

# Project Administration Manual

Project Number: 47235  
Loan Number:  
September 2014

Islamic Republic of Pakistan: Trimmu and  
Panjnad Barrages Improvement Project

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### **Project Administration Manual Purpose and Process**

1. The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with Government and Asian Development Bank (ADB) policies and procedures. The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.
2. The Punjab Irrigation Department (PID) is responsible for the implementation of ADB financed project, as agreed jointly between the borrower and ADB, and in accordance with Government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by PID of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.
3. At Loan Negotiations the borrower and ADB shall agree to the PAM and ensure consistency with the Loan Agreement. Such agreement shall be reflected in the minutes of the Loan Negotiations. In the event of any discrepancy or contradiction between the PAM and the Loan Agreement, the provisions of the Loan Agreement shall prevail.
4. After ADB Board approval of the project's report and recommendations of the President (RRP), changes in implementation arrangements are subject to agreement and approval pursuant to relevant Government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval they will be subsequently incorporated in the PAM.

## **CURRENCY EQUIVALENTS**

(as of 20 August 2014)

Currency unit	–	Pakistan Rupee (PRs)
PRs1.00	=	\$0.00996
\$1.00	=	PRs 100.40

### **Abbreviations**

ADB	=	Asian Development Bank
ADF	=	Asian Development Fund
AFS	=	audited financial statements
DMF	=	design and monitoring framework
EMMP	=	environmental management and mitigation plan
GDP	=	gross domestic product
ha	=	hectare
ICB	=	international competitive bidding
IEE	=	initial environmental examination
km	=	kilometer
LAR	=	land acquisition and resettlement
LIBOR	=	London interbank offered rate
m <sup>3</sup> /s	=	cubic meter per second
NCB	=	national competitive bidding
PAM	=	project administration manual
PMO	=	project management office
TPBIP	=	Trimmu and Panjnad Barrages Improvement Project
QBS	=	Quality-based selection
QCBS	=	quality- and cost-based selection
SOE	=	statement of expenditure
SPS	=	Safeguard Policy Statement
TOR	=	terms of reference

## I. PROJECT DESCRIPTION

1. The project will rehabilitate and upgrade the 80–90 years old Trimmu and Panjnad barrages to (i) provide reliable irrigation water to 1.74 million hectares (ha) through six main canals; (ii) primarily benefit 600,000 farming families (about 4.0 million people) in seven districts in Punjab; and (iii) help reduce risk of communities against floods (150,000 people), droughts, and pressure on groundwater abstraction.<sup>1</sup> The Trimmu barrage is located on the Chenab River downstream of its confluence with the Jhelum River. Sedimentation has reduced the barrage's flood passage capacity (FPC) by 30% from 18,265 cubic meters per second (m<sup>3</sup>/s) in 1939 to 12,743 m<sup>3</sup>/s in 2013. The Panjnad barrage is also on the Chenab River, 250 kilometers (km) downstream from the Trimmu barrage. Aging, structural deterioration and instability, and low FPC exposed these barrages to high risk of failure and resulted in unreliable irrigation supplies and downstream flooding.<sup>2</sup>

2. Irrigated agriculture on 8.4 million ha in Punjab (i) accounts for 28% of Punjab's gross domestic product (GDP), (ii) employs 54% of the labor force, (iii) produces 90% of Punjab's agricultural output, and (iv) uses more than 90% of the water resources. Punjab's agricultural GDP is 66% of the national agricultural GDP. Of Punjab's population, 77% live in rural areas that mainly depend on agriculture for livelihood and where the incidence of poverty is 30%–35%. Irrigated agriculture is crucial to generating higher incomes and attaining Punjab's targeted 6%–7% growth rate (3% in 2011–2012).

3. ADB's country partnership strategy, 2009–2013 for Pakistan prioritizes improving the irrigation infrastructure.<sup>3</sup> ADB's agriculture sector evaluation for Pakistan emphasized improving water resources and irrigation.<sup>4</sup> The water sector road map identified improving the infrastructure, institutions, and agricultural production to drive sustainable agricultural growth. Punjab's Medium-Term Development Framework (2012–2015) estimates an investment requirement of over \$100 million per year for irrigation and allocates PRs9 billion (\$90 million equivalent) for new irrigation projects.<sup>5</sup> The country assistance program evaluation (CAPE), 2002–2012 assessed Pakistan's agriculture and natural resource sector *less than successful*, but it evaluated the program *relevant* in terms of its alignment with government and ADB strategies.<sup>6</sup> The CAPE rated the agriculture and natural resources program *satisfactory* for its strategic positioning and the evaluation viewed as appropriate ADB's commitment to support Pakistan in responding to the need to rehabilitate and expand the Indus River irrigation system. The recommendations of the CAPE regarding agriculture, natural resources, and rural development sector have been incorporated in the project design.

4. In Punjab, the irrigation infrastructure has seriously deteriorated because of aging and deferred maintenance. Climate variability will further add risks by changing frequency and intensity of extreme events such as flood and drought.<sup>7</sup> The infrastructure has an estimated

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<sup>1</sup> The districts are Bahawalpur, Jhang, Lodhran, Multan, Muzaffargarh, Rahimyar Khan, and Vehari.

<sup>2</sup> The project was prepared under the multitranche financing facility for the Punjab Irrigated Agriculture Investment Program and project preparatory technical assistance was not provided.

<sup>3</sup> ADB. 2009. *Country Partnership Strategy: Pakistan, 2009–2013*. Manila. A new country partnership strategy 2015–2019 for Pakistan is under preparation.

<sup>4</sup> R. Greer and S.A.H. Jagirdar. 2006. *Evaluation of the Agriculture and Natural Resources Management Sector*. A Report to the Operations Evaluation Department, Asian Development Bank. Manila: ADB.

<sup>5</sup> Because of its 3-year rolling plan, Punjab has adopted the Medium-Term Development Framework for 2008–2011 as the Medium-Term Development Framework for 2012–2015.

<sup>6</sup> ADB. 2013. *Country Assistance Program Evaluation: Pakistan, 2002–2012*. Manila.

<sup>7</sup> Ministry of Climate Change. 2012. *National Climate Change Policy*. Islamabad: Government of Pakistan. <http://pc.gov.-pk/usefull%20links/Taskforces/TFCC%20Final%20Report.pdf>

replacement value of \$20.0 billion,<sup>8</sup> while the estimated cost to upgrade the system to modern standards is \$3.5 billion. Barrages constitute the most strategic component of the large contiguous irrigation systems. Their structural stability and effective operations are important for agricultural production and averting potential disaster during flood. Although groundwater has helped against waterlogging and drought and has augmented unreliable canal water supplies, its overextraction in some areas has caused saltwater intrusion and land degradation and increased pumping and production costs. The Punjab Irrigation Department (PID) is working with ADB, the World Bank, and the Japan International Cooperation Agency (JICA) to improve irrigated agriculture and related infrastructure.<sup>9</sup>

5. Three tranches of ADB's \$700 million multitranche financing facility (MFF) (2007–2017) for the Punjab Irrigated Agriculture Investment Program have been supporting the upgrade of irrigation infrastructure serving 3 million ha, on-farm agriculture, and institutional reforms.<sup>10</sup> All the three tranches of the MFF have been approved and their implementation is on track. Following the approval of \$73 million for tranche 3 on 13 December 2012, the balance MFF amount of \$129 million (equivalent) is not sufficient to finance the project. The proposed loan of \$150 million was included in ADB's country operations business plan for Pakistan, 2014–2016 as a firm loan for processing in 2014.<sup>11</sup> The MFF will be closed by 30 September 2017.

6. Trimmu barrage is located downstream of the confluence of Jhelum and Chenab Rivers and was commissioned in 1939. The barrage was remodeled in 1962 and a new head regulator for the Trimmu-Sidhnai (T-S) Link Canal was constructed in for a discharge capacity of 354 m<sup>3</sup>/s to supply water to Lower Ravi and Sutlej River commands. The barrage was designed to pass a maximum flood discharge of 18,264 m<sup>3</sup>/s. The safe discharging capacity of the barrage is now reduced to 12,743 m<sup>3</sup>/s due to sediment deposition as an island upstream of the barrage. The hydrologic studies indicate that the barrage requires passing a flood of 23,220 m<sup>3</sup>/s. Enhancing flood capacity of the barrage will reduce flood risks to about 100,000 people.

7. Three canals with a total withdrawal capacity of 577.1 m<sup>3</sup>/s off take from Trimmu barrage. Haveli Canal and Trimmu-Sidhnai (T.S.) Link Canal off take from its left flank having design discharge capacity of 146.4 m<sup>3</sup>/s and 354 m<sup>3</sup>/s respectively whereas Rangpur Canal from the right bank has a design capacity of 76.7 m<sup>3</sup>/s. Haveli Canal irrigates 405,000 ha in Toba Tek Singh, Jhang and Multan districts, whereas, Rangpur Canal supply irrigation water to 132,600 ha in Jhang and Muzaffargarh districts. Water transferred to Ravi River through T.S. Link is then diverted into Sidhnai Mailsi (S.M.) Link canal to serve about 677,000 ha, in Vehari, Lodhran and Bahawalpur districts. In total, Trimmu barrage supply water to 1.085 million ha, which is 13.19% of the total irrigated area (8.22 million ha) of the Punjab and 7.05% of Pakistan (15.38 million ha). About 394,380 farming families (45.1% small farmers) live in the command area.

<sup>8</sup> The irrigation infrastructure includes 13 barrages, 19 inter-river link canals, 6,429 km of main canals, 31,214 km of distribution and minor canals, 58,000 field outlets, 3,228 km of flood protection embankments, and 54 small dams.

<sup>9</sup> Punjab is undertaking rehabilitation of seven barrages (Balloki, Jinnah, Khanki, Panjnad, Suleimanki, Taunsa and Trimmu) and five canal systems (Lower Bari Doab, Lower Chenab, Pakpattan, Sidhnai, and Thal).

<sup>10</sup> ADB. 2006. *Report and Recommendation of the President to the Board of Directors: Proposed Multitranchise Financing Facility for the Punjab Irrigated Agriculture Investment Program*. Manila (\$900 million, approved on 13 December), which comprised up to \$890 million equivalent from ADB's ordinary capital resources and up to \$10 million equivalent in special drawing rights (SDR) from ADB's Special Funds resources (Asian Development Fund [ADF]). On 15 December 2011, the ADB Board of Directors approved an amendment to the MFF for the program, which (i) reduced the facility to an amount not exceeding the equivalent of \$700 million, and (ii) increased the limit on the use of ADF resources for the MFF to an amount not exceeding the equivalent of \$280 million.

<sup>11</sup> ADB. 2014. *Country Operations Business Plan: Pakistan, 2014–2016*. Manila.

8. Panjnad barrage was constructed in 1929 with water diversion capacity of 336.5 m<sup>3</sup>/s and design flood of 12,743 m<sup>3</sup>/s at flood level of 104.09 m. Originally, the barrage has 4 bays as left pocket and 29 bays as the main weir with total clear water way of 603.5 m. The barrage was re-commissioned in the year 1932 after experiencing high flood of 15,574 m<sup>3</sup>/s in September 1929. Following the Islam enquiry committee's recommendations, the barrage was remodeled for 19,822 m<sup>3</sup>/s. Accordingly, the existing right guide bank was dismantled and an annexed weir comprising 14 bays (bays no. 34 to 47) was constructed, raising the barrage's capacity to 19,822 m<sup>3</sup>/s maintaining the levels of flood, pond and weir crest. Hydrologic studies indicate that the barrage should now be upgraded to pass a 100 year return period flood of 24,495 m<sup>3</sup>/s. Enhancing flood capacity of the barrage will reduce flood risks to about 50,000 people.

9. The Panjnad barrage diverts irrigation water to 655,614 ha land in Bahawalpur and Rahimyar Khan Districts through three canals (total capacity = 408.7 m<sup>3</sup>/s). Originally, Panjnad Canal (220 m<sup>3</sup>/s) and Abbasia Cannal (30.1 m<sup>3</sup>/s) were constructed. In 1992, Abbasia Link Canal (158.6 m<sup>3</sup>/s) was also constructed. About 267,451 farming families (86.7% are small farmers) live in the command area.

