminated surface or ground water. However, it is advised that some campsites must have effective leakage control equipments.

- iii. There were no critical habitats and protected areas near the project site. However, naturally the flood plains and surrounding areas are incredibly diverse habitats that support a variety of species, making them valuable for the ecosystem. So, it is suggested that detail flood plain related ecological studies will be conducted before the execution of future projects.
- iv. The use of PPE by site employees is observed to have improved since the previous visit, but there is still room for improvement. Contractors are tasked with equipping the personnel with PPE and educating and encouraging them about how to utilize it.
- v. To lessen the influence on the people' way of life, extra consideration should be given during uplifting phase at some locations.
- vi. Only in designated areas should waste be disposed of, particularly when disposing of asphalt especially near siphon. Most of the site's waste disposal was done according to the protocols.
- vii. It is also suggested that contractors should adopt more environment friendly practices, renewable energy utilization, and landscaping to improve the environment.
- viii. The training material regarding GBV, SH and SEA needs to be updated and more qualified and experienced trainers needs to be engaged.
 - ix. More consultation sessions with the local communities are suggested for enhancing the engagement activities, the gender and religious minorities and women agriculture and livestock farmers must be adequately represented.
 - x. The arrangements need to be institutionalized more properly for the people's guidance that was displaced due to the flood water.
 - xi. More policy dialogues are suggested, to improve women access to assets and to highlight strategic needs of the women.

- xii. It is suggested to create an application for online inventory and progress management in which all the relevant records are maintained.
- xiii. It is suggested to cover the soak pits properly in order to avoid the foul smell on the site.
- xiv. Improvement in the consistency of toolbox talks is suggested.
- xv. The plugging strengthening and uplifting activity did not disturb any plants or animals. There was no information relating to the clearance of vegetation except few patches of weeds, no cutting of trees and disturbance of biotic life is observed. It seems that the trees in flood affected areas are playing their important role, near the different sites trees are shrouded in ghostly cocoons line the edges of a submerged farm field, the trees are providing the temporary web station to millions of spiders possibly other insects. It is suggested that the awareness regarding the local ecological system must be enhanced. The scientific analysis of this enrobed in silk trees and related phenomena is additionally recommended.

xvi. Suggestions for the next subprojects:

It is suggested that the following measures should be incorporated into the next sub projects. In the light of audits conclusion some of the recommendations are as follows;

Table 10: Suggestions for the next subproject sites

S. No.	Suggestions for the next subproject sites					
1.	It is suggested to increase the awareness among the workers regarding the biotic life, ecological sensitivity and related limits even though the subproject sites are not lies in the protected zones.					
2.	The record keeping mechanism related to environmental safety and the utilization of resources must be uniform on all the sites with proper check and balance.					
3.	Soak Pits must be covered properly in order to avoid the foul smell in the surroundings.					
4.	Contractor ensures that all workers properly utilize PPEs.					
5.	Fuel storage must be marked properly.					
6.	More efforts suggested regarding refreshing the knowledge of the staff(hazard specific).					
7.	Advance safety trainings for the workers are suggested.					
8.	Shredded mosquito nets must be replaced.					
9.	Daily housekeeping must be ensured within the camps to maintain the hygiene level					

ANNEX C: TRAFFIC MANAGEMENT PLAN (TMP)

Following the mandates in the Environmental and Social Framework: ESS1, ESS2 and ESS4, and taking into consideration each project phase and that all the locations of the project activities will have different landscape configurations, roads, access, etc., this plan will provide specific measures to be implemented to ensure proper traffic management while minimizing security risks and impacts to the affected communities. This plan must consider the following: the amount of vehicular traffic, and pedestrians, the universal principle of open access to sites, the uses of signs, and control mechanisms to allow free and orderly movement, safe and predictable, guided and a warning to school, hospitals, neighbors and stakeholders nearby the project installations during construction and operational hours. The basic content of a traffic management plan should include:

- 1. Objective of TMP
- 2. Legal framework
- 3. Institutional framework
- 4. Site and surroundings diagnostics and characteristics
- 5. Possible environmental and social impacts
- 6. Evaluation of the environmental and social impacts
- Measurements for traffic management during the construction and operational phase of the project
- 8. Implementation plan
- 9. Budget and costs
- 10. Stakeholders Consultation plan
- 11. Grievance Redressal Mechanism
- 12. Follow-up and evaluation
- 13. Adaptive management arrangements

These objectives are based on the guidelines of the Environmental and Social Framework of the WB: ESS1, ESS2 and ESS4, and determine the responsibilities in relation to the evaluation, management and follow-up of the environmental and social impacts associated with the project implementation phases. In the case of the TMP, this must include the prendesign, construction and operational phases, with recommended actions to avoid, reduce and minimize those potential impacts generated by traffic and increase traffic in and around the project site, during construction and operation. This plan will avoid all major disturbance of existing traffic, prevent blockages, and

permits the free flow of vehicles in the communities where the proposed project interventions are implemented.

