



Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS)

Appraisal Stage | Date Prepared/Updated: 11-Apr-2018 | Report No: PIDISDSA24637



BASIC INFORMATION

A. Basic Project Data

Country Pakistan	Project ID P162117	Project Name Sindh Barrages Improvement Project AF	Parent Project ID (if any) P131324
Parent Project Name PK-Sindh Barrages Improvement Project	Region SOUTH ASIA	Estimated Appraisal Date 05-Mar-2018	Estimated Board Date 17-May-2018
Practice Area (Lead) Water	Financing Instrument Investment Project Financing	Borrower(s) Economics Affairs Division, Government of Pakistan, Irrigation Department	Implementing Agency Irrigation Department, Government of Sindh

Proposed Development Objective(s) Parent

The project development objectives are to improve the reliability and safety of the Guddu barrage and strengthen the Sindh Irrigation Department’s capacity to operate and manage the barrage.

Proposed Development Objective(s) Additional Financing

The PDO will be revised to strengthen the Sindh Irrigation Department’s capacity to operate and manage barrages and improve the reliability and safety of Guddu and Sukkur Barrages in the Province of Sindh.

Components

- Component A: Rehabilitation of Guddu and Sukkur Barrages
- Component B: Improved Barrage Operation
- Component C: Technical Studies
- Component D: River basin water resources and riverine management
- Component E: Project management, Monitoring and Evaluation
- Price and Physical Contingency

Financing (in US\$, millions)

SUMMARY

Total Project Cost	152.20
Total Financing	152.20
Financing Gap	0.00



DETAILS

Total World Bank Group Financing	140.00
World Bank Lending	140.00
Total Government Contribution	12.20

Environmental Assessment Category

Full Assessment (A)

Decision

The review did authorize the preparation to continue

Other Decision (as needed)

N/A

B. Introduction and Context

Country Context

Pakistan has made progress in reducing poverty and improving shared prosperity over the last two decades. Progress, however, slowed between 2009 and 2011 due to two massive floods, conflict, and the global economic slowdown. A majority of the nation’s poor people still live in rural areas. Sindh Province is home to over 52 million people (24 percent of Pakistan’s population). The province constitutes 18 percent of the country’s land area, and 14 percent of the total cropped area. About 30–35 percent of Sindh’s population lives below the poverty line, with the majority being rural. Sindh makes up a large portion (26 percent) of Pakistan’s cultivated area and produces about a quarter (24 percent) of the major irrigated crops, such as cotton, rice, sugarcane, and wheat. The cultivable command area is about 5.1 million ha. The actual irrigated area varies from year to year, depending on the availability of canal water.

Sectoral and Institutional Context

Sukkur Barrage is one of the most important and strategic structures of the Indus basin irrigation system. Located about 170 kilometers downstream of Guddu Barrage, Sukkur Barrage supplies water to seven large canals that irrigate over 3.2 million hectares that produces an annual agricultural production worth about US\$2.29 billion, thus, is considered as a lifeline for Sindh. A diagnostic analysis reveals that Sukkur Barrage, which was constructed in 1932, is in need of rehabilitation and modernization, particularly, related to its capacity of flood passage and diversion of adequate amounts of water to seven irrigation canals, four on the left bank (Nara, Khairpur Feeder East, Rohri and Khairpur Feeder West) and three on the right bank (Dadu, Rice and North Western).



As per the original design, Sukkur Barrage had the flood passage capacity of 1.5 million cusec¹. However, because right bank canals were drawing excessive silt, 10 gates were permanently closed for silt control in 1940. The flood passage capacity, therefore, has been reduced to 0.9 million cusecs, which was estimated by the hydraulic model study conducted between 1938 and 41 in India. Since then, there have been 11 flood events at Sukkur Barrage surpassing 0.9 million cusec, six of which were more than 1.1 million cusecs. The maximum flood was as large as 1.2 million cusecs in 1976.