10. PID has six decades of experience of operation and maintenance (O&M) of 13 barrages serving 8.4 million ha in Punjab. The operational management (i) is governed by standard and proven practices; (ii) is conducted by a team of experienced engineers and technicians; and (iii) is backed by annual O&M funds. The Barrage Manual provides guidance on O&M including periodic inspection and maintaining record. The barrage team submits annual monitoring reports of each barrage to the PID's headquarter, where experts analyzes and recommend for special inspection or actions. Independent auditors audit the annual budget.

11. Government of Punjab (Punjab) allocates annual funds for the barrages operation in its provincial budget. The budget allocation is based on the PID's long-time experience operating the barrages (updated time to time). The current allocation is based on estimates in 2004-2006 under Development Policy Loan from the World Bank, which has been updated twice in 2010 and 2012. The next revision is scheduled in 2015. Government of Punjab provides additional funds for flood and emergency situations. Further, the project proposes a periodic inspection by independent experts including review of O&M cost and removal of sediments every five years. The government will allocate funds for the proposed five yearly inspections and removal of sediments, if needed.<sup>12</sup> One such inspection will be arranged under the project during construction. This additional O&M cost was already considered in the economic analysis. The project also includes revision of O&M manual; specifically, considering hydraulic removal of sediments through gates operation during floods. The budget allocation and expenditures from 2011 to 2013 are as follows.

Barrage	Annual Allocation (PRs Million)	Actual Expenditures		
		FY 2010-2011 (PRs Million)	FY 2011-2012 (PRs Million)	FY 2012-2013 (PRs Million)
Trimmu barrage	111.068	127.844	102.349	94.104
Panjnad barrage	88.972	87.806	85.810	74.913

12. The operational management of Trimmu and Panjnad barrages is responsibility of experienced staff including Chief Engineers and resident executive and assistant executive engineers. Current staff at the two barrages are as follows:

<sup>12</sup> Funds up to \$1.0 million every five years may be required to finance the special inspections and sediment removal.

<b>Staff Position</b>	<b>Trimmu barrage</b>	<b>Panjnad barrage</b>
Chief Engineer (Head)	1	1
Executive Engineer	1	1
Assistant Executive Engineer/Sub Divisional Officer	1	1
Divisional Accounts Officer	1	1
Divisional Head Draftsman, Draftsman and Tracers	3	3
Sub Engineers	5	6
Head Clerk, Accounts Clerk and Sub Divisional Clerk	11	10
Signaler and Telephone Attendants	8	7
Mistries, Electricians, Mates, Beldars, Fitters, Gate Operators	169	217
<b>Total Staff</b>	<b>200</b>	<b>247</b>

### **Impact and Outcome**

13. The expected impact of TPBIP will be the sustained agricultural production and farm income in the barrages command area. The expected project outcome will be the safe and secured Trimmu and Panjnad barrages deliver reliable irrigation water supplies to their canals.

### **Output**

14. The project outputs will be (i) rehabilitated and upgraded Trimmu barrage; (ii) rehabilitated and upgraded Panjnad barrage; and (iii) improved capacity of the communities and PID. The outputs will be achieved through (a) increasing flood capacities of the barrages, (b) improving stability of the existing structures against climate variability, erosion and sedimentation, (c) training of the communities and PID staff in flood risk management and integrated water resources management, and (d) social activities such as Public Park and upgraded basic health unit and girl's school. Each barrage will be provided with construction supervision and safeguard monitoring teams to monitor implementation of land acquisition and resettlement plan (LARP) and environmental management plans. The details have been provided in the design and monitoring framework (DMF).



## II. IMPLEMENTATION PLANS

### A. Project Readiness Activities

Indicative Activities	2014										2015			Who Responsible
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
Advance actions			√											PMO Barrages
- Approval of PC-1				√										
- Recruitment of consultants initiated								√						
- Approved detailed design and Engineer's estimate	√													
- Completion of safeguards documents (IEE, LARP)				√										
- Preparation of bid documents		√	√											
- Invitation for bids									√					
- Evaluation of ICB bids													√	
Strengthening PMO with key staff in place												√		PID
Government counterpart funds allocation				√										Government of Punjab
Board Consideration							√							ADB
Issuance of corresponding government resolution									√					Government of Pakistan
Loan signing											√			Government of Pakistan
Government legal opinion provided												√		ADB & Government of Pakistan
Loan effectiveness													√	Government of Pakistan

## B. Overall Project Implementation Plan

[illegible]

### III. PROJECT MANAGEMENT ARRANGEMENTS

#### A. Project Implementation Organizations – Roles and Responsibilities

Project implementation organizations	Management Roles and Responsibilities
<ul style="list-style-type: none"> <li>PID (the executing agency)</li> </ul>	<ul style="list-style-type: none"> <li>- recruit project management office (PMO) Barrage staff for the project;</li> <li>- timely provision of agreed counterpart funds for project activities;</li> <li>- conducting timely financial audits as per agreed timeframe and taking recommended actions;</li> <li>- complying with loan covenants (social, environmental, financial, economic, and others);</li> <li>- ensure the project's sustainability after implementation and reporting to ADB on the development impacts; and</li> <li>- ensure timely approval of procurement and finance related issues.</li> </ul>
<ul style="list-style-type: none"> <li>Project Management Office</li> </ul>	<ul style="list-style-type: none"> <li>- recruiting consultants;</li> <li>- reviewing detailed design, bidding documents, and contract awards;</li> <li>- monitoring and evaluation of project activities and outputs, including periodic review, preparation of review reports reflecting issues and time-bound actions;</li> <li>- maintaining imprest account;</li> <li>- public disclosure of project outputs;</li> <li>- quality assurance of works, and services of consultants and counterpart staff;</li> <li>- establishing strong financial management system and submitting timely withdrawal applications to ADB; and</li> <li>- preparing periodic progress reports, and project completion reports and their timely submission to ADB;</li> </ul>
<ul style="list-style-type: none"> <li>Project Steering Committee</li> </ul>	<ul style="list-style-type: none"> <li>- ensure timely review of the project implementation twice a year.</li> </ul>
<ul style="list-style-type: none"> <li>Government of Punjab</li> </ul>	<ul style="list-style-type: none"> <li>- ensure transparency in procurement and financial management;</li> <li>- ensure quality and timely completion of the project;</li> <li>- oversee the project implementation progress by the EA;</li> <li>- ensure timely availability of counterpart funds;</li> <li>- ensure timely approval of project cost, financing and other documents;</li> <li>- share with ADB major policy related changes in the sector on time;</li> <li>- ensure compliance with" the loan covenants and financial audit recommendations; and</li> <li>- ensure compliance with resettlement and environmental safeguard implemented as per EPA rules and regulations and ADB safeguard policy.</li> </ul>
<ul style="list-style-type: none"> <li>Ministry of Finance</li> </ul>	<ul style="list-style-type: none"> <li>- sign the Loan Agreement;</li> <li>- allocate and release annual funds;</li> <li>- endorse to ADB the authorized staff with approved</li> </ul>

<b>Project implementation organizations</b>	<b>Management Roles and Responsibilities</b>
<ul style="list-style-type: none"> <li>• ADB</li> </ul>	<ul style="list-style-type: none"> <li>- signatures for withdrawal applications processing; and</li> <li>- process and submit to ADB any request, when required.</li> </ul> <ul style="list-style-type: none"> <li>- assist the EA and PMO in providing timely guidance for smooth implementation of the project in accordance with the agreements;</li> <li>- review all the documents that require ADB approval;</li> <li>- conduct periodic loan review missions, a mid-term review, and a project completion mission;</li> <li>- monitor compliance with loan covenants, social and environmental safeguards and technical and financial requirements;</li> <li>- timely process withdrawal applications and release eligible funds;</li> <li>- ensure compliance with financial audit recommendations;</li> <li>- regularly update the project performance review reports with the assistance of the project management office; and</li> <li>- regularly post on ADB web the updated project information documents for public disclosure, and also the safeguards documents as per disclosure provision of the ADB safeguards policy statement.</li> </ul>

## B. Key Persons Involved in Implementation

### Executing Agency

Punjab Irrigation Department  
(PID)

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### ADB

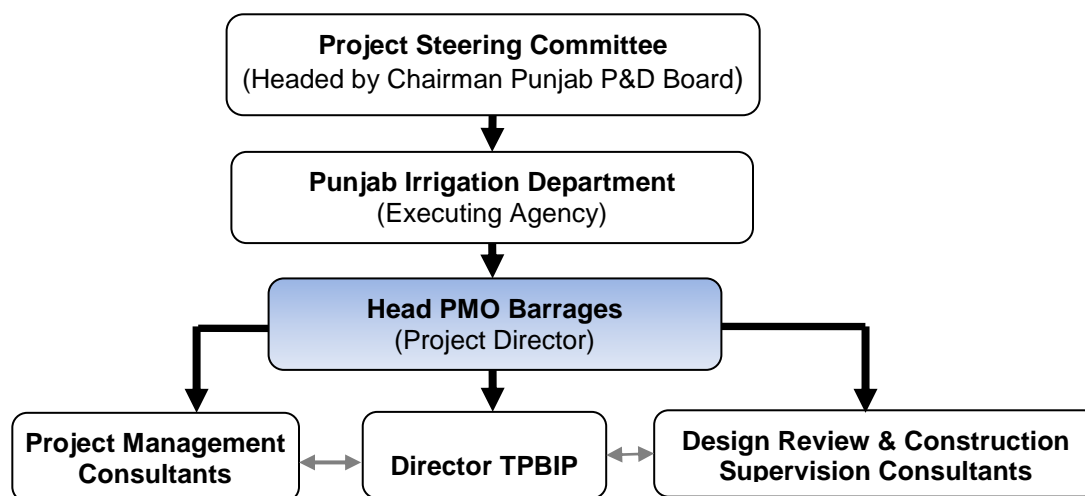
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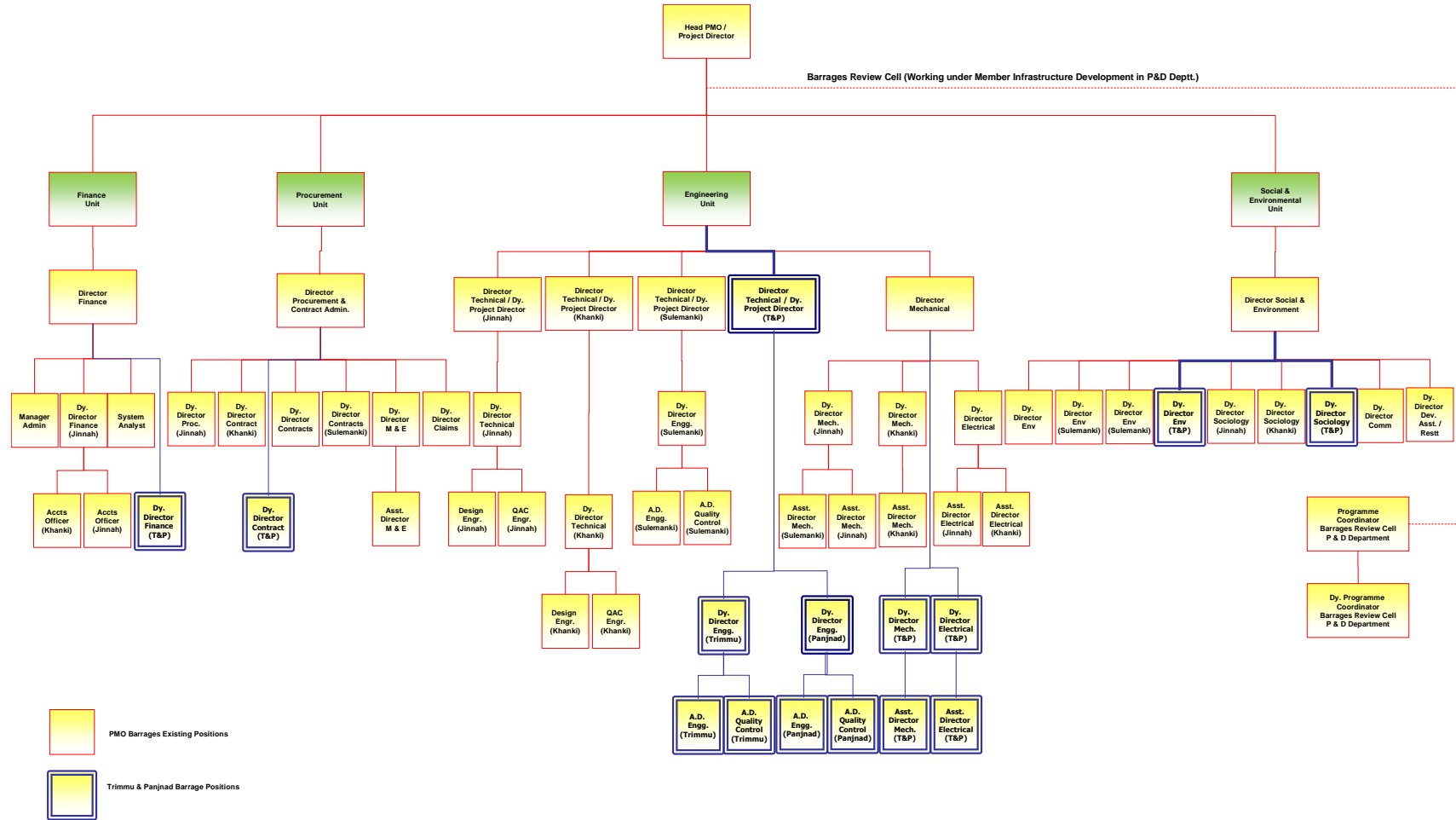
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## C. Project Organization Structure