ANNEX D: SOLID WASTE MANAGEMENT PLAN (SWMP)

Construction activities for the project may generate various types of waste depending on the nature of rehabilitation and improvement work involved—road widening works and bunds, for example, may generate more waste than rehabilitation activities. To mitigate the risks associated with the generation of construction waste, site-specific SWMPs will be prepared.

The SWMP shall:

- Identify all potential waste generation activities implemented by the project, and characterize the
 types waste products, the specific sources of those products, and the quantities of each that are
 likely to be produced.
- Describe all applicable international (treaties/conventions/resolutions), national, and provincial laws and regulations regarding solid waste management and disposal.
- Provide detailed, site-specific mitigation measures for all identified risks.

For each proposed project intervention, the SWMP shall be prepared prior to the commencement of construction activities. The SWMP will be prepared by the contractor and finalized and approved by the PIUs.

An indicative outline of the SWMP is provided below:

- Introduction and context This section will provide an introduction to the proposed project intervention area and the specific activities of the proposed project intervention, and should also include a brief rationale for the preparation of the SWMP.
- 2. **Identification of waste with quantity and source** This section should document all potential waste generation with the expected quantities and characteristics of each type of waste.
- 3. **Handling and disposal guidelines for waste** This section will provide specific guidance and methodologies for the handling and disposal of solid waste generated by the proposed project intervention, identified in the previous section. This may include:
 - a. *Excavated soil* including measures to preserve topsoil, usage/disposal of excavated soil, etc.
 - b. Construction debris including guidance on separating recyclable and non-recyclable construction waste, storage and sale of recyclables, disposal of non-recyclables, etc.
 - c. Solid waste (including municipal and other waste generated from labor camps) including measures for the separation of recyclables, non-recyclables, and biodegradables at source, the introduction of the "reduce, reuse, recycle" concept, training, etc.

- d. Other waste products identified in the preparation of section 2
- 4. Selection of waste disposal sites This section should identify the location and nature of waste disposal sites, based on the types and quantities of waste expected, and the site screening criteria provided in the ESMF. The site selection process should focus on locating sites a suitable distance away from sensitive locations (settlements, water resources, protected or biologically important areas), and ensuring that disposal sites do not have any adverse social or environmental impacts. Stakeholder/community consultation and community approval must be obtained before finalizing the location/s of the waste disposal site/s. This section should also contain a summary of consultations carried out for this purpose, and provide specific information on how stakeholder views were incorporated into site selection.

Implementation, Monitoring and Reporting – This section will assign responsibilities for the implementation of the SWMP. It will also provide details on compliance monitoring of the implementation of the SWMP. Specifically, it will include a list of monitoring indicators (including actual amounts and types of wastes generated, records of disposal, etc.) and assign responsibilities for monitoring. Finally, this section will include an indicative outline of monitoring reports and a schedule for reporting on SWMP compliance to the PIUs.

ANNEX E: PHYSICAL CULTURAL RESOURCES MANAGEMENT FRAMEWORK (PCRMF)

Due to the potential presence of physical and cultural resources in and around the proposed project area, a standalone Physical & Cultural Resource Management Framework (PCRMF) has been prepared in accordance with ESS8.

Physical Cultural Resources will be managed under the Antiquities Act 1975, ESS8 and Pak- EPA Guidelines for Sensitive and Critical Areas 1997.

The anticipated direct impacts on physical cultural resources include the impact upon sub-surface archaeology, effect of the works on any historic buildings or landscapes and the visual impact on the property and its surrounding landscape. Indirect impacts include local cultural deterioration, resource use conflicts and loss of local identity and values.

It is the responsibility of the implementing agency to protect and safeguard the physical cultural resources by adopting proper heritage site management practices. SRP/P&DD will ensure that construction contractors prepare a Physical and Cultural Resource Management Plan before the commencement of construction works in/around the heritage sites. The significance of cultural heritage in a project area shall be evaluated and then the potential impacts of the project, including the extent and economic costs of any damage will be assessed.