The passage of the floods larger than the estimated current capacity resulted in some minor damage and corresponding repairs to the Barrage, while it remained functional. The major repairs include: reinforcement to concrete arches (1965), replacement of gates (1988), and emergency repair works in right pocket for damage to barrage foundation in Span No. 1 to 4 (2004). The diagnostic analysis confirms that the current barrage structure would safely pass a flood of 1.2 million cusecs; however, a series of large flood events surpassing 0.9 million cusecs have damaged the barrage superstructure. Mechanical and electric works also need to be modernized to enable more subtle operation and increase freeboard. Counterweight from gate hoisting should also be removed to reduce deadweight and stress on the superstructure. Major dredging works should also be carried out to restore the flood capacity, which has been significantly reduced due to the serious deposits of the sediment. The analysis concludes that with these measures in place, the risks of damage from a 1.2 million cusecs flood would be eliminated and the barrage would likely stand up against a flood of 1.3 million cusecs, which is the largest immediate threat at this time.

Further, the analysis also suggests that opening of at least six out of the 10 permanently closed barrage gates and modified river training works would allow better sediment control and a passage of a mega flood as high as 1.5 million cusecs, with possible increase in height in a limited length of bund walls to protect Sukkur and Rohri cities. While the risk of such mega flood is not an immediate threat, it should not be overlooked in a long term. During the flood events in 1976 and 2010 (1.14 million cusecs), there were breaches in the left and the right banks respectively between Guddu and Sukkur Barrages. Thus, these floods could have even been higher, if the breaches had not happened. After 2010, the embankments of the Indus between the two Barrages were strengthened and raised by approximately 1.2 meter, thus, such a breach may not occur in the future. However, this has increased the risk of a flood surpassing 1.2 million cusecs directly hitting Sukkur Barrage. This might cause the barrage to fail, while the direct damage from its collapse would be somewhat small (unlike the failure of a large dam). However, long-term impacts on livelihoods of large populations would be catastrophic. A more detailed physical model study at an international hydraulics laboratory has been recommended that would also include Guddu Barrage and seven main canal intakes of Sukkur Barrage in the model, before implementing large-scale modifications in the existing river training works.

Sukkur Barrage supports the livelihoods of a significant portion of the population in Sindh province. Leaving the Barrage in its current state would put at risk the livelihoods of a large part of the population. GoSindh developed a proposal to finance the rehabilitation and modernization works for Sukkur Barrage and requested for Bank support under the on-going SBIP. Beyond rehabilitation works, the proposed AF would help the Irrigation Department (ID) of GoSindh to develop a coherent system to manage the three barrages as one integrated system, including water allocation, sediment management, and maintenance.

C. Proposed Development Objective(s)

Original PDO

¹ cusec: cubic feet per second. 1 cusec = 0.00283168 cubic meters per second.



The project development objectives are to improve the reliability and safety of the Guddu barrage and strengthen the Sindh Irrigation Department's capacity to operate and manage the barrage.

Revised PDO

The PDO will be revised to *strengthen the Sindh Irrigation Department's capacity to operate and manage barrages and improve the reliability and safety of Guddu and Sukkur Barrages in Sindh Province.*

Key Results

The proposed AF will include rehabilitation and modernization of Sukkur Barrage in the scope of the SBIP. Key results will be: (a) reliable supply of water into the 10 main canal supported by Guddu and Sukkur Barrages, (b) increased design flood passage capacity for Sukkur and Guddu Barrages, (c) Barrage Monitoring Unit established and functional and (d) three barrages operated under improved O&M plans.

D. Project Description

The proposed AF will have the following five components:

Component A. – Rehabilitation of Guddu and Sukkur Barrages (Base Cost: US\$297.5 million). With the restructuring and AF, this component would support the rehabilitation of Sukkur Barrage as well as Guddu Barrage. This component, therefore, would have two sub-components: (a) Component A-1: Rehabilitation of Guddu Barrage (US\$140.0 million base cost) and (b) Component A-2: Rehabilitation of Sukkur Barrage (US\$123.2 million base cost). Works pertaining to Sukkur Barrage would include structural repairs, dredging, modernization of electro-mechanical works, and de-silting of the critical portions of the three right bank canals. The component would also support implementation of environment and social safeguards.