## Project Management Office Organization Chart



## IV. COSTS AND FINANCING

### A. Cost Estimates by Expenditure Category

Item	Foreign Exchange	(\$ million) Local Currency	Total Cost	% of Total Base Cost
<b>A. Investment Costs</b>				
1 Civil Works				
a. Civil works (Package 1) (CW-1)	10.90	62.00	72.90	50.6%
b. Civil works (Package 2) (CW-2)	5.20	29.50	34.70	24.1%
2 Electrical and Mechanical Works	8.31	12.47	20.78	14.4%
3 Land Acquisition and Resettlement				
a. Land Acquisition	0.00	0.25	0.25	0.2%
b. Resettlement	0.00	0.30	0.30	0.2%
4 Consultants	0.00	9.10	9.10	6.3%
5 Capacity Building*	0.00	2.00	2.00	1.4%
<b>Subtotal (A)</b>	<b>24.41</b>	<b>115.62</b>	<b>140.03</b>	<b>97.2%</b>
<b>B. Recurrent Costs</b>				
1 Project Management	0.00	3.58	3.58	2.5%
2 Equipment, Vehicles and Supplies	0.00	0.42	0.42	0.3%
<b>Subtotal (B)</b>	<b>0.00</b>	<b>4.06</b>	<b>4.06</b>	<b>2.8%</b>
<b>Total Base Cost</b>	<b>24.41</b>	<b>119.68</b>	<b>144.09</b>	<b>100.0%</b>
<b>C. Contingencies</b>				
1 Physical	0.73	3.10	3.83	
2 Price	0.83	17.02	17.86	
<b>Subtotal (C)</b>	<b>1.56</b>	<b>20.12</b>	<b>21.69</b>	
<b>D. Financing Charges During Implementation</b>				
1 Interest During Implementation	7.03	0.00	7.03	
2 Commitment Charges	0.18	0.00	0.18	
<b>Subtotal (D)</b>	<b>7.21</b>	<b>0.00</b>	<b>7.21</b>	
<b>Total Project Cost (A+B+C+D)</b>	<b>33.18</b>	<b>139.82</b>	<b>173.00</b>	

\* Include cost of community mobilization, facility, trainers, training material and communication etc.

Source: Asian Development Bank estimates.

## B. Allocation and Withdrawal of Loan Proceeds

### a. For OCR Loan

CATEGORY		ADB FINANCING	
		Total Amount Allocated for ADB Financing (\$)	Percentage and Basis for Withdrawal from the Loan Accounts
Number	Item	Category	
1	a. Civil works (Package 1)*	48,000,000	66% of total expenditure claimed.
2	Interest and Commitment Charges	2,000,000	100% of amount due.
	<b>Total</b>	<b>50,000,000</b>	

\* Includes cost of environmental management.

### b. For ADF Loan

ALLOCATION AND WITHDRAWAL OF LOAN PROCEEDS Trimmu and Panjnad Barrages Improvement Project				
		Amount Allocated (SDR)		Basis for Withdrawal from the Loan Account
Number	Item	Category	Subcategory	
1	Works (including EMP implementation)	29,242,000		
1A	Works (Package 1)		9,747,000	21% of total expenditures claimed
1B	Works (Package 2)		19,495,000	86% of total expenditure claimed
2	Mechanical & Electrical Works	11,664,000		86% of total expenditure claimed
3	Resettlement (excluding cost of land acquisition)	195,000		100% of total expenditure claimed*
4	Consulting Services	5,199,000		88% of total expenditure claimed
5	Capacity Development	1,170,000		90% of total expenditure claimed
6	Recurrent Costs (PMO Salaries and Operating Costs)	1,961,000		84% of total expenditure claimed
7	Vehicles, Equipment and Supplies	273,000		88% of total expenditure claimed
8	Interest Charge	3,581,000		100% of amount due
9	Unallocated	11,697,000		
	<b>Total</b>	<b>64,982,000</b>		

\*Exclusive of taxes and duties within the territory of the Borrower.



**C. Detailed Cost Estimates by Financier**  
(\$ Million)

Item	ADB						Government				Total Cost
	Total Loan Amount	Financing % of Cost Category	OCR Amount	Financing % of Cost Category	ADF Amount	Financing % of Cost Category	Amount (Costs)	Amount (Taxes and duties)	Amount (Total)	Financing % of Cost Category	
<b>A. Investment Costs</b>											
1 Civil Works											
a. Civil works 1 (CW-1)	63.00	86%	48.00	66%	15.00	21%	2.61	7.29	9.90	14%	72.90
b. Civil works 2 (CW-2) Electrical and Mechanical	30.00	86%	0.00	0%	30.00	86%	1.23	3.47	4.70	14%	34.70
2 Works	17.95	86%	0.00	0%	17.95	86%	0.76	2.08	2.84	14%	20.79
3 Land Acquisition and Resettlement											
a. Land Acquisition	0.00	0%	0.00	0%	0.00	0%	0.20	0.05	0.25	100%	0.25
b. Resettlement	0.30	100%	0.00	0%	0.30	100%	0.00	0.00	0.00	0%	0.30
4 Consultants	8.00	88%	0.00	0%	8.00	88%	0.19	0.91	1.10	12%	9.10
5 Capacity Building	1.80	90%	0.00	0%	1.80	90%	0.00	0.20	0.20	10%	2.00
<b>Subtotal (A)</b>	<b>121.05</b>	<b>86%</b>	<b>48.00</b>	<b>34.3%</b>	<b>73.05</b>	<b>52%</b>	<b>4.99</b>	<b>14.00</b>	<b>18.99</b>	<b>14%</b>	<b>140.04</b>
<b>B. Recurrent Costs</b>											
1 Project Management	3.02	84%	0.00	0%	3.02	84%	0.20	0.36	0.56	16%	3.58
2 Equipment, Vehicles and Supplies	0.42	88%	0.00	0%	0.42	88%	0.01	0.05	0.06	13%	0.48
<b>Subtotal (B)</b>	<b>3.44</b>	<b>85%</b>	<b>0.00</b>	<b>0%</b>	<b>3.44</b>	<b>85%</b>	<b>0.21</b>	<b>0.41</b>	<b>0.62</b>	<b>15%</b>	<b>4.06</b>
<b>Total Base Cost</b>	<b>124.49</b>	<b>86%</b>	<b>48.00</b>	<b>33%</b>	<b>76.49</b>	<b>53%</b>	<b>5.20</b>	<b>14.41</b>	<b>19.61</b>	<b>14%</b>	<b>144.10</b>
<b>C. Contingencies</b>	<b>18.30</b>	<b>84%</b>	<b>0.00</b>	<b>0%</b>	<b>18.30</b>	<b>84%</b>	<b>1.22</b>	<b>2.17</b>	<b>3.39</b>	<b>16%</b>	<b>21.69</b>
<b>Financial Charges During Implementation</b>	<b>7.21</b>	<b>100%</b>	<b>2.00</b>	<b>28%</b>	<b>5.21</b>	<b>72%</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0%</b>	<b>7.21</b>
<b>Total Project Cost (A+B+C+D)</b>	<b>150.00</b>	<b>87%</b>	<b>50.00</b>	<b>29%</b>	<b>100.00</b>	<b>58%</b>	<b>6.42</b>	<b>16.58</b>	<b>23.00</b>	<b>13%</b>	<b>173.00</b>
<b>% Total Project Cost</b>		<b>87%</b>								<b>13%</b>	

Note: Cost of environmental management and mitigation is included in the cost of civil works.  
Source: Asian Development Bank estimates.

**D. Detailed Cost Estimates by Outputs/Components**  
(\$ million)

Item	Total Cost	Output/Component 1 Trimmu barrage		Output/Component 2 Panjnad barrage		Output/Component 3 Capacity Building	
		Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category
<b>A. Investment Costs<sup>a</sup></b>							
1 Civil Works							
a. Civil works 1 (CW-1)	72.90	72.90	100.0%	0.00	0.0%	0.00	0.0%
b. Civil works 2 (CW-2)	34.70	0.00	0.0%	34.70	100.0%	0.00	0.0%
2 Electrical and Mechanical Works	20.78	13.16	63.3%	7.62	36.7%	0.00	0.0%
3 Land Acquisition and Resettlement	0.55	0.45	0.3%	0.10	0.1%		
a. Land Acquisition	0.25	0.25	100.0%	0.00	0.0%	0.00	0.0%
b. Resettlement	0.30	0.20	66.7%	0.10	33.3%	0.00	0.0%
4 Consultants	2.00	0.00	0.0%	0.00	0.0%	2.00	100.0%
5 Capacity Building	0.30	0.20	66.7%	0.10	33.3%	0.00	0.0%
<b>Subtotal (A)</b>	<b>140.03</b>	<b>92.31</b>	<b>65.9%</b>	<b>45.72</b>	<b>32.7%</b>	<b>2.00</b>	<b>1.4%</b>
<b>B. Recurrent Costs</b>							
1 Project Management Office	3.58	2.39	66.7%	1.19	33.3%	0.00	0.0%
2 Equipment, Vehicles and Supplies	0.48	0.32	66.7%	0.16	33.3%	0.00	0.0%
<b>Subtotal (B)</b>	<b>4.06</b>	<b>2.71</b>	<b>66.7%</b>	<b>1.35</b>	<b>33.3%</b>	<b>0.00</b>	<b>0.0%</b>
<b>Total Base Cost</b>	<b>144.09</b>	<b>95.02</b>	<b>65.9%</b>	<b>47.07</b>	<b>32.7%</b>	<b>2.00</b>	<b>1.4%</b>
<b>C. Contingencies</b>							
1 Physical <sup>b</sup>	3.83	2.40	62.66%	1.43	37.34%	0.00	0.0%
2 Price <sup>c</sup>	17.86	12.05	67.48%	5.81	32.52%	0.00	0.0%
<b>Subtotal (C)</b>	<b>21.69</b>	<b>14.45</b>	<b>66.63%</b>	<b>7.24</b>	<b>33.37%</b>	<b>0.00</b>	<b>0.0%</b>
<b>D. Financial Charges During Implementation<sup>d</sup></b>							
1 Interest During Implementation	7.03	4.70	66.86%	2.33	33.14%	0.00	0.0%
2 Commitment Charges	0.18	0.10	55.56%	0.08	44.44%	0.00	0.0%
<b>Subtotal (D)</b>	<b>7.21</b>	<b>4.80</b>	<b>66.57%</b>	<b>2.41</b>	<b>33.43%</b>	<b>0.00</b>	<b>0.0%</b>
<b>Total Project Cost (A+B+C+D)</b>	<b>173.00</b>	<b>114.27</b>	<b>66.06%</b>	<b>56.73</b>	<b>32.79%</b>	<b>2.00</b>	<b>1.2%</b>

<sup>a</sup> In end 2013 prices.