The following mitigation measures should be adopted to avoid the impacts on physical and cultural resources:

- The most important single strategy for heritage protection is site avoidance: redirecting activities so that they do not endanger a site;
- If the site cannot be avoided, the assessment should consider design and construction alternatives for the project facilities as well as alternative methods and approaches for protection and mitigation;
- The alternatives should be ranked according to effectiveness, cost, difficulty, length of time required, and monitoring needs. Decisions should be made by weighing these rankings against the cultural significance and economic value of the site; furthermore
- Alternative and mitigation measures should be considered in Project Site-Specific ESMP

In case of any chance find, the Contractor will immediately report to the PIUs who will notify the Directorate General (DG) of the Archaeological Department, Government of Pakistan to take further suitable action to preserve those antique or sensitive remains. A representative of the DG will visit the proposed project intervention site and observe the significance of the antique, artifact and Cultural (religious) properties and the significance of the find. The report will be prepared by the representative and will be given to the DG. If required suitable action will be taken to preserve those antiques

and

sensitive

remains.

ANNEX F: GBV/SEA/SH ACTION FRAMEWORK

A comprehensive GBV/SEA/SH Action Plan shall be prepared by PIUs for the project, prior to implementation. An indicative outline for the plan is provided below:

- 1. Executive Summary
- 2. Description of the Project (Objectives, Components, and Beneficiaries)
- 3. Assessment Approach, Methodology, and Sources of Information
- 4. Gender Dimensions
- GBV/SEA/SH Risk Assessment and Mitigations
- 6. Action Plan Implementation
- 7. Monitoring and Reporting
- 8. Budget for Implementation

The Plan shall include the following mitigation measures/actions:

- Development of stand-alone gender and GBV, SH, SEA training material or adaptation of existing material by qualified and experienced trainers to orient GRM response teams as well as project staff and implementing partners on reporting mechanisms and response protocols related to cases; cyclically, take such training down to the lowest levels of governance and project management.
- Hire a qualified gender trainer on contract to impart intermittent gender sensitization pieces of training to government officials, project partners, and beneficiaries and train Master Trainers for community replication sessions.
- Ensure GBV provisions within the project GRM. This should be able to route complainants
 toward relevant GBV counselors and authorities in a discreet manner while providing
 compliant registration and legal counseling. Establish a system of confidential user
 satisfaction assessments with a tracking system for onward referrals and follow-up after the
 GRM has been set up.
- Ensure the GRM dedicates trained female staff to handle all cases of GBV, SH, and SEA.
 Train GBV response teams on standards and guidelines developed under the United Nations Joint Global Programme on Essential Services Package for Women and Girls Subject to Violence: Core Elements and Quality Guidelines.

- SFERP in each district/division to notify local Sexual Harassment Inquiry Committees in their offices and appoint three trained officer bearers as permanent Committee members, including at least one woman, after adequate training from the provincial office.
- Enhance the visibility of information and systems regarding designated Sexual Harassment Inquiry Committees and their members who could be approached by all project staff and beneficiaries for assistance in cases of SH and SEA.
- Mandate visible display of Anti Sexual Harassment Code of Conduct by project all partners at all project sites along with information on the GRM.
- Ensure gender-inclusive, safe and well-lit WASH facilities for women workers in the project; use civil works budgets to financially support recurring repair and maintenance budgets for the same.
- Introduce localized referral directories and train GRM response teams on GBV, SH and SEA, related laws, reporting procedures, and referral systems. Develop a system for linking up with other concerned departments and GBV service providers to strengthen the institutionalized response to criminal and civil offenses that may be reported.
- Share GBV/SH/SEA referral directories with project partners, beneficiaries, and community resource persons (male and female)
- Mandate Departmental reporting of detected cases of GBV, SH and SEA to the GRM as well
 as the recording of response provided thereof, with due attention to privacy and
 confidentiality (for example, case numbers can be used for identification rather than real
 names), for further analysis, action, and follow-up.

ANNEX G:

TORS OF INDEPENDENT ENVIRONMENTAL AND SOCIAL AUDIT OF RETROACTIVELY
FINANCED SUBPROJECTS UNDER SFERP

Terms of Reference for Independent Environmental and Social Audit of Retroactively Financed Subprojects under the Sindh Flood Emergency Rehabilitation Project (SFERP)

Government of Sindh

December 2022

Background

The Sindh Flood Emergency and Rehabilitation Project (SFERP) is prepared in response to the impacts of the 2022 floods in Sindh. The Project aims to improve the climate change and disaster resilience of communities by supporting recovery, improving and supporting livelihoods, rehabilitating selected infrastructure, and strengthening institutional disaster management capacity.

SFERP includes the following components:

Component 1 - Infrastructure Rehabilitation

Component 1 aims to enhance physical resilience through the restoration, rehabilitation and improvement of critical flood protection infrastructure, water supply schemes, roads and allied infrastructure. A framework approach based on climate resilience will be used to finalize infrastructure subprojects under this component based on damages data. The approach is being adopted due to the emergency nature of the project.