Component B. – Improved Barrage Operation (Base Cost: US\$9.0 million). Originally, this component was to provide technical assistance and equipment support to facilitate the operation of Guddu Barrage. Under the proposed AF, the scope would be enlarged to include Sukkur Barrage. Further, this component would support improved coordination among Guddu, Sukkur, and Kotri Barrages in terms of monitoring and management. Kotri Barrage is located downstream of Sukkur Barrage. In particular, this component would: (a) refine the operation and maintenance plans and emergency preparedness plans for the Guddu and Sukkur Barrages, in coordination with Kotri Barrage, (b) support the Barrage Monitoring Unit (BMU) in developing an integrated system of measurement and monitoring of water extraction among the 14 main canals supported by the three barrages; (c) develop plans for asset management, and emergency preparedness for Guddu, Sukkur and Kotri Barrages; and (d) provide critical equipment and logistics facilities for the three barrages.

Component C. – Technical Studies (Base Cost: US\$4.0 million). This is a new component aimed at deepening GoSindh's technical understanding on barrages and preparing for Phase 2². In particular, this component would support (a) a preparation study for Phase 2 river training works, including (i) a detailed hydraulics model study to determine the optimal design for the riverbank training and the need to raise the height of the bund wall, which leads to the formulation of the follow up works and (ii) a feasibility study, environmental and social impacts assessment, and detailed design to prepare for a possible follow up financing; (b) a study on the impacts of climate change and options

² The Sukkur Barrage rehabilitation will be undertaken in two phases. The proposed AF will finance urgent rehabilitation works and technical studies (Phase 1), including detailed hydrological modeling to prepare for Phase 2 (detailed in Section A-2 below).



for resilience measures for the barrages; (c) a safety assessment for Kotri Barrage to undertake an inventory assessment, identify the critical needs for repairs, rehabilitation and upgrading, if required, and develop an operation and maintenance plan; and (d) a development of sediment transport monitoring and modeling which would be the basis for improving barrage operations.

Component D. – River basin water resources and riverine management (Base Cost: US\$4.5 million). The Social Action Plan, which was included in the original project under Component A, will be upgraded as a standalone component to sharpen the focus on the water-related environmental and social issues in the 170-kilometer stretch of the Indus between Sukkur and Guddu Barrages, which also is a designated Ramsar site. In particular, this component would comprise activities supporting: (a) dolphin management and conservation, (b) community fisheries co-management, (c) river bank rehabilitation, (d) sustainable agriculture, (e) technical studies (e.g., design for dolphin passage gates), (f) education and awareness raising, and (g) water quality and pollutant studies. This component would be implemented in collaborations with the Sindh Environmental Protection Agency (SEPA), Forestry and Wildlife Department, Agriculture Department, and Fishery Department.

Component E. – Project Management, Monitoring, and Evaluation (Base Cost: US\$11.0 million). In principle, the activities under this component remains the same, but the scope would be enlarged to support Sukkur Barrage rehabilitation. This component would support the incremental operating costs for maintaining the Project Management Office (PMO) under the ID and the Project Coordination and Monitoring Unit (PCMU) established under GoSindh Planning and Development Department (PDD), throughout the extended project implementation period, including technical assistance to guide the procurement activities and monitor the civil works progress, training, monitoring and evaluation of the project's results framework and overall project impacts, fiduciary and safeguard compliances and annual external audit.

E. Implementation

Institutional and Implementation Arrangements

The project is implemented by Sindh Irrigation Department (SID), Government of Sindh (GoSindh).

F. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)

Sukkur barrage is located at longitude 68° 51'E and latitude 27°41'N across the River Indus 362 km from Karachi. The Sukkur city (population 0.523 million) is located on the left bank of the barrage and the Rohri town is located on the right bank of the barrage. The Barrage is located about 185 km downstream of Guddu Barrage and about 550 km upstream of Kotri Barrage. The barrage office and colony are located close to the barrage. The road (lower deck) on the barrage is extensively used by local traffic, mostly motorbikes and small cars; and heavy traffic is not allowed on the barrage. The average daily traffic on the barrage is about 8,000 vehicles. A national highway is located about 150 m away on the downstream of the barrage, and average daily traffic on this highway is about 24,000 vehicles (50 percent of which are heavy traffic). The Indus drains an area of about 950,000 km² and generates a mean annual discharge of 6,682 m³/s, or about 236,000 cusecs. The hydrograph of the river at Sukkur is strongly seasonal with a long low



water season between October and May (low flow season) and a high water season between June and September (high flow season) – driven primarily by summer snowmelt in the upper catchment and monsoon rainfall. The river usually peaks in mid-August or early September. The river carries high sediment loads during months of July and August when the river flows are at maximum. A 170 km stretch of the River Indus between Guddu and Sukkur barrages is the designated national protected area for Indus River Dolphin, and is known as Indus Dolphin Game Reserve. According to estimates in 2011, the reserve holds a population of 918 dolphins. The terrestrial ecosystem in the project area was altered by the clearing of lands for cultivation and livestock grazing. Common tree species such as acacia and eucalyptus are generally planted along the margins of agricultural lands. Seasonally inundated floodplains within the marginal bunds of the barrage and shoals (locally known as belas) found to consists of 105 grass species (predominantly tamarix species), belonging to 81 genera and 36 families. Sukkur Barrage has a middle bank island in upstream, constructed as a part of river training works after the Barrage was commissioned. There also are outer bank bela and left bank bela. These areas are about 170 acres in total and are cultivated by encroachers. In the right bank canals, embankments are also encroached by about 300 households.

G. Environmental and Social Safeguards Specialists on the Team

Satoru Ueda, Environmental Safeguards Specialist
 Miki Terasawa, Social Safeguards Specialist
 Takeaki Sato, Environmental Safeguards Specialist

SAFEGUARD POLICIES THAT MIGHT APPLY

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	OP/BP 4.01 is triggered. The original operation was classified as Category A due to the major rehabilitation works on Guddu Barrage and potential impacts on the core habitat of endangered Indus River Dolphin located immediately downstream of Guddu Barrage. The same Environmental Category is maintained for the AF operation. The proposed AF activities involve civil and mechanical rehabilitation works of the existing Sukkur Barrage on Indus River with a potential to effect water quality and upstream dolphin habitat. In order to identify the impacts and put appropriate management measures in place, an Environmental and Social Assessment (ESA) including Cumulative Impact Assessment (CIA)



was conducted, and ESMP was prepared as a part of ESA to minimize and mitigate all potential adverse environmental and social impacts. ESA was reviewed and cleared by the Regional Safeguard Adviser (RSA) and disclosed in January 2018. Preliminary TORs for the four studies to be carried out under Component C contain adequate provisions for environmental and social safeguards aspects. The final TORs for these studies are subject to review and clearance from the Bank before commencement.

This policy was triggered, because the stretch of the Indus between Guddu and Sukkur Barrages is the protected area reserved for the endangered Indus blind dolphin (*Platanista gangetica minor*) and is a designated Ramsar site. The planned activities under the proposed AF project together with on-going activity to rehabilitate Guddu Barrage would potentially have adverse effects on the dolphins, in addition to the existing threats, such as reduction of prey base due to the use of small-sized mesh nets; poaching for their oil for traditional medicines; entanglement in fishing nets; stranding and mortality in the irrigation canals of Sukkur Barrage; and pollution in the river from domestic, agricultural, and industrial waters. ESA indicated that neither significant conversion of critical natural habitat nor degradation of natural habitats are envisaged by the project. An Environmental Code of Practice for Dolphins Management from Construction Impacts was proposed as a key mitigation measure to mitigate the site specific impacts due to Sukkur Barrage rehabilitation. Under the original SBIP, as a part of the mitigation measures stipulated in the ESA, the Wildlife Department is implementing dolphin monitoring and management activities, including studies on the environmental flow from the two barrages and the design of fish ladders. Under the proposed AF project, this initiative would be scaled up to help GoSindh to take the first comprehensive step to improve conservation and management of the riverine habitats of this Indus stretch under Component D.