<sup>b</sup> Physical contingencies computed at 5% for civil/mechanical/electrical works as well as 5% for field research and development, training, surveys, and studies.

<sup>c</sup> For FEX price contingencies are computed at 2.2% per annum in 2014, 1.9% in 2015 and 1.8% thereafter. For LCC price contingencies are computed at 8% per annum for 2014, 7.8% for 2015, 7.7% for 2016 and 7.6% thereafter.

<sup>d</sup> Includes interest and commitment charges. Interest during implementation for OCR loan has been computed at the 5-year forward London interbank offered rate plus a spread of 0.50% and Interest for ADF loan has been computed at the rate of 2% per annum during the grace period and thereafter. Commitment charges for an OCR loan are 0.15% per year to be charged on the undisbursed OCR loan amount.

Source: Asian Development Bank estimates.

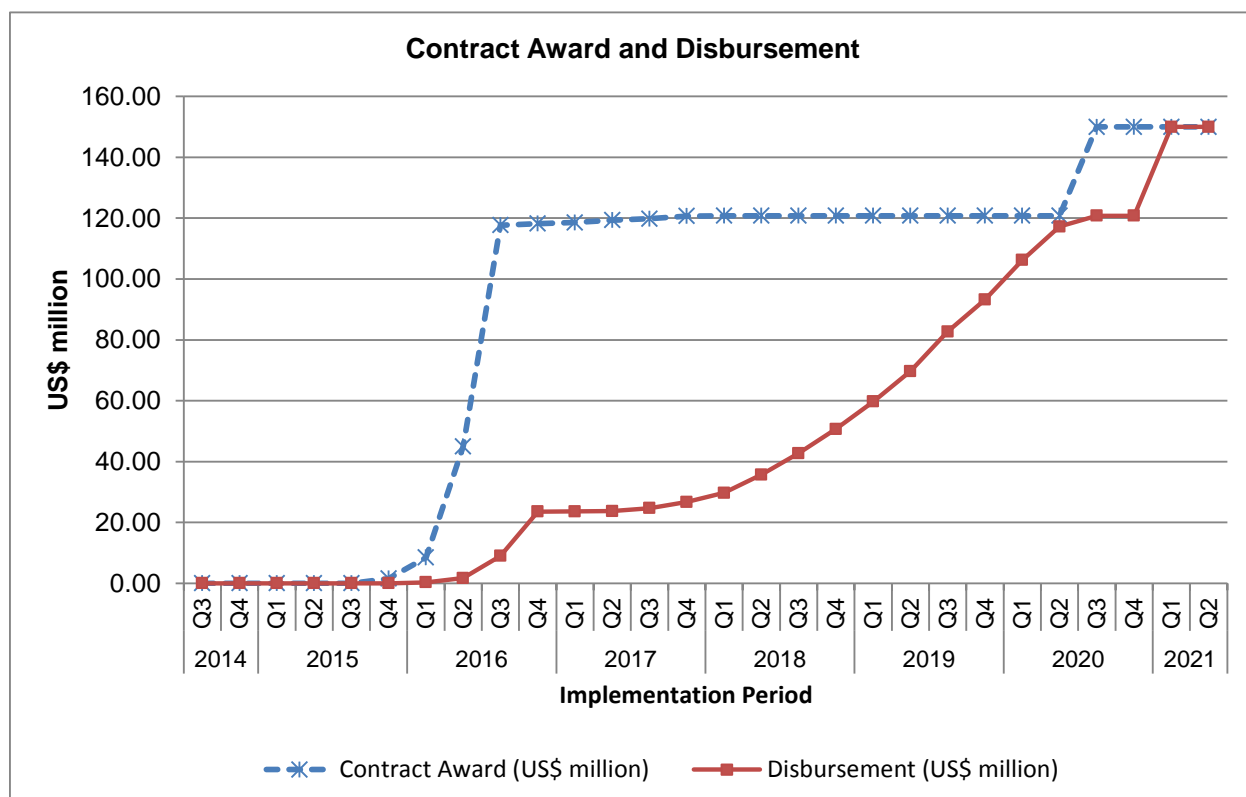
### E. Detailed Cost Estimates by Year (\$ million)

Item	Total Cost <sup>b</sup>	Year 1	Year 2	Year 3	Year 4	Year 5
<b>A. Investment Costs</b>						
1 Civil Works						
a. Civil works 1 (CW-1)	72.90	0.00	21.90	25.50	19.70	5.80
b. Civil works 2 (CW-2)	34.70	0.00	10.40	12.10	9.40	2.80
2 Electrical and Mechanical Works	20.78	0.00	6.24	7.27	5.58	1.70
3 Land Acquisition and Resettlement						
a. Land acquisition	0.25	0.25	0.00	0.00	0.00	0.00
b. Resettlement	0.30	0.00	0.30	0.00	0.00	0.00
4 Consultants	9.10	1.20	2.29	2.29	2.29	1.04
5 Capacity Building	2.00	0.00	0.60	0.70	0.54	0.16
<b>Subtotal (A)</b>	<b>140.04</b>	<b>1.45</b>	<b>41.72</b>	<b>47.93</b>	<b>37.47</b>	<b>11.47</b>
<b>B. Recurrent Costs</b>						
1 Project Management	3.58	0.48	0.86	0.86	0.86	0.53
2 Equipment, Vehicles and Supplies	0.48	0.00	0.19	0.10	0.10	0.10
<b>Subtotal (B)</b>	<b>4.06</b>	<b>0.48</b>	<b>1.05</b>	<b>0.96</b>	<b>0.96</b>	<b>0.62</b>
<b>Total Base Cost</b>	<b>144.10</b>	<b>1.93</b>	<b>42.78</b>	<b>48.81</b>	<b>38.46</b>	<b>12.12</b>
<b>C. Contingencies</b>	<b>21.69</b>	0.06	2.60	6.91	8.35	3.76
<b>D. Financial Charges During Implementation</b>	<b>7.21</b>	0.01	0.47	1.46	2.47	2.79
<b>Total Project Cost (A+B+C+D)</b>	<b>173.00</b>	<b>2.01</b>	<b>45.85</b>	<b>57.19</b>	<b>49.28</b>	<b>18.67</b>
<b>% Total Project Cost</b>	<b>100%</b>	<b>1%</b>	<b>27%</b>	<b>33%</b>	<b>28%</b>	<b>11%</b>

Note: Cost of environmental management is included in the cost of civil works.

Source: Asian Development Bank estimates.

## F. Contract and Disbursement S-curve



### Projections for Contract Award and Disbursement for Total Loan Amount

Projections for Contract Award (\$ million)					
Year	Q1	Q2	Q3	Q4	Total
2014	0.00	0.00	0.00	0.00	0.00
2015	0.00	0.00	0.00	1.53	1.53
2016	6.93	36.55	72.68	0.50	116.66
2017	0.36	0.80	0.45	0.90	2.51
2018	0.10	0.00	0.00	0.00	0.10
2019	0.00	0.00	0.00	0.00	0.00
2020	0.00	0.00	29.20	0.00	29.2
2021	0.00	0.00	0.00	0.00	0.00
Total					150.00

Projections for Disbursement (\$ million)					
Year	Q1	Q2	Q3	Q4	Total
2014	0.00	0.00	0.00	0.00	0.00
2015	0.00	0.00	0.00	0.00	0.00
2016	0.31	1.39	7.31	14.54	23.55
2017	0.10	0.07	1.00	2.00	3.17
2018	3.00	6.00	7.00	8.00	24.00
2019	9.00	10.00	13.00	10.50	42.50
2020	13.00	11.00	3.59	0.00	27.59
2021	29.19	0.00	0.00	0.00	29.19
Total					150.00

### Projections for Contract Award and Disbursement for OCR Loan Amount

Projections for Contract Award (\$ million)					
Year	Q1	Q2	Q3	Q4	Total
2014	0.00	0.00	0.00	0.00	0.00
2015	0.00	0.00	0.00	0.00	0.00
2016	0.00	0.00	48.00	0.00	48.00
2017	0.00	0.00	0.00	0.00	0.00
2018	0.00	0.00	0.00	0.00	0.00
2019	0.00	0.00	0.00	0.00	0.00
2020	0.00	0.00	2.00	0.00	2.00
2021	0.00	0.00	0.00	0.00	0.00
Total					50.00

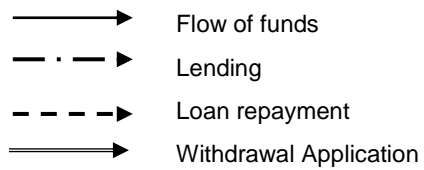
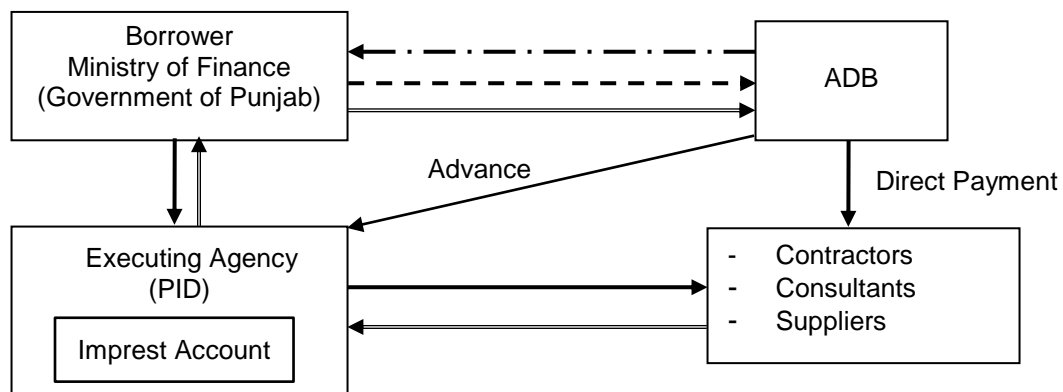
Projections for Disbursement (\$ million)					
Year	Q1	Q2	Q3	Q4	Total
2014	0.00	0.00	0.00	0.00	0.00
2015	0.00	0.00	0.00	0.00	0.00
2016	0.00	0.00	0.00	4.80	4.80
2017	0.05	0.05	0.10	0.50	0.70
2018	1.00	2.00	2.30	3.00	8.30
2019	3.00	4.00	5.00	6.00	18.00
2020	8.00	5.20	3.00	0.00	16.20
2021	2.00	0.00	0.00	0.00	2.00
Total					50.00

### Projections for Contract Award and Disbursement for ADF Loan Amount

Projections for Contract Award (\$ million)					
Year	Q1	Q2	Q3	Q4	Total
2014	0.00	0.00	0.00	0.00	0.00
2015	0.00	0.00	0.00	1.53	1.53
2016	6.93	36.55	24.68	0.50	68.66
2017	0.36	0.80	0.45	0.90	2.51
2018	0.10	0.00	0.00	0.00	0.10
2019	0.00	0.00	0.00	0.00	0.00
2020	0.00	0.00	27.20	0.00	27.20
2021	0.00	0.00	0.00	0.00	0.00
Total					100.00

Projections for Disbursement (\$ million)					
Year	Q1	Q2	Q3	Q4	Total
2014	0.00	0.00	0.00	0.00	0.00
2015	0.00	0.00	0.00	0.00	0.00
2016	0.31	1.39	7.31	9.74	18.74
2017	0.05	0.02	0.90	1.50	2.47
2018	2.00	4.00	4.70	5.00	15.70
2019	6.00	6.00	8.00	4.50	24.50
2020	5.00	5.80	0.59	0.00	11.39
2021	27.20	0.00	0.00	0.00	27.20
Total					100.00

### G. Fund Flow Diagram



## V. FINANCIAL MANAGEMENT

### A. Financial Management Assessment

15. A financial management assessment (FMA) and a risk assessment of country level systems were conducted by ADB with focus on financial accounting, auditing and mitigation measures. Final risk rating of financial risk management arrangements for the project is assessed as moderate. The PID has satisfactory financial management capability to record financial transactions and balances provide regular records and monitoring reports and safeguard over assets. The risks and mitigation measures have been assessed and included in the risk assessment and management plan (RAMP).