Subcomponent 1.1: Flood Control and Rehabilitation of Irrigation Infrastructure. Floods have brought about significant damages to the irrigation and flood protection infrastructure in Sindh. Critical flood protection infrastructure will be identified and rehabilitated on a priority basis under the principle of 'build back better' with improved engineering design features including nature-based solutions as applicable. Some damaged flood protection schemes have already been identified such as Flood Protective (FP) bund, Supriyo bund, and Manchar Containing (MC) embankments in Dadu district of Sindh. The Bank-funded Sindh Resilience Project (P155350) has been financing the construction of small dams in Sindh to serve the dual purpose of groundwater recharge and mitigate the potential flooding in streams which are prone to flash flooding. This subcomponent will take a holistic approach and consider an array of resilience solutions including flood delay dams, leaky dams, flood dispersion dams and off-line storage. The definition of the interventions will be based on watershed/catchment level hydro-economic studies to determine the most beneficial options. Non-structural measures will complement the flood mitigation infrastructure, as described in subcomponent 3.2.

Subcomponent 1.2: Restoration of Roads and Allied Infrastructure. This subcomponent will support the rehabilitation and reconstruction of affected road network to improve accessibility to public facilities and to facilitate socio-economic revival of worst affected areas of the province. More specifically this component will include the following:

Road upgrading and rehabilitation in affected districts, including climate resilient designs, rehabilitation, maintenance and supervision of works in selected districts. Starting with a long list of roads to be shared by the GoS, final roads and districts will be prioritized for upgrading and rehabilitation based on the criteria that improving these identified roads would ensure all-weather access to public facilities. Improvement of road infrastructure would include but not limited to the raising of embankments, provision of side drains, improvement of culverts, ditches, vegetation, bridges, enhanced slope protection, adoption of design standards for pavements, and climate investments to mitigate effects of rainfall and high temperatures. In addition, the component will include green techniques, including use of vegetation, geomesh, gabions, pavement seals, etc., to mitigate effects of rainfall and high temperatures. Adaptation measures through resilience planning at the network level will ensure continuous access to schools, health facilities, and markets.

This subcomponent will also support improvement of road safety infrastructure and equipment in the vicinity of public facilities and marketplaces, including the provision of sidewalks, bike lanes, road markings, and signage. These improvements will also include the provision of traffic calming

measures, i.e., rumble strips, marking of reduced speed zones, delineators, traffic lights, guard rails. In addition, it will also ensure inclusion of gender approach and universal access features and measures in the design, construction/rehabilitation, of roads and allied infrastructure. This subcomponent will consider the provision of basic fiberoptic infrastructure, i.e., ducts and manholes alongside selected roads to facilitate the expansion of internet connectivity in the future. This component will be implemented as per the telecom and digital plan of the GoS.

Subcomponent 1.3: Restoration of Water Supply Schemes. The subcomponent will fund the rehabilitation of selected and prioritized water supply infrastructure that has been destroyed or damaged by the floods. Early estimates of DNA for Sindh province will identify funds required for restoration of damaged water supply and sanitation infrastructure which spans in xx tehsils. Prior to floods, the damaged infrastructure was not providing safe water and hygienic sanitation. The project will upgrade the damaged infrastructure to provide safe and hygienic services and also reinforce flood resilience aspects in order to avoid future losses to calamities. Currently, a rural water supply and sanitation project is also under preparation which will cover the remaining portion of damaged infrastructure and at the same time, cater for new infrastructure, on need basis.

Component 2 - Livelihoods Restoration

This component will support livelihoods through a 'cash for work' program for communities across affected villages, with a help of a Social Mobilization Partner (SMP). Cash for Work (CfW) programs are usually designed to assist the most affected, able bodied vulnerable communities so that they can quickly earn cash under 'decent work' conditions. Such support enables them to respond to their immediate livelihood needs (food, shelter, etc.), in return for participating in disaster clean up and restoration activities. Cash for Work interventions provide employment to unskilled and semiskilled workers on labor intensive locally planned and executed projects, including rehabilitation of community infrastructure and irrigation systems, ecosystems and landscape restoration, soil conservation, and road construction and maintenance.