Natural Habitats OP/BP 4.04

Yes



Forests OP/BP 4.36	No	This policy is not triggered since no forests are located in the project area.
Pest Management OP 4.09	No	No pesticides, herbicide or fungicides will be used in any of the project activities. Therefore, this policy is not triggered.
Physical Cultural Resources OP/BP 4.11	No	This policy is not triggered since there are no known physical cultural resources or archaeological heritage sites within the project area. However, a chance find procedure is included in ESA, and will be reflected in the bidding documents for the construction contracts.
Indigenous Peoples OP/BP 4.10	No	There are no known indigenous groups in Sindh province as identified under this policy (the only identified indigenous people in Pakistan under this policy are in Kalash valley in Chitral, Khyber Pakhtunkhwa province).
Involuntary Resettlement OP/BP 4.12	Yes	No land acquisition is anticipated for the proposed AF. The major impacts of the proposed AF would, therefore, be limited to land appropriation (both permanent and temporary) due to the dredging, limited access to farmlands, and temporary closure of the roads due to civil works. However, minor temporary or permanent land acquisition or resettlement might be required. Resettlement Policy Framework (RPF), which was prepared for the original project, has been updated for the proposed AF. As required, resettlement action plan (RAP) will be prepared by PMO, according to the updated RPF.
Safety of Dams OP/BP 4.37	Yes	This policy was triggered under the original SBIP, because barrages are large scale hydraulic structures across a river to increase the depth of water and to divert it into canals for irrigation and other purposes. OP/BP 4.37 requires that preparation and construction of new large dams take into account the opinion of an independent panel of experts. In the case of existing dams, one or more independent dam specialists are required to: (i) inspect and evaluate the safety, appurtenances, and performance history; (ii) review and evaluate the operation and maintenance procedures of the dam owner; and (iii) provide a written report of findings and recommendations for any remedial work or safety-related measures necessary to upgrade the existing dam to an acceptable standard of safety. For high-hazard cases involving significant and



complex remedial work, the Bank also requires that a panel of independent experts be employed on the same basis for a new dam. To comply with this policy, GoSindh has established a panel of expert (POE) comprising four members (sediment, structure, hydrology and electro-mechanics specialists), who reviewed and cleared the feasibility study for Sukkur Barrage rehabilitation. The construction supervision and quality assurance arrangement are already in place, as the consulting firm engaged in the feasibility studies would be retained for detailed design and construction supervision/quality assistance. An instrumentation plan will be developed during the first year of implementation and will be sent to the Bank for review and no objection. A draft operation and maintenance plan and emergency preparedness plan have been prepared during preparation. These plans will be refined with clear coordination mechanism with Kotri and Guddu Barrages and will be finalized after incorporating feedbacks from stakeholders through consultation workshops.

Guddu and Sukkur Barrages are on the Indus River, which is an international waterways for the purpose of OP. 7.50, and therefore this policy is triggered. As the proposed AF project, similar to the original SBIP, would carry out rehabilitation and modernization works without increasing the scope of original works nor increase command area, the exception to the notification requirement stipulated in para. 8 of OP. 7.50 applies with the approval of the Regional Vice President on January 30, 2018. The exception memo is available in the project files together with the exception granted to the original SBIP for Guddu Project dated March 13, 2015.

The project is not located in a disputed territory. Therefore, this policy is not triggered.