16. PID and/or the Government of Punjab require following actions:
- (i) the PMO does not have a separate internal audit section. Since the financial management role of the PMO has increased significantly now, PID should help PMO in internal auditing;
  - (ii) the finance officer position should be filled so that accounting records and required financial statements are prepared in accordance with ADB requirements in a timely manner;
  - (iii) PID should offer incentives to the PMO (Barrages) staff to avoid frequent staff turnover and adverse impacts on implementation of the ongoing projects and this project;
  - (iv) PMO (Barrages) specialists and Consultant's financial staff must undergo trainings on ADB financial management procedures to further strengthen its capacity and enable the PID to undertake itself the internal audit; and
  - (v) a separate accounting policy and financial management manual was developed for PMO in accordance with Ministry of Finance (MOF) and ADB requirements. Same will be applicable for TPBIP.

17. Summary of the financial management assessment undertaken for the project during preparation are as follows:

#### Summary of the Financial Management Assessment

Area of Assessment	Findings
Executing and Implementing Agencies	Punjab Irrigation Department is the EA and will implement project through the Project Management Office (PMO) for Barrages.
Major Experiences of Managing Externally Financed Projects	PMO manages one World Bank and two ADB projects (tranche 2 and tranche 3 of ADB multi tranche financing facility for Punjab Irrigated Agriculture Investment Program). Audited project financial statements submitted to ADB for the tranches in the past years are acceptable.
Fund Flow Arrangements	<ul style="list-style-type: none"> <li>• ADB: Imprest Account in accordance with Government of Pakistan (GOP) procedures for revolving fund accounts; Direct Payment for large value payments exceeding \$100,000 equivalent.</li> <li>• GOP counterpart funding through the Project's Assignment Account which is opened exclusively for GOP share of project financing.</li> </ul>
Organization and Staffing	PMO's key staffs are in place with one Director, one Deputy Director, two Finance Officers and one Analyst. The vacant Finance Manager position for tranche 2 project has been under recruitment process. A finance officer for tranche 3 will be recruited to assist the project

	implementation as soon as the contractors mobilize.
Accounting Policy and Procedures	Cash basis per GOP systems and procedures.
Segregation of Duties	Upon filling in of the two vacant positions, no issues are seen.
Budgeting System	Government's established budgeting system. ADB's share and fund flow does not pass through the Government's budgetary process and funds are available for use in imprest account once ADB disbursement is made.
Payments	By the Financial Unit once the invoices are processed and cleared by the Engineering section. Segregation is adequate once the two positions are filled.
Policies and Procedures	Government Financial Rules, New Accounting Manual and ADB disbursement procedures are followed.
Cash and Bank	Cash books for all bank accounts maintained adequately. Dual signatories for withdrawal from the Imprest Account and Assignment Account.
Safeguard Over Assets	Adequate. Stock registers are adequately maintained.
Other Offices	All financial management operations at the PMO level.
Internal Audit	The PMO does not have a separate internal audit section. Since the Financial Management role of the PMO has increased significantly now PID should help PMO in internal auditing matters.
External Audit	By the Department of Auditor General of Pakistan under the supervision of Director General, Audit, Punjab.
Reporting and Monitoring	Regular feedback to ADB through quarterly progress reports and to the Government of Punjab's Planning and Development Board.
Information Systems	Presently excel-based records and manual accounting records are kept.

Source: Asian Development Bank estimates.

18. **Risk Analysis:** Following risks have been identified and risk mitigation measures have been advised. Financial management risks shall need to be considered and updated throughout the life of the project. Risk mitigation measures shall also be updated accordingly.

#### **Risk Assessment and Mitigation Measures**

<b>Risk</b>	<b>Risk Rating*</b>	<b>Remarks/Risk Mitigation Measures</b>
<b>Inherent Risk</b>		
Country-specific Risks	M	The MOF and Punjab Government shall ensure the timely release of counterpart funds, as per loan covenants. PID shall ensure its annual budget is allocated and available during the fiscal year.
Entity-specific Risks	N	The PID has experienced in implementing ADB and World Bank financed irrigation projects. The PID to ensure timely decision-making on project related issues. The PMO will be responsible for overall implementation of the Project.
Project-specific Risks	M	<ul style="list-style-type: none"> <li>- For Financial Management, conduct training annually on ADB procedures even though the PMO is experienced in ADB rules and procedures.</li> <li>- Be vigilant that land acquisition and resettlement plan is completed and implemented as per SPS (2009) requirements.</li> <li>- Be proactive to know potential obstacle that could delay progress</li> </ul>



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		and add cost.
		- A simple project design is proposed.
		- Consultant will be given role of 'Engineer' as defined by FIDIC.
		- The PMO's procurement and safeguard units will maintain and disclose the related information on PMO's website, handle complaints and manage documents as appropriate.
<b>Overall Inherent Risk</b>	<b>M</b>	
<b>Control Risk</b>		
Major Experiences of Managing Externally financed projects	N	PMO has experience of executing externally financed projects funded ADB and World Bank.
Fund Flow Mechanisms	N	A rule based mechanism for fund flow is available and governed under rules of GoP's Ministry of Finance: - Revolving fund account (Imprest Account) used for externally financed projects and assignment account for GoP counterpart funds. - Direct payment procedure by donors is also used for fund flow. - Assignment Account for GOP counterpart funding
Organization and Staffing	S	Two vacant positions under the Finance Unit are vacant. One is already in recruitment process. The other will be recruited in a timely manner.
Accounting Policies and Procedures	N	Accounting standards and practices are based on Pakistan National Accounting Standards which are in compliance with International Accounting Standards.
Payments	M	All payments are governed under Government's Financial Rules and Irrigation Department's manuals.
Policies and Procedures	N	Government Financial Rules, New Accounting Manual and ADB disbursement procedures.
Cash and Bank	M	PMO has separate bank accounts operated jointly.
Safeguard Over Assets	N	Project specific fixed assets registers are available. Physical verification on periodical bases is conducted.
Internal Audit	H	PMO does not have an internal audit arrangement. PID will assist PMO in internal auditing matters.
<b>Overall</b>	<b>M</b>	

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\* H = High, S = Substantial, M = Moderate, N = Negligible or Low.

## B. Disbursement

19. The OCR and ADF loan proceeds will be disbursed in accordance with ADB's Loan Disbursement Handbook (2012, as amended from time to time),<sup>13</sup> and detailed arrangements agreed upon between the government and ADB.

20. Pursuant to ADB's Safeguard Policy Statement (2009) (SPS),<sup>14</sup> ADB funds may not be applied to the activities described in the ADB Prohibited Investment Activities List set forth at Appendix 5 of the SPS. All financial institutions will ensure that their investments are in compliance with applicable national laws and regulations and will apply the prohibited investment activities list (Appendix 5 of the SPS) to subprojects financed by ADB.

21. Direct payments procedures will generally be used for civil works contract and consulting services. To facilitate project implementation through timely release of ADF loan

<sup>13</sup> Available at: <http://www.adb.org/documents/loan-disbursement-handbook>

<sup>14</sup> Available at: <http://www.adb.org/Documents/Policies/Safeguards/Safeguard-Policy-Statement-June2009.pdf>

proceeds, PID will establish an imprest account promptly after ADF loan effectiveness at National Bank of Pakistan.<sup>15</sup> The maximum ceiling of the imprest account will not exceed 10% of the ADF loan amount. The imprest account is to be used exclusively for ADB's share of eligible expenditures. The currency of the imprest account will be USD. PID, who established the imprest account in its name, is accountable and responsible for proper use of advances to the imprest account. The initial and additional advances to the imprest account may be requested based on 6 months estimated expenditures to be financed through the imprest account. The imprest account will be established, managed, and liquidated in accordance with ADB's Loan Disbursement Handbook and detailed arrangements agreed by the Government and ADB. ADB's Loan Disbursement Handbook describes which supporting documents should be submitted to ADB and which should be retained by the government for liquidation and replenishment of an imprest account.

22. The statement of expenditures (SOE) procedure may be used for reimbursement of eligible expenditures or liquidation of advances to the imprest account. The ceiling of the SOE procedure is the equivalent of \$100,000 per individual payment. Supporting documents and records for the expenditures claimed under the SOE should be maintained by the PMO and made readily available for review by ADB's disbursement and review missions, upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit. Reimbursement and liquidation of individual payments in excess of the SOE ceiling should be supported by full documentation when submitting the withdrawal application to ADB.

23. The minimum value per withdrawal application (WA) is US\$100,000 equivalent, under reimbursement and imprest fund procedures, unless otherwise approved by ADB. Individual payments below this amount should generally be paid from the imprest account or by the EA and subsequently claimed to ADB through reimbursement. ADB reserves the right not to accept WAs below the minimum amount. WAs and supporting documents will demonstrate, among other things that the goods, and/or services were produced in or from ADB members, and are eligible for ADB financing.

24. PID will be responsible for (i) preparing disbursement projections; (ii) requesting budgetary allocations for counterpart funds; (iii) collecting supporting documents; and (iv) preparing and sending withdrawal applications to ADB. Before the submission of the first WA, the Government shall submit to ADB sufficient evidence of the authority of the person(s) who will sign the WAs on behalf of the borrower, together with the authenticated specimen signatures of each authorized person.

25. All disbursements under government financing will be carried out in accordance with regulations of the Islamic Republic of Pakistan relevant to co-financing of the projects financed by the Multilateral Financing Organizations. PID shall open and maintain the separate imprest account for government counterpart funds.

### **C. Accounting**

26. PID will maintain separate project accounts and records by funding source for all expenditures incurred on the project. PID uses International Public Sector Accounting Standards by International Federation of Accountants and consolidates project financial statements accordingly.

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<sup>15</sup> The bank charges incurred in the operation of the imprest account may be financed from the loan proceeds.

## D. Auditing

27. PID shall cause that PMO prepare detailed project financial statements to be audited in accordance with International Standards on Auditing and with the Government's audit regulations, by an independent auditor acceptable to ADB.<sup>16</sup> The audited project financial statement will be submitted in the English language to ADB within 6 months of the end of the fiscal year by PID.

28. The annual audit report for the project accounts will include an audit management letter and audit opinions which cover (i) whether the project financial statements present a true and fair view or are presented fairly; in all material respects, in accordance with the applicable financial reporting framework; (ii) whether loan and grant proceeds were used only for the purposes of the project or not; (iii) the level of compliance for each financial covenant contained in the legal agreements for the project; (iv) use of the imprest fund procedure; and (v) the use of the statement of expenditure procedure certifying to the eligibility of those expenditures claimed under SOE procedures, and proper use of the SOE and imprest procedures in accordance with ADB's Loan Disbursement Handbook and the project documents.

29. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision, and followed up regularly with all concerned, including the external auditor.

30. The Government of Pakistan, the Punjab and PID have been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.<sup>17</sup> ADB reserves the right to require a change in the auditor (in a manner consistent with the constitution of the borrower), or for additional support to be provided to the auditor, if the audits required are not conducted in a manner satisfactory to ADB, or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

31. Public disclosure of the project financial statements, including the audit report on the project financial statements, will be guided by ADB's Public Communications Policy (2011).<sup>18</sup> After review, ADB will disclose the project financial statements for the project and the opinion of the auditors on the financial statements within 30 days of the date of their receipt by posting them on ADB's website. The Audit Management Letter will not be disclosed.