Component 3 – Institutional Strengthening for Resilience and Technical Assistance

Subcomponent 3.1: Expansion of Sindh Emergency Rescue Service. The Sindh Emergency Rescue Service (Rescue 1122) was established under SRP with the service operational as of May 2022, and is providing critical lifesaving, emergency response and rescue services to the citizens of Sindh. The service is currently functioning in selected districts including Karachi, Sujawal, Thatta, Hyderabad, Larkana, Dadu and Qambar Shahdadkot. Under SFERP, the service will be expanded to other districts as an integrated and independent service of first responders covering the entire spectrum of emergency response from floods, fires, earthquakes, windstorms, and health emergencies. Districts to be covered under SFERP include Sukkur, Ghotki, Shikarpur, Jacobabad, Badin and Jamshoro which have been badly affected by the floods of 2022.

Subcomponent 3.2: Enhancing Preparedness for Floods. This subcomponent will enhance the preparedness capacity of relevant line departments for better response, planning, and coordination for disaster management. Probable activities include: (i) the preparation of an emergency response plan at the operational level in Sindh; (ii) expansion of the decision support system (DSS) established under SRP to include flash floods, in addition to riverine floods; and (iii) design and implementation of mock drills to test the effectiveness of plans and standard operating procedures, along with early warning dissemination and first responder systems, in evacuation and early action, and also enhance community capacities by targeting and ensuring access to differently abled groups, livelihoods, sectors, etc.

Flood mitigation measures are effective when their design (and implementation) includes the right mix of structural and non-structural measures. Considering the two dimensions of risk: i) structural measures can reduce the probability of occurrence of large flooding; ii) non-structural ones can reduce the consequences of flooding. The main structural measure is flood storage capacity. Without flood storage capacity in the basin, the probability of occurrence of a flood above a certain level cannot be reduced. This sub-component will also support strategic long-term studies (feasibilities studies, consulting services for surveys, modelling, environmental and social assessments, etc.) for interventions related to increasing flood mitigation capacity in Sindh. In particular, the studies will focus on the knowledge and infrastructure gaps in the context of the rain and floods of 2022. Studies to inform the preparation of Bank's pipeline projects will also be supported. Specifically for flood management, activities will include i) flood forecasting and warning, and ii) flood emergency response planning (both being non-structural measures). Flood forecasting systems can multiply the efficiency and capacity of flood mitigation dams, facilitating the following functions:

- a) Anticipation of reservoir depletion, with the objective of optimum flood routing when the flood will arrive at the reservoir.
- b) Coordination of the operations of all reservoirs in the basin during a flood event, with the objective of minimizing downstream damages.
- c) Establishment of alarm systems, to put in place the emergency response plans.

Component 4 – Project Management and Operational Costs

This component will finance the costs of the Project Implementing Unit's (PIU) and other operational costs at Sindh Irrigation Department (SID) and Planning and Development Department (formerly SRP-PDMA PIU), including, inter alia, project management, procurement, contract management, public outreach and dissemination, financial management (FM) activities, technical audits, compliance monitoring of construction activities, oversight of compliance with social and environmental standards, oversight of compliance with social inclusion targets, monitoring and evaluation (M&E) activities, and a Grievance Redress Mechanism (GRM). M&E entails, inter alia, preparation of project reports, including for mid-term and completion review, baseline studies and audits (financial and technical, environmental, social as needed). This component will also inter alia finance equipment (renting or purchase, as applicable), services and small works necessary for the effective functioning of the PIUs, such as vehicles, information and communication equipment (including laptops, printers etc), office furniture and materials, renting of premises, upgrade/refurbishment works, etc.

Objective of Environmental and Social Audit

The Project will additionally finance selected activities under Component 1 that may be eligible for retroactive financing. These are activities that have already been initiated, completed or ongoing till project effectiveness and funded by the Government of Sindh's own resources at the time of Project Preparation. The retroactive financing would be allowed under the following conditions as per criteria given in Project Appraisal Document (PAD): (i) the activities financed are included in the project description; (ii) the payments are for items procured in a manner consistent with Sections I, II, and III of the WB Regulations for Borrowers, applicable under streamlined procurement processes; and (iii) the payments were made by the Borrower not more than 12 months before the expected date of the signing of the project legal agreement for the Bank loan.

A comprehensive Environmental and Social (E&S) audit proportional to the risk of the project activities is a requirement of the proposed Financing Agreement to assess the nature and extent of environment and social risks from the activities and for determining eligibility of sub-projects for consideration for retroactive financing. The objective of the E&S audit is to:

- perform an independent assessment (Audit) of the environmental and social management of the activities proposed for retroactive financing in line with the requirements of Environment and Social Framework (ESF) of World Bank and Environmental and Social Commitment Plan (ESCP) agreed between the bank and the borrower
- examine each of the proposed activities, and assess their level of compliance with the mitigation measures and other management mechanisms (including reporting, grievance handling, stakeholder engagement, etc.) as per requirements of national requirements and ESF.
- if required, propose measures for enhancing or improving the overall E&S management of the proposed activities, in line with the ESF and local laws, regulations, and policies.
- Disseminate the results of the Audit to relevant GoS officials and key personnel responsible for E&S management of the Project.