Projects on International Waterways
OP/BP 7.50

Yes

Projects in Disputed Areas OP/BP 7.60

No



KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT

A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

The proposed activities are limited to the existing footprints of the barrage and no additional land acquisition is required, hence most of the impacts from the proposed activities are temporary in nature and mainly limited to construction period. There will be no impact on the delivery of water into the seven canals drawing water from Sukkur Barrage. The negative impacts associated with the construction are mostly related to dredging and excavation activities for sediment removal. Dredging will remove a small portion of left bank bela (about 6 acres), where there is no on-going cultivation. There also will be no impact on encroachers in middle bank island or outer bank bela, as dredging will be carried out around the island. Desilting in right bank canals does not anticipate resettlement, because civil work will be confined within the canals during regular closure periods. Dolphin game reserve located immediately upstream of the barrage is the most significant receptor susceptible from impacts of the desilting and construction works. Nonetheless, ESA indicates that neither significant conversion of critical natural habitat nor degradation of natural habitats are envisaged by the project. An Environmental Code of Practice for Dolphins Management from Construction Impacts was proposed as a key mitigation measure. In addition, a dolphin conservation and management plan is being implemented under SBIP original operation to strengthen the ongoing conservation activities. Part of excavated sediments from the barrage and the right bank canals will be placed on lower right and left bank placement areas temporary. There is no on-going cultivation or resident in these areas. Majority of the dredged and excavated materials will be discharged to downstream during the flood season to provide the downstream area, particularly the Indus Delta with the benefit of increased sediment. Impact of such release of the dredged and excavated materials are limited if handled properly, as the total volume of excavated and dredged materials are limited (estimated at 2 million ton over 2 years) compared to the annual sediment load of about 100 million tonnes carried out by the Indus during high flow season.

The proposed AF project will require on average about 200 laborers per day, while peak time requirement is estimated at 350. Unskilled workers (up to 65 percent of total requirement) will be mainly hired locally. About 40 to 60 skilled laborers will be brought in by contractors, who will stay at contractors' colonies in suburban areas near Sukkur City. The footprint, therefore, will be small. These laborers will be trained on cultural sensitivity and community relations as per Environmental Code of Practice.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area: Sukkur barrage rehabilitation and modernization would be undertaken in two phases. The proposed AF will finance the first phase to carry out critical and essential works of the barrage superstructure, which was damaged by the past flood events to ensure the barrage's capacity to safely pass floods up to 1.3 million cusecs. It will also support a thorough investigation to (a) confirm the soundness of the foundation of the 66 piers in conjunction with the dredging works, (b) determine the optimal shape for river bank training works to be carried out in the second phase, including feasibility studies, designs, and social and environment impact assessment, and (c) examine the need to raise the bund wall (levy) to protect Sukkur city in case of a flood greater than the passage capacity of the barrage. Furthermore, in preparation for a large flood which may happen in the future, a study would be carried out to investigate impacts of a mega flood, more than 1.5 million cusecs, on Sukkur Barrage through a numerical modeling. It would analyze likelihood of occurrence in light of climate change, assess the magnitude of the peak flood impact on Sukkur and Guddu Barrages, including the stretch of the Indus between the two. The study will take into account various elements



such as: (a) volatile inflow due to increased uptake from upper riparian provinces/countries, (b) dynamic demand (increasing population and rapid urbanization), and (c) anticipated river morphology. It will also identify potential mitigation measures, such as reinforcement of critical areas of the embankments, identification of potential flood escape facilities, and further reinforcement of the Barrages.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

Alternative analysis including no action, new barrage construction, and other technological alternatives of the planed AF activities were undertaken.

No Action: Sukkur barrage has already completed 85 years of active service and has undergone a series of large floods exceeding its estimated design flood (0.9 million cusec) during this period. Consequently, despite a few critical repairs carried out in the past, the barrage requires comprehensive rehabilitation works, deferred maintenance works, and critical modernization in order to minimize the risk of functional or even structural failures and ensure adequate function. Failure of the barrage due to severe floods will have considerable impacts on livelihood of large population as it will negatively affect irrigation supply to the entire command area of 3.2 million ha and flooding Sukkur and Rohri. This in turn will affect livelihoods of about 800,000 farming households which also provide 1.8 million labor days per year. Hence not carrying out any rehabilitation works will severely affect the economy of the region and the country at large.