<sup>16</sup> In all previous cases, Office of Auditor General of Pakistan conducted audit through Director General Audit Punjab

<sup>17</sup> ADB Policy on delayed submission of audited project financial statements:

- When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (i) the audit documents are overdue; and (ii) if they are not received within the next six months, requests for new contract awards and disbursement such as new replenishment of imprest accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed.
- When audited project financial statements have not been received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as new replenishment of imprest accounts, processing of new reimbursement, and issuance of new commitment letters. ADB will (i) inform the executing agency of ADB's actions; and (ii) advise that the loan may be suspended if the audit documents are not received within the next six months.
- When audited project financial statements have not been received within 12 months after the due date, ADB may suspend the loan.

<sup>18</sup> Available from <http://www.adb.org/documents/pcp-2011?ref=site/disclosure/publications>.

## VI. PROCUREMENT AND CONSULTING SERVICES

### A. Advance Contracting and Retroactive Financing

32. All advance contracting will be undertaken in conformity with ADB's *Procurement Guidelines* (2013, as amended from time to time) (ADB's *Procurement Guidelines*)<sup>19</sup> and ADB's *Guidelines on the Use of Consultants* (2013, as amended from time to time) (ADB's *Guidelines on the Use of Consultants*).<sup>20</sup> The issuance of invitations to bid under advance contracting and retroactive financing will be subject to ADB approval. The borrower and the EA have been advised that approval of advance does not commit ADB to finance the project.

33. In line with the above, the government requested for advance contracting for procuring civil works and consulting services. The advance actions will include preparation of tender documents for works contracts, invitation of bid, bid evaluation and recruitment of consultants. The borrower acknowledges that any approval of advance contracting will not constitute a commitment by ADB to finance the related project.

34. Retroactive financing for the project is not considered.

### B. Procurement of Goods, Works and Consulting Services

35. All procurement of goods and works will be undertaken in accordance with ADB's *Procurement Guidelines*. An initial procurement plan has been prepared for the project which is set out in part C of this section. Rehabilitation of both barrages<sup>21</sup> will be undertaken through two separate contracts to be awarded based on international competitive bidding (ICB) procedure.<sup>22</sup> Single-stage two envelope procedures will be followed for the ICB contracts.<sup>23</sup> PID will ensure that these contracts are awarded on time. Provision will be made in the contracts for imposition of penalty for delays and PID will carry out strict supervision of these contracts to ensure timely completion.

36. ICB procedures will be used for civil works contracts estimated to cost \$10 million or more. Supply contracts estimated to cost the equivalent of \$500,000 and more will be awarded on the basis of ICB; those costing \$100,000 up to \$500,000 equivalent will be awarded on the basis of national competitive bidding; and minor items costing \$100,000 equivalent or less will be procured under shopping. The procurement plan indicating threshold and review procedures, goods, works, and consulting service contract packages and national competitive bidding guidelines is in Section C. The consultants will be recruited according to ADB's *Guidelines on the Use of Consultants* (2013 as amended time to time).<sup>24</sup>

<sup>19</sup> Available at: <http://www.adb.org/Documents/Guidelines/Procurement/Guidelines-Procurement.pdf>.

<sup>20</sup> Available at: <http://www.adb.org/Documents/Guidelines/Consulting/Guidelines-Consultants.pdf>.

<sup>21</sup> Including Mechanical and Electrical Works associated with rebuilding and refurbishing for both barrages gates and canal head gates will be included under the main civil works contract for the respective barrage.

<sup>22</sup> Packaging all major works for one Barrage to a single contract as provided for under the Procurement Plan will ensure an acceptable level of competition and maintain the interest of larger international contractors. The end result will be reflected in both quality and cost-effective civil works.

<sup>23</sup> All civil works contracts awarded under international competitive bidding and national competitive bidding will be subject to ADB's prior approval procedures.

<sup>24</sup> Checklists for actions required to contract consultants by method available in e-Handbook on Project Implementation at: <http://www.adb.org/documents/handbooks/project-implementation>.

## C. Procurement Plan

### Basic Data

<b>Project Name:</b> Trimmu and Panjnad Barrages Improvement Project	
<b>Country:</b> Pakistan	<b>Executing Agency:</b> Punjab Irrigation Department
<b>Loan Amount:</b> \$150 million (equivalent)	<b>Loan (Grant) Number:</b> 47235-001
<b>Date of First Procurement Plan:</b>	<b>Date of this Procurement Plan:</b>

## A. Process Thresholds, Review and 18-Month Procurement Plan

### 1. Project Procurement Thresholds

1. Except as the Asian Development Bank (ADB) may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

Procurement of Goods and Works	
Method	Threshold
International Competitive Bidding (ICB) for Works	\$10,000,000 and above
Shopping for Goods	Below \$100,000

### 2. ADB Prior or Post Review

2. Except as ADB may otherwise agree, the following prior or post review requirements apply to the various procurement and consultant recruitment methods used for the project.

Procurement Method	Prior or Post	Comments
<b>Procurement of Goods and Works</b>		
ICB Works	Prior	
Shopping for Goods	Post	
<b>Recruitment of Consulting Firms</b>		
Quality- and Cost-Based Selection (QCBS)	Prior	90:10
<b>Recruitment of Individual Consultants</b>		
Individual Consultants	Prior	

### 3. Goods and Works Contracts Estimated to Cost More Than \$1 Million

3. The following table lists goods and works contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

General Description	Contract Value	Procurement Method	Prequalification of Bidders (y/n)	Advertisement Date (quarter/year)	Comments
TPBIP/ICB-01: Civil and Mechanical Works of Trimmu barrage	\$86.4 million	ICB Single Stage-Two Envelope	n	Q1, 2015	
TPBIP/ICB-02: Civil and Mechanical Works of Panjnad barrage	\$42.0 million	ICB Single Stage-Two Envelope	n	Q2, 2015	

#### 4. Consulting Services Contracts Estimated to Cost More Than \$100,000

4. The following table lists consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

General Description	Contract Value	Recruitment Method <sup>1</sup>	Advertisement Date (quarter/year)	International or National Assignment	Comments
CSC-01 TPBIP Construction supervision Consultant	\$9.0 million	QCBS (90:10)	Q4, 2014	International	

QCBS (90:10) is proposed as construction of Barrage in rivers is challenging and quality is more important.

#### 5. Goods and Works Contracts Estimated to Cost Less than \$1 Million and Consulting Services Contracts Less than \$100,000

5. The following table groups smaller-value goods, works and consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

General Description	Value of Contracts (cumulative)	Number of Contracts	Procurement / Recruitment Method	Comments
Equipment and vehicles	\$480,000	6	Shopping	
External monitoring	\$0.08 million	1 (National consultant)	Individual	

#### B. Indicative List of Packages Required Under the Project

6. The following table provides an indicative list of all procurement (goods, works and consulting services) over the life of the project. Contracts financed by the Borrower and others should also be indicated, with an appropriate notation in the comments section.

General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Procurement Method	Domestic Preference Applicable <sup>1</sup>	Comments
Goods	\$480,000	6	Shopping	No	
Works	\$128,400,000	2	ICB	No	

General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Recruitment Method	Type of Proposal	Comments
Consulting Services	\$9,080,000	2	QCBS/ /Individual consultant	FTP	

### C. Procurement Capacity

37. A procurement capacity assessment of the implementing agency (IA) was conducted during due diligence. The instrument used for the assessment was ADB's standard questionnaire and report. The procurement capacity was assessed as acceptable with identified area of improvement. The gaps include (i) number of staff in the procurement department are less than the requirements; and (ii) national procurement laws are weak. The project will provide additional dedicated staff for the project and further training and capacity building to strengthen the IA procurement capacity as necessary. Notably, the capacity of the IA for procurement will be built by the provision of PMO support consultants under the consultancy package.

38. The procurement capacity assessment report and recommendations (PCAAR) conducted for the IA is in Annex B. The draft procurement action plan proposed in the PCAAR will be further updated during project implementation. The main actions are: (i) PMO to reinforce its procurement department with appropriate skills; and (ii) PMS consultant to assist PMO and to bring capacity through support to procurement and contract management activities over project implementation period. The government and the EA will ensure the implementation of the procurement action plan developed in the PCAAR for the TPBIP.

### D. Consultant's Terms of Reference

39. About 671 person months of the key staff including 32 international person months have been provided by a consulting firm for construction supervision of the project. Also, 542 person-months of non-key support staff have been provided. The tentative distribution of required inputs is shown in Table 6.1

**Table 6.1 Proposed Key Staff for Construction Supervision Consultant**

Position	At Trimmu barrage	At Panjnad barrage	Common at Headquarter	Combined Person-month
<b>KEY STAFF</b>				
<b>International</b>				
Construction Management Specialist/ Team Leader			24	24
Contract/ Claims Specialist			2	2
Electrical/ Instrumentation Specialist			3	3
Mechanical/ Gates Specialist			3	3
<b>Total International Staff</b>			<b>32</b>	<b>32</b>
<b>National</b>				
<b>Headquarters</b>				
Contract & Claims Specialist/ Deputy Team Leader			48	48
Planning & Scheduling/ Costing Engineer			40	40
Structural Design Engineer			24	24
Hydraulic Design Engineer			24	24
Electrical Design Engineer			12	12
Mechanical Design Engineer			12	12

<b>Position</b>	<b>At Trimmu barrage</b>	<b>At Panjnad barrage</b>	<b>Common at Headquarter</b>	<b>Combined Person-month</b>
Monitoring and Evaluation Specialist			48	48
Social Safeguards Specialist			12	12
Environmental Specialist			12	12
<b>Total at Headquarters</b>			<b>232</b>	<b>232</b>
<b>Field Offices</b>				
Chief Resident Engineer (2 No.)	48	42		90
Resident Engineer (Civil) (2 No.)	48	42		90
Resident Engineer (Mechanical) (2 No)	12	12		24
Resident Engineer (Electrical) (2 No.)	6	6		12
Material Engineer/ Quality Control Specialist (2 No.)	27	24		51
Grouting/ Geo-tech Specialist (2 No.)	10	10		20
Electrical/Instrumentation Expert (2 No)	10	10		20
<b>Sub-total at Field Offices</b>	<b>161</b>	<b>146</b>		<b>307</b>
<b>Unallocated</b>			<b>100</b>	<b>100</b>
<b>Total (National Staff)</b>	<b>161</b>	<b>146</b>	<b>332</b>	<b>639</b>
<b>TOTAL KEY STAFF</b>	<b>161</b>	<b>146</b>	<b>364</b>	<b>671</b>
<b>NON - KEY STAFF</b>				
Office Engineer			40	40
Resettlement Expert (2 No.)	9	6		15
Assistant Resident Engineer (4+4=8 No)	94	80		174
Junior Environmentalist (2 No.)	24	24		48
Total	127	110	40	277
<b>Unallocated</b>			135	135
<b>PMO Support Staff</b>				
Senior Engineer Procurement/ Contracts			30	30
Senior Engineer Design/ Construction			30	30
Senior Engineer Mechanical			10	10
Monitoring and Evaluation Expert			30	30
Finance and Accounts Expert			30	30
Total PMO Support Staff			130	130
<b>TOTAL NON – KEY STAFF</b>	<b>127</b>	<b>110</b>	<b>305</b>	<b>542</b>

40. The outline terms of reference (TOR) of the construction supervision consultant is in Annex A.



## VII. SAFEGUARDS

41. The Punjab will ensure that the project is implemented in full compliance with (i) all applicable laws and regulations of the Government of Pakistan and the Government of Punjab, and ADB's Safeguard Policies (2009) (SPS), including the policies on involuntary resettlement<sup>25</sup> and the environment,<sup>26</sup> and (ii) respective resettlement plan, initial environmental assessment reports, and environmental management plans. In the event that there is a discrepancy between the laws and regulations of Punjab and ADB safeguard policies, the ADB safeguard policies will prevail. Following safeguards assurances for the project will be incorporated into related loan agreements:

### A. Environment

42. Government of Punjab will ensure that the design, construction, and operation and maintenance of the project are carried out in accordance with ADB's Safeguard Policy Statement (2009) (SPS), applicable laws and regulations in Pakistan, and respective initial environmental examination (IEE). Punjab through the PID will ensure that potential adverse environmental impacts arising from the Project are minimized by implementing all mitigation and monitoring measures through a site specific environmental management plan (SSEMP) which will be developed by the contractor's environment specialist based on the generic environment management plan (EMP) included in the IEEs. Punjab through the PID/PMO will ensure that:

- (i) Generic EMPs provided in the IEEs are to be made part of the bidding documents for the contracts.
- (ii) SSEMPs are prepared by the contractor's environment specialist and endorsed by PID/PMO environment specialist prior to implementation of civil works.
- (iii) PID/PMO has sufficient resources to implement and record the implementation of the SSEMPs prepared for the project.
- (iv) Starting from project commencement, the PID/PMO will submit semi-annual environmental reports prepared by the environment safeguard specialist to ADB, within 3 months of the close of each half of the calendar year during implementation of the project. The reports will include, among other things, a review of progress made on environmental measures detailed in the IEEs and SSEMPs, and monitoring thereof; and problems encountered and remedial measures taken.
- (v) Civil works contracts are supervised to ensure compliance with the requirements of the IEEs and EMPs.

43. PID will report to ADB "any change" in a project component that occurs after the EMP was approved by ADB. ADB's prior approval will be required before putting into effect any such changes. Where in the opinion of ADB, additional environmental assessment is needed PID will arrange the same. PID will prepare a semiannual report on implementation of the EMP as part of the progress reports on investment program implementation. PID will provide the contractors with the IEE study report including the EMP, and ensure that the contractors implement the mitigation measures and EMP as described in these reports.

<sup>25</sup> ADB. 1995. Involuntary Resettlement. Manila.

<sup>26</sup> ADB. 2002. Environment Policy. Manila.

## **B. Land Acquisition, Resettlement, and Indigenous Peoples**

44. Punjab will ensure that land acquisition and involuntary resettlement plan for TPBIP is prepared, disclosed and implemented in accordance with SPS. Punjab will ensure that no civil works contract is awarded until a land acquisition and resettlement plan (LARP) has been agreed with ADB.

45. Punjab will ensure that: (i) all land and rights of way required by the TPBIP are made available in a timely manner; (ii) land acquisition occurs only after the relevant LARP have been fully implemented; (iii) contractors' activities are in compliance with requirements of the LARPs and EMPs; and (iv) an external monitoring specialist acceptable to ADB is engaged to carry out monitoring and evaluation and to report to ADB on the requirements of the LARP; and no civil works commence on the component until LARP is implemented and verified by the external monitor.

46. PID will (i) prepare and implement resettlement plan, in accordance with ADB's SPS on involuntary resettlement, with the principles and procedures agreed between the Government of Punjab and ADB; (ii) disclose subproject resettlement plan to affected persons in a form and language easily comprehensible to them prior to submission to ADB for review and approval, before award of related civil works contracts or a similar milestone; (iii) monitor and submit the quarterly progress and completion reports on land acquisition and resettlement; (iv) appoint an independent monitoring expert prior to commencement of land acquisition and resettlement activities; and (v) ensure that reports are simultaneously submitted to PID and ADB. PID will ensure that the LARP is fully implemented prior to taking possession of lands. PID will provide funds to pay compensation and entitlements under the resettlement plan in a timely manner and in accordance with provisions of the resettlement plan.

47. The resettlement budget will be reviewed prior to implementation, and any additional land acquisition and resettlement cost that may be required will be borne by the Borrower. If there is any change in the scope of the investment program subprojects, or after detailed design, the resettlement plan will be revised and submitted for ADB approval prior to award of civil work contracts.

48. PID will ensure that (i) compensation for land and structures will be provided to affected persons in full at replacement value, including financial assistance and/or grants, if any, prior to taking possession of their assets; and that essential public infrastructure affected by land acquisition and resettlement are replaced appropriately and expeditiously; (ii) acquire or make available on a timely basis (i.e. strictly in accordance with the schedule as agreed under the related civil works contract) the land and rights in land, free from any encumbrances; and (iii) clear the utilities, trees, and any other obstruction from such land, on a timely basis (i.e., strictly in accordance with the schedule as agreed under the related civil works contracts), as required for construction activities relating to each section of the related civil works contract under the project; and (iv) reinstate utilities and make good any damage or disturbances caused by civil works, following completion of the civil works.

## **C. Execution of Civil Works Contracts**

49. Punjab will ensure that, subsequent to award of civil works contract, no part of the work will be handed over to the contractor until the applicable provisions of the EMPs and LARP, (particularly, the timely delivery of compensation to affected families) have been complied with, and have been verified by the experienced external monitor. Punjab will also ensure that civil

works will only start once the SSEMP has been prepared by the contractor and is endorsed by the PID/PMO.

50. Any changes to the location, alignment or environmental impacts arising from the change in designs of any component will be subject to prior approval by ADB and the relevant government agency of Punjab Government in accordance with the ADB's SPS and applicable laws.

#### **D. Labor, Gender, Health, and Social Protection**

51. Punjab will include a specific provision in the bidding documents to ensure that civil works contractors: (i) comply with core labor standards, applicable laws and regulations in Pakistan and incorporate applicable workplace occupational safety norms; (ii) do not differentiate payment between men and women for work of equal value; (iii) do not employ child labor in the construction and maintenance activities; (iv) eliminate forced or compulsory labor; (v) eliminate employment discrimination; (vi) allow for freedom of association; and (vii) to the extent possible, maximize employment of local poor and disadvantaged persons for project construction purposes, provided that the requirements for job and efficiency are adequately met. Punjab will ensure that appropriate entities (such as nongovernment organizations) disseminate information on the risks of sexually transmitted infections, including HIV/AIDS, to the employees of civil works contractors engaged for the project and to members of the local surrounding communities. There are sometimes concerns about the compliance with the core labor standards in Pakistan, in certain sectors such as brick kilns. This issue was specifically raised with the Punjab Labor Department (PLD) and local branch of the Pakistan Workers' Federation (PWF). They noted that this area falls within their remit for monitoring and compliance; however, they do not expect violations during barrage rehabilitation. Effective judicial system, proactive civil society and vibrant media provide protection against forced labor.<sup>27</sup> Nevertheless, provisions for identifying any issues will be included in the monitoring responsibilities of the supervision consultant's safeguards team. Noncompliance will be notified to the PLD and PWF for their action.

#### **E. Land Acquisition and Resettlement Activities Monitoring**

52. The TPBIP includes two subprojects, i) Trimmu; and ii) Panjnad barrages. The draft LARP for the two barrages was prepared by the EA and ADB-cleared draft LARP was disclosed on 4 June 2014 on ADB website. The LARP will be implemented in accordance with ADB's SPS requirements. Internal monitoring (IM) of the LARP implementation will be carried out by the PMO. Resettlement monitoring activity has three main objectives; (i) to verify that resettlement activities have been effectively completed including quantity, quality, and timeliness and comply with the LARP; (ii) to assess whether affected persons (Aps) have been able to restore, or improve, their livelihoods to their pre-project status; and (iii) to identify the necessary corrective actions, when required.

53. **Internal and External Monitoring:** PMO will carry out the internal monitoring (IM) and will report the progress on the IM indicators on quarterly basis. This will help to assess the LARP implementation progress and adjust the work plan if necessary. The PMO will engage a qualified and experienced external expert to verify the client's monitoring information and to

<sup>27</sup> Pakistan's Constitution regarding labor prohibits all forms of slavery, forced labor and child labor (Article 11). Despite the Constitutional protection, the ILO publications reflected bonded labor in cottage industries in Pakistan. Web: <http://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1014&context=forcedlabor>

advise on safeguard compliance issues, and if any significant involuntary resettlement issues are identified, a corrective action plan will be prepared to address such issues. External monitoring (EM) reports will be submitted at six monthly intervals and also prior to the commencement of civil works. IM and EM reports will be consolidated in the semiannual supervision reports for ADB. Monitoring will include:

- (i) Information campaign and consultation with APs;
- (ii) Status of land acquisition and payments on land compensation;
- (iii) Compensation for affected structures and other assets;
- (iv) Relocation of APs;
- (v) Payments for loss of income;
- (vi) Selection and distribution of replacement land areas;
- (vii) Income restoration activities; and
- (viii) Ensure that gender related measures are adhered to during the internal monitoring and reporting process.

54. The above information will be collected by the PMO Barrages, which will monitor the day-to-day resettlement activities of the project through the following instruments:

- (i) review of census information for all APs;
- (ii) consultation and informal interviews with APs
- (iii) key informant interviews; and
- (iv) community public meetings.

#### **F. Environmental Safeguards Monitoring**

55. Monitoring is required during planning, construction and operation to record the implementation of the mitigation measures provided in the SSEMP. The preparation and oversight of any monitoring work is the responsibility of the environment specialist of the EA, through assistance provided by its consultant.

56. Monitoring during the planning stage usually takes place twice once to incorporate the mitigation measures proposed at the planning stage and then at the end, during the construction stage to monitor compliance with the SSEMP and the proposed actions in the IEE. Construction monitoring will be performed throughout the construction period, on a bi-annual basis, with monitoring reports submitted by the EA to ADB.

57. Some of the monitoring during both the construction and operating periods will require sample collection as well as field measurements.

#### **G. Indigenous Peoples Plan Monitoring**

58. No Indigenous People have been identified in the project area.

### VIII. GENDER AND SOCIAL DIMENSIONS

59. The people around the Barrages will be the direct beneficiaries, for whom key poverty and social issues include limited livelihood opportunities, low skill levels, poor educational provision, sub-standard and understaffed health facilities, and lack of recreational options. The proposed skills training, upgrading of health centers and schools, and Family Park will directly address these issues and improve living standards and quality of life. Upgrading the Barrages and embankments will minimize the risk of frequent floods and associated loss of life, infrastructure, crops and livelihood. The project will offer some local employment opportunities for unskilled and semi-skilled workers employed by the contractor from local communities. The operation of a construction camp will also provide opportunities for local people (especially women) to sell foodstuffs and other produce.

60. The project is classified effective gender mainstreaming (EGM). Gender analysis of the project area suggests that girls' transition from primary to higher education levels is alarmingly low, and that women have substandard basic health facilities, little or no access to employable skills, and no recreational facilities. Gender design features therefore include a family park with facilities for women, livelihoods skills training for women, improved women's health care facilities, upgrading of girls' schools, and gender equality in resettlement provisions. These are designed to address women's specific concerns and maximize their benefits, and will provide improved living standards and quality of life for local women in an area where socioeconomic indicators are particularly low. Details include the following components:

- (i) Enhanced livelihood skills for 500 local women through training and better market linkages;
- (ii) Improved availability of health services for women through upgrading of existing facilities, bringing significant impact on e.g. maternal and infant mortality (benefitting 8500 households);
- (iii) Higher levels of education provided for local girls through upgrading the existing girls' primary school to high school doubling girls post-primary enrolment from 25% to 50%;
- (iv) Secure recreational facilities for women and families where women will also be given opportunity to sell their local produce and handicrafts;
- (v) Training of PID staff in gender-aware planning, including addressing women's priority concerns;
- (vi) Give special attention to women's concerns in resettlement provisions and procedures, e.g. compensation; and
- (vii) Documentation of project results and impacts on women through qualitative studies.

61. Gender actions relate to Inclusion of gender and socially inclusive design measures and are outlined in the gender action plan (GAP). Resources have been allocated in the budget for the implementation of the GAP. PMO will be responsible for the overall execution and oversight of the GAP. A Social and Gender expert will be hired by PMO to monitor the GAP implementation. The EA will report on progress on GAP implementation in its biannual report to ADB.

62. The LARP preparation and implementation will also provide sufficient attention to gender and vulnerable groups' issues. The monitoring of LARP activities will ensure that vulnerable households identified in the LARP preparation are assisted according to the provisions of the LARP and are well informed of potential work opportunities in the project. Progress reports with

socio-economic data disaggregated by gender will provide periodic updates on the effects of LAR on women and vulnerable households.

63. PID will ensure that (i) works contracts incorporate provisions to the effect that contractors shall (a) comply with applicable core labor standards and labor laws, and incorporate applicable workplace occupational safety norms; (b) not differentiate payment between men and women for work of equal value; and (c) to the extent possible, maximize employment of local poor and disadvantaged persons for project construction purposes, provided that the requirements for job and efficiency are adequately met; and (ii) disseminate information on the risks of sexually transmitted diseases to the employees of the works contractors under the project and to members of the local communities surrounding the project.

### GENDER ACTION PLAN (GAP)

Objective	Actions and Description	Target/Indicator and Timeframe	Institutional Responsibility
<b>Output A: Rehabilitation and upgrading of Trimmu and Panjnad barrages (Outputs 1 and 2 of DMF)</b>			
Secure recreational facilities for women and families.	Design and construction of family park on Punjab Irrigation Department (PID) land around barrage, providing the only recreational facility for local women and families.	Park opened by 2019 at the latest, for use by at least 5000 families from surrounding communities, and many more from the wider area.	Project Management Office (PMO)/PID
Improved Basic Health Unit (BHU) functioning for women in local communities.	BHU constructed or upgraded based on assessment of local needs, ready to be staffed (including female staff) and equipped to provide women's health care including reproductive health.	Health center is constructed/upgraded and available by 2019 at latest, benefitting approximately 8500 families in the two locations.	PMO/PID hands over BHU to Ministry of Health for equipping, staffing and operation.
Higher levels of education provided for local girls.	Construction/upgrading of existing girls' primary school to high school (including primary section).	High school building available by 2019 at the latest, doubling post-primary enrollment from an estimated 25% to 50%.	PMO/PID hands over school building to Ministry of Education for equipment, staffing and operation as girls' high school.
Gender equality in resettlement provisions.	<p>Ensure information on payments of compensation is available to both spouses. Affected women are encouraged to open their own or jointly titled bank accounts.</p> <p>Ensure women's participation in affected persons' committee (APC).</p>	<p>All affected women aware of amount of compensation and of option to open bank accounts</p> <p>25% of the members of APCs are women.</p> <p>Relocation and resettlement procedures include women's specific concerns.</p>	PMO/PID and Social Safeguard and Resettlement staff.
Documentation of project results and impacts on women.	Conduct qualitative study (e.g. focus group discussions) of how women see the impact on their lives of provision of improved health care, skills training, education, and recreational provision.	Qualitative studies determining impact of project on women's lives, written up in accessible manner including lessons learned.	PMO/PID engages consultant to research and write up study.

	Write up narrative of good gender practices in irrigation sector, suitable for publishing on websites.		
<b>Output B: Improved capacities of communities and PID staff</b>			
Raised awareness and understanding of flood risk management.	Awareness of flood risk management raised in at least two nearby communities, including women's full participation in all activities.	Women participate in all awareness-raising activities, including representatives of those to be resettled, and volunteers from adjacent communities.	PMO/PID
Improved availability of medical services for women, bringing significant impact on e.g. maternal and infant mortality.	Conduct awareness-raising among women and men in the community to utilize prenatal, postnatal, child care, growth monitoring, and vaccination facilities at the health center. Separate awareness-raising sessions for women and men if requested.	Awareness-raising targeted at 8,500 families.  Number of women visiting health center for check-ups increases by 20% annually for two years after launch.	Upgraded Basic Health Unit handed over to Ministry of Health for staffing and use as base for awareness-raising activities.
Enhanced livelihood skills for local women.	Mapping of local skills and priorities.  Training opportunities provided for local women, including home-based businesses (e.g. food processing, handicrafts) and marketing.  Gender specialist engaged to identify and mobilize trainees, and conduct training in communities.	Approximately 500 women aged 16-50 in surrounding communities are trained in livelihood skills and have increased income by 2020 [target takes into account local social norms].	PMO/PID, with assistance of consultant/partner organization.
Opportunities for local women to sell produce and handicrafts.	Facilities provided at family park.	Facilities available by 2019 at latest.	PMO/PID
Improve PID's capacity in gender-responsive planning and design.	Inputs from women representatives in Farmers' Organizations recorded and acted upon.  Conduct orientation for PMO staff on gender-responsive planning and design.	70% of PMU staff trained, including 70% of female staff.	



## IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

64. Project support management consultant will assist the EA in the monitoring, evaluation and reporting and stakeholders communication strategy.

### A. Project Design and Monitoring Framework

Design Summary	Performance Targets/Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
<b>Impact</b> Sustained agricultural production in the barrages command area.	Average annual crop production of 10 tons/ha maintained, saving annual crop losses, in Trimmu barrage area in 2024 (2014 baseline: 10 tons/ha)  Average annual crop production of 15 tons/ha maintained, saving annual crop losses, in Panjnad barrage area in 2024 (2014 baseline: 15 tons/ha)	PAD/CRS  PAD/CRS	<b>Assumption</b> Governments of Pakistan and Punjab continue to give importance to irrigated agriculture for food security and economic growth in Punjab
<b>Outcome</b> Safe Trimmu and Panjnad barrages deliver reliable irrigation water supplies to their canals	Trimmu barrage main irrigated area is maintained at 1.08 million ha in 2021 (2014 baseline: 1.08 million ha)  Panjnad barrage main irrigated area is maintained at 0.66 million ha in 2021 (2014 baseline 0.66 million ha)	PAD/CRS  PAD/CRS	<b>Risk</b> Climate-induced reduction in river flows and intersector competition for adjudication of water could result in reduced water availability for irrigation
<b>Outputs</b> 1. Rehabilitated and upgraded Trimmu barrage          2. Rehabilitated and upgraded Panjnad barrage	Trimmu barrage water supply capacity (to the associated canals) is maintained at 577.14 m <sup>3</sup> /s in 2020 (2014 baseline: 577.14 m <sup>3</sup> /s)  Water losses through the gates reduced to zero by 2020 (2014 baseline: 15.3 m <sup>3</sup> /s)  Trimmu barrage flood capacity is increased to 24,777 m <sup>3</sup> /s by 2020 (2014 baseline: 12,743 m <sup>3</sup> /s)  One women's basic health unit upgraded by 2020 (2014 baseline 'none').  Panjnad barrage water supply capacity (to the associated canals) is maintained at 408.7 m <sup>3</sup> /s in 2020 (2014 baseline: 408.7 m <sup>3</sup> /s)  Water losses through the gates are reduced to zero by 2020 (2014 baseline: 14.2 m <sup>3</sup> /s)  Panjnad barrage flood capacity is increased to 24,495 m <sup>3</sup> /s by 2020	PID barrage operation data  PID Barrage operation data  PID quarterly reports  PID quarterly reports  PID barrage operation data  PID barrage operation data  PID barrage operation data	<b>Assumption</b> Trained staff of PMO and PID are retained throughout the project life  <b>Risk</b> Deterioration of security condition may reduce interest of international contractor

Design Summary	Performance Targets/Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
3. Improved capacities of the communities and PID.	<p>(2014 baseline: 19,822 m<sup>3</sup>/s)</p> <p>One girls' primary school is upgraded to a high school by 2020 (2014 baseline: 'none')</p> <p>50 women trained at vocational center by 2020 (2014 baseline: zero).</p> <p>PID uses revised guidelines for O&amp;M of the barrages by 2020 (2014 baseline: 'no')</p> <p>At least 10 PID's PMO staff and local population use skills in IWRM and FRM approaches by 2020 (2014 baseline: zero)</p> <p>Executing agency's SPRU and PEA operationalize IWRM and FRM approaches in PID by 2020 (2014 baseline: 'no')</p>	<p>PID quarterly reports</p> <p>PID quarterly reports</p> <p>PID quarterly reports</p> <p>PID quarterly reports</p> <p>PID quarterly reports</p>	
<b>Activities with Milestones</b> <b>1. Rehabilitation and upgrading of Trimmu barrage</b> 1.1 Recruitment of PMO staff for the project (Sep 2014–Mar 2015) 1.2 Recruitment of consultants (Sep 2014–Sep 2015) 1.3 Bid invitation, evaluation, and award of ICB-01 contract (Jan 2015–Feb 2016) 1.4 Implementation of resettlement plan (Jan 2015–Mar 2016) 1.5 Construction works on ICB-01 (Apr 2016–Mar 2020) 1.6 Implementation of environmental management plan (Apr 2016–Mar 2020) 1.7 Commissioning and operation tests (Apr 2020–Mar 2021) <b>2. Rehabilitation and upgrading of Panjnad barrage</b> 2.1 Bid invitation, evaluation, and award of ICB-02 contract (Mar 2015–Apr 2016) 2.2 Implementation of resettlement plan (Jan 2015–Mar 2016) 2.3 Construction works on ICB-02 (Jun 2016–Mar 2020) 2.4 Implementation of environmental management plan (Jun 2016–Mar 2020) 2.5 Commissioning and operation tests (Apr 2020–Mar 2021) <b>3. Improved capacities of the communities and PID</b> 3.1 PID's PMO staff on-the-job and special trainings (Apr 2015–Mar 2018) 3.2 Communities awareness raising in FRM, girls' education, and health care (Apr 2016–Jun 2019) 3.3 Local women training at vocational and health centers (Oct 2015–Apr 2019) 3.4 Preparation of guidelines for robust O&M for the barrages (Oct 2016–Apr 2018) 3.5 Ten PID's PMO staff trained (2–3 externally) in IWRM by Sep 2018 3.6 Capacity building of executing agency's SPRU and PEA in IWRM and FRM by Jun 2018 3.7 Holding of a national workshop on IWRM not later than Dec 2016			<b>Inputs</b>  ADB: \$150 million (equivalent) OCR: \$50 million ADF: \$100 million (equivalent)  Government - \$23 million

ADB = Asian Development Bank, ADF = Asian Development Fund, CRS = crop reporting services, FRM = flood risk management, ha = hectare, ICB = international competitive bidding, IWRM = integrated water resources management, m<sup>3</sup>/s = cubic meter per second, O&M = operation and maintenance, OCR = ordinary capital resources, PAD = Punjab Agriculture Department, PEA = Punjab Engineering Academy, PID = Punjab Irrigation Department, PMO = project management office, PPMS = project performance monitoring system, SPRU = strategy and policy reform unit.

## B. Monitoring

65. **Project performance monitoring.** A performance monitoring system, acceptable to ADB will be established, based on the key indicators and targets outlined in the project design and monitoring framework (DMF). The EA will develop comprehensive project performance monitoring system (PPMS) in accordance with ADB's *Project Performance Monitoring System Handbook* within 6 months of the loan effectiveness. The PPMS procedures, performance indicators, and their targets will be reviewed and approved by ADB. The PPMS will collect and compile baseline information for all indicators for inputs, outputs and outcome and impacts as outlined in the DMF. PPMS will be updated bi-annually. The EA will also submit quarterly progress reports (QPRs). ADB will monitor the project progress and performance through the QPRs and PPMS. ADB will also field regular review missions, bi-annually, to monitor the progress. The QPRs will provide information to regularly update ADB's project performance reporting system.<sup>28</sup>

66. **Compliance monitoring.** The loan covenants on policy, legal, financial, economic, environmental, labor standards, and others will be monitored regularly through QPRs, bi-annual and annual reports and discussions during missions.

67. **Safeguard monitoring.** The EA will integrate status of LARP and SSEMP in each QPR. QPRs, bi-annual internal and external monitoring reports ADB review missions will provide comprehensive progress and status of the safeguards implementation.

68. **Gender and social dimension monitoring.** EA's QPR and special monitoring reports (twice a year) and ADB's review missions will monitor the implementation progress. The EA will include GAP implementation progress matrix in the QPR.

## C. Evaluation

69. ADB will field an inception mission within 3 months after signing of the loan agreement for TPBIP. Review missions will be carried out on a semiannual basis jointly by representatives of ADB, Borrower, and the PID. The review missions will assess the status of the project implementation including procurement, civil works, and financing, compliance to environmental and social safeguards. A midterm review mission will be carried out 2 years after the loan becomes effective. The midterm review will evaluate compliance with the terms, conditions, and undertakings