Scope of Services

Specific responsibilities of the firm will include:

- a) Developing an audit program that will confirm the firm's understanding of the audit objective, scope, methodology and approach, and schedule of deliverables. The detailed audit program shall be reviewed and cleared by the SFERP PMU and the World Bank.
- b) Reviewing and assessing the adequacy of the proposed sub-projects' stakeholder identification, analysis, and engagement, and assessing the appropriateness of current and planned stakeholder engagement activities as described in the Stakeholder Engagement Plan (SEP).
- c) Conducting a comprehensive environmental and social audit as per the audit program. The audit will assess compliance of activities proposed for retroactive financing with the requirements of national legislations, ESF requirements as stated in Project ESF documents, and other project safeguards instruments including site-specific ESMPs prepared as per national legislation and regulatory requirements. This will include site visits, examination of implementation arrangements for E&S management and monitoring, resource adequacy, mechanisms for E&S management, risk mitigation, monitoring and reporting, and grievance handling through the project GRM.
- d) Identification of any gaps between in the E & S management and monitoring and Proposing mitigation measures for enhancing or improving the overall E&S management of the proposed activities
- e) Developing mitigation action plans based on the results of the audit to address key E&S management issues and gaps identified.
- f) Presenting audit findings and recommended improvement and enhancement measures for the overall E&S management of the proposed activities to the Bank and the GoS.

Methodology and Approach

The firm should use the following approaches in the preparation of the audit and completion of activities defined in the Scope of Services above:

- a) Desk review of available documentation, including the ESMF, ESCPs, and other safeguards instruments, technical reports, bidding and contract documents, environmental permits.
- b) Preparation of audit program

- c) Field visits to sites of the proposed activities to assess and verify E&S management, assess risks, and identify gaps.
- d) Consultations with key stakeholders (including institutional and community stakeholders).
- e) Preparation of E&S audit (in English, with translation of Executive Summary in Urdu)

Team Composition, Qualification, and Experience

The audit team should be a firm with appropriate capabilities and resources to complete the assignment in line with the terms of reference. All members of the team should at minimum have:

- a) Experience in E&S assessments and risk management, particularly with respect to infrastructure and post-disaster reconstruction and rehabilitation.
- b) Excellent working knowledge of national and provincial legislation and regulations related to environmental and social risk management.
- c) Excellent working knowledge of and experience with the World Bank's safeguards policies, particularly the ESF.
- d) Proven writing and analytical skills
- e) Ability to communicate and write effectively in English and Urdu. Additional proficiency in Sindhi is preferred.
- f) Experience engaging with federal or provincial governments on the topic of environmental and social management is preferred.

The team shall consist of three (3) key specialists, the specific requirements for which are provided below:

Social Specialist

- At minimum a post-graduate degree in social sciences, sociology, anthropology, community development, or related field
- Minimum of ten (10) years relevant professional experience in social risk management, preferably in the context of infrastructure projects and post-disaster reconstruction and rehabilitation
- Demonstrated experience in social impact assessments and development of risk management instruments, particularly with reference to vulnerable and diverse groups, land acquisition and resettlement, community health and safety, occupational health and safety, and community engagement.
- Experience in conducting similar audits, especially in the areas of social risk management

Environmental Specialist

- At minimum a post-graduate degree in environmental science, environmental engineering, or related field
- Minimum of ten (10) years relevant professional experience in environmental risk management, preferably in the context of infrastructure projects and post-disaster reconstruction and rehabilitation
- Demonstrated experience in environmental impact assessments and development of risk management instruments, especially addressing impacts on civil works projects
- Experience in conducting similar audits, especially in the areas of environmental risk management.

Gender Specialist

- At minimum a post-graduate degree in social development, gender studies, public policy, or a related field.
- Minimum of ten (10) years relevant professional experience in gender-based violence (GBV), SEA/SH management, gender studies, particularly in post-disaster contexts.
- Experience in developing and assessing SEA/SH and GBV guidelines, management systems, checklists, and training courses on SEA/SH
- Experience in conducting similar audits, especially in the areas of GBV and SEA/SH risk management.

Deliverables

The firm is expected to deliver and complete the E & S audit is a month (30 days) from the award of contract with the following outputs within the timeframes stipulated:

Output	Timeframe (weeks from contract start date)
Audit plan	1 weeks
Draft audit report	3 weeks
Final audit report	4 weeks

ANNEX H:

E&S Monitoring Checklist for SFERP

ENVIRONMENTAL AND SOCIAL MONITORING CHECKLIST

Sindh Flood Emergency Rehabilitation Project Sub-projects:

Environment and Social (E & S) Monitoring Checklist

Sindh Flood Emergency Rehabilitation Project

SECTION 1: GENERAL PROJECT AND SITE INFORMATION

INSTITUTIONAL & ADMINISTRATIVE							
District	Dadu		Taluka				
Name of subproject							
Date of screening							
Proposed subproject budget							
Construction Period							
Implementation arrangements (Name and contacts)	Project Director	Project Manager	E&S Specialist	Contractor			
SITE DESCRIPTION	J						
Name of site	1.						
Describe site location	***************************************						
Scope of Work							
Location (Site coordinates)/ site map							
Land ownership status (Government/Private)							
Important geographic feature if any							
Important biological feature if any (Protected areas, critical habitat)							
Important hydrographic feature if any							
Important socio- economic feature if any							

Distance from sensitive receptors (mosque, temple, church, graveyard, hospital, school)	
LEGISLATION	
SEPA NOC Required	[] Yes [] No, if Yes, select the required study from below
Assessment Required for NOC	EIA [] , IEE [] , Environmental Checklist []
Any other NOC from GoS Required	[] Yes [] No, if Yes, please specify
PUBLIC CONSULTATION	
Number of consultation meetings with the community	[] Yes [] No, if Yes, list to be attached
Consultations with Government Departments	[] Yes [] No, if Yes, select the name of the department from the below list
Provincial level consultations with GoS Departments	
District level consultations with GoS Departments	
Consultations with NGOS	[] Yes [] No, if Yes, please mention the name of NGOs
INSTITUTIONAL CAPACITY	BUILDING
Will there be any E&S capacity building?	[] Yes or [] No, if Yes, attach E&S capacity building program

SECTION 2: ENVIRONMENTAL/SOCIAL MONITORING CHECKLIST

		E	E	Suggested		
TECH	TECHNICAL AREAS/ IMPACTS		Partial Compliance	No Compliance	N/A	measures with a time frame
ESS-1	: ASSESSMENT & MANAGEMENT OF ENVIRONMENTAL & SOCIAL RISKS & IMPACTS	Relevant				
Environmental Parameters						
1.1	Sub project is adjacent to or within any protected area, wetland, mangroves or critical and sensitive habitat.					
	Remarks/Observation:					
1.2	Impact on soil, landscape, and visual aesthetic (due to vegetation clearance, deep excavations, Borrow Area, soil erosion from construction activities, fuel spills, ponding of water, effect to agriculture land, illegal landfilling/disposal of waste, e-waste etc.)					
	Remarks/Observation:					
1.3	Impact on surface water and groundwater (due to spillage of chemicals, fuel and oil leakage from construction machinery, mishandling of hazardous substance, release of pollutants and improper waste storage etc.)					
	Remarks/observation:					
1.4	Impact on ambient air quality and air emissions (due to generation of dust from construction activity, vehicular/ machinery exhaust emissions, release of gases etc.)					
	Remarks/observation:					
1.5	Noise and vibration (due to vehicular/ machinery movement, construction activities etc.) $ \\$					
	Remarks/observation:					
Socia	Parameters					

Sindh Flood Emergency I	Rehabilitation	Project
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Environmental And Social Monitoring Checklist

	TECHNICAL AREAS/ IMPACTS		E&S IMPACTS SIGNIFICANCE			
TECH			Partial Compliance	No Compliance	N/A	measures with a time frame
1.7	Elite capture and exclusion of vulnerable and disadvantaged groups (e.g., people living with disabilities, religious, ethnic and marginalized groups when accessing health and education services).					
	Remarks/observation:					
1.8	Inequitable or discriminatory impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups, including persons with disabilities					
	Remarks/observation:					
1.9	Risk of Sexual Exploitation and Abuse (SEA), Violence Against Children (VAC), Sexual Harassment (SH), and Gender Based Violence (GBV) for women, children and other project beneficiaries.					
	Remarks/observation:					
2.0	Theft of project resources and materials.					
	Remarks/observation:					
ESS-2: LABOUR & WORKING CONDITION		Relevant				
2.1	Risks and vulnerabilities related to occupational health and safety (OHS) cause due to physical and chemical hazards, biological (waterborne diseases) hazards, and spread of COVID-19 pandemic and its variants during project implementation and operation.					
	Remarks/Observation:					
2.2	Risk of spread of disease like Malaria, Typhoid, Dengue, and other water related disease.					
	Remarks/Observation:					

		E	Suggested			
TECH	CHNICAL AREAS/ IMPACTS		Partial Compliance	No Compliance	N/A	measures with a time frame
2.3	Social and gender issues due to the influx of labor by induction of outside labor and establishment of labor camps.					
	Remarks/observation:					
2.4	Risk of use of child and force labor in project activities.					
	Remarks/observation:					
ESS-3	3: RESOURCE EFFICIENCY, POLLUTION PREVENTION & MANAGEMENT	Relevant				
3.1	Risk of release of pollutants to the environment due to routine or non-routine circumstances.					
	Remarks/observation:.					
3.2	Generation of waste (both hazardous and non-hazardous) including solid waste, health care/medical waste.					
	Remarks/observation:					
3.3	Does the project include activities that require significant consumption of raw materials, energy, and/or water?					
	Remarks/observation:					
ESS-4	: COMMUNITY HEALTH & SAFETY	Relevant				
4.1	Risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials (e.g., health care waste, construction waste, fuel and other chemicals during construction and operation).					
	Remarks/observation:.					
4.2	Increased health risks (e.g., from waterborne, vector-borne diseases, communicable infections such as HIV/AIDS, and/or spread of COVID-19 pandemic and its variants).					
	Remarks/observation:					

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Environmental And Social Monitoring Checklist

	TECHNICAL AREAS/ IMPACTS		E&S IMPACTS SIGNIFICANCE			
TECH			Partial Compliance	No Compliance	N/A	measures with a time frame
4.3	Risk of Sexual Exploitation and Abuse (SEA), Gender Based Violence (GBV), and Sexual Harassment (SH) risks for female community members.					
	Remarks/observation: .					
4.4	Risk of increase in traffic and pedestrian/road safety due to construction vehicle movement, especially close to socioeconomic sensitive receptors like schools, colleges and, BHU, hospitals.					
	Remarks/observation:.					
ESS-5	: LAND ACQUISITION, RESTRICTION ON LAND USE AND INVOLUNTARY RESETTLEME	NT				
5.1	Will there be land acquisition? If yes, is the site for land acquisition and ownership status and current usage of land to be acquired known?					
	Remarks/observation:					
5.2	Will there be loss of shelter and residential land due to land acquisition or due to clearance of existing right of way?					
	Remarks/observation:					
5.3	Are there any informal settlers, flood affected persons present on the project site where works have been or are to be carried out?					
	Remarks/observation:					
	Has there been any Anti Encroachment Drive to forcefully evict/move people at the site where the works have been carried out or are planned to be carried out?					
	Remarks/observation:					
5.4	Will there be losses of agricultural land, crops, trees, and fixed assets due to land acquisition?					
	Remarks/observation:					

		E&S IMPACTS SIGNIFICANCE				Suggested
TECH	TECHNICAL AREAS/ IMPACTS		Partial Compliance	No Compliance	N/A	measures with a time frame
5.5	Will there be loss of income sources and means of livelihoods due to land acquisition?					
	Remarks/observation: none					
5.6	Will people lose access to natural resources, communal facilities and services due to involuntary restriction of land use or on access to legally designate parks/protected area?					
	Remarks/observation:					
5.7	Will access to land and resources owned communally or by the state be restricted					
	Remarks/observation:					
5.8	Any estimate of the likely number of persons that will be affected by the Project? [NO] If yes, approximately how many?					
	Remarks/observation:					
5.9	Are any of them poor, female-heads of households, or vulnerable to poverty risks					
	Remarks/observation:					
ESS-6	: BIODIVERSITY CONSERVATION & SUSTAINABLE MANAGEMENT OF LIVING NATURA	AL RESOURCE	S			
6.1	Will the project activities can change land use in the area and conversion of habitat to other uses?					
	Remarks/observation:.					
6.2	Will any of the project activities can result in reduction of population of wildlife or damage to biodiversity					
	Remarks/observation:					
ESS-8	: CULTURAL HERITAGE					

Sindh Flood Emergency Rehabilitation Project

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Environmental And Social Monitoring Checklist

	FECHNICAL AREAS/ IMPACTS		E&S IMPACTS SIGNIFICANCE				
TECH			Partial Compliance	No Compliance	N/A	measures with a time frame	
5.8	Will the construction activities cause the socio-cultural issues and damage to any cultural heritage?						
	Remarks/observation:						
ESS-7	7: INDIGENOUS PEOPLE/LOCAL COMMUNITIES	Not Relevan	nt				
ESS-9	ESS-9: FINANCIAL INTERMEDIARIES Not Relevant						
ESS-10: STAKE-HOLDER ENGAGEMENT & INFORMATION DISCLOSURE		Relevant				Please refer project SEP	