Alternative to the Project: New construction to replace the Sukkur Barrage has been considered and rejected by both GoS and the Bank mainly due to the underlying soundness of the existing structure including foundations. With proper interventions, the existing structure can last for an indefinite period and can pass a flood of 1.3 million cusecs; with optimized riverbank training works planned under Phase 2, the flood passage capacity can be further increased to 1.5 million cusecs. The difficulties of identifying a suitable location for the new barrage, technically, socially and environmentally, and the culture value of the current barrage also contributed to the decision.

Technological Alternatives such as the methodologies for Flood Management, desilting of sediments from the barrage area, dredging, dredged material management and desilting of Sediments from the right bank canals were also considered. As the result, the options with least environmental and social impacts will be adopted in the project. For example, dredging will be carried out during high flow season to minimize the additional sediment load and turbidity generated by cutter suction dredgers. The project will carry out desilting operations in the right bank canals using normal excavators during canal closure period to avoid temporary relocation of squatters occupying the canal embankments.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

The PMO has been satisfactorily implementing the original operation of SBIP and it will continue to be responsible for the proposed AF. The PMO has a dedicated team of safeguards and communication specialists. The responsibilities of the environmental and social staff of the PMO are: (i) supervising, facilitating and coordinating implementation of environmental and social plans including ESMP and SMF; (ii) preparation of resettlement action plans (RAPs) for any land acquisition and resettlement activities, (iii) ensuring that contractors follow Sindh-EPA regulations, World Bank Safeguard Policies, and other requirements mentioned in the ESMP and SMF; (iv) identifying any issues of non-compliance and report these; (v) suggesting mechanisms to link contractor performance in relation to the ESMP to the



timing of financial payments, incentives or penalties; (vi) interacting with stakeholders for their concerns about the construction activities, and (vii) prepare quarterly monitoring reports on ESMP implementation. Because of their expertise and long time experience as the competent authority, Wildlife Department has been brought to carry out activities related to dolphin monitoring and rescue, which is a measure specified under the ESA. PMO is located in Karachi and Sukkur (for both Guddu and Sukkur Barrage rehabilitation), and all environmental and social staff are located in Sukkur. Under the original project, PMO also prepared RAP to resettle about 16 households on the embankment under the on-going river training works for Guddu Barrage. RAP was prepared with support from CSC and is being implemented. With the proposed AF, PMO will set up an environment and social unit, headed by a director responsible for compliance with overall safeguards measures. This unit will also be responsible for implementation of Component D (River Basin Water Resources and Riverine Management). It will hire an ecologist, who will support day to day implementation.

The Project Coordination and Management Unit (PCMU) has been established under the Planning and Development Department (PDD) of the Government of Sindh, to support project coordination and M&E, including monitoring environment and social safeguard compliances, and facilitates citizen engagement through GRM. In addition, The Construction Supervision Consultants (CSC) will be responsible for supervising the contractors for the implementation of ESMP and SMF. For this purpose, the CSC will appoint dedicated environment and social staff to ensure the implementation of environmental and social management plans during the project. CSC will have the environmental and social safeguard staff including Environmental specialist, Social Specialist, Ecologist, Occupational Health and Safety Specialist and EHS Inspectors.

The trainings will be provided by PMO and CSC to different professional groups separately. Capacity building will be aimed at strengthening the PMO and Sukkur operational staff in the field of environmental management and social development. Safeguard staff of PMO will be trained in environmental management, pollution control, ecology, environmental awareness, labor and working conditions, and social development. The contractor will also be required to provide environmental and social trainings to its staff, to ensure effective implementation of the ESMP.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

The following key stakeholders were identified prior to the stakeholder consultation: i) General population in Project Area: Head of households, Female, Farmers (tenant and land owners), Laborers, Squatters in middle bank island, outer bank bela, and left bank bela; ii) Command Area: Farmers, Livestock Owners, Fishermen, Community and Religious Leaders; iii) Local and Provincial Governments: District administration of Sukkur, Sindh Environment Protection Agency, Forestry department, Agricultural department, Fisheries department, Rural development department, and Sindh wildlife department, Universities; and iv) NGOs/CBOs: WWF, IUCN, Farmers Associations.

Extensive consultations were carried out throughout the project preparation. Initial consultations were held at the early stages of the project preparation (2012-2013) and also during 2015 with the farming communities in the canal command areas to share the project objectives and terms of references of the proposed environmental assessment study. Consultations involved multiple methods – for example, household level interviews, village wise meetings, focus group discussions and workshops. Second round of consultations were carried out in 2017 to share the findings of the draft ESA.

During first round of consultations, 785 people were consulted through village wise meetings in the barrage command areas, and meetings with the communities around the barrage site. The Project information has also been shared with 148 experts participated in the international seminar on dolphin conservation and management conducted by SBIP in



May 2017.

The second round of consultations were carried out through public consultations at Sukkur and consultation workshops at downstream Kotri barrage, and in Karachi. Public consultations were conducted on 7th August 2017 at PMO office in Sukkur. Prior notices are given through newspaper advertisements (in English and Sindhi dailies on 29th July 2017) and invitation letters. The ESA and SMF prepared by the design consultants have been disclosed on the website of SID prior to the consultations. The scope of the proposed project activities, dredging and dredge material management plans have been discussed in these consultations. Participants have fully supported all the proposed activities including dredging and dredge material placement in the river.

The SMF and ESA summary has been translated into Urdu and Sindhi. The SMF and ESA summary in (both English, Urdu and Sindhi) and ESA were disclosed uploaded on the SID and the project websites of SID on January 3, 2018 and also disclosed at the Bank's external website on January 17, 2018.

B. Disclosure Requirements (N.B. The sections below appear only if corresponding safeguard policy is triggered)

Environmental Assessment/Audit/Management Plan/Other

Date of receipt by the Bank	Date of submission for disclosure	For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors
16-Jan-2018	17-Jan-2018	17-Jan-2018

"In country" Disclosure

Pakistan

03-Jan-2018

Comments

Disclosed in PMU offices in Karachi, Sukkur and Guddu (Field office).

The review of this Safeguards has been Deferred.

Comments

Resettlement Action Plan/Framework/Policy Process

Date of receipt by the Bank	Date of submission for disclosure
16-Jan-2018	17-Jan-2018

"In country" Disclosure



Pakistan
03-Jan-2018

Comments

Disclosed in PMU offices in Karachi, Sukkur and Guddu (Field office).

The review of this Safeguards has been Deferred.

Comments

If the project triggers the Pest Management and/or Physical Cultural Resources policies, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/Audit/or EMP.

If in-country disclosure of any of the above documents is not expected, please explain why:

C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting) (N.B. The sections below appear only if corresponding safeguard policy is triggered)

OP/BP/GP 4.01 - Environment Assessment

Does the project require a stand-alone EA (including EMP) report?

Yes

If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?

Yes

Are the cost and the accountabilities for the EMP incorporated in the credit/loan?

Yes

OP/BP 4.04 - Natural Habitats

Would the project result in any significant conversion or degradation of critical natural habitats?

No

If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?

Yes

OP/BP 4.12 - Involuntary Resettlement

Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?

Yes

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?

Yes



Is physical displacement/relocation expected?

No

Is economic displacement expected? (loss of assets or access to assets that leads to loss of income sources or other means of livelihoods)

No

OP/BP 4.37 - Safety of Dams

Have dam safety plans been prepared?

Yes

Have the TORs as well as composition for the independent Panel of Experts (POE) been reviewed and approved by the Bank?

Yes

Has an Emergency Preparedness Plan (EPP) been prepared and arrangements been made for public awareness and training?

Yes

OP 7.50 - Projects on International Waterways

Have the other riparians been notified of the project?

No

If the project falls under one of the exceptions to the notification requirement, has this been cleared with the Legal Department, and the memo to the RVP prepared and sent?

Yes

Has the RVP approved such an exception?

Yes

The World Bank Policy on Disclosure of Information

Have relevant safeguard policies documents been sent to the World Bank for disclosure?

Yes

Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?

Yes



All Safeguard Policies

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?

Yes

Have costs related to safeguard policy measures been included in the project cost?

Yes

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?

Yes

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?

Yes

CONTACT POINT

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APPROVAL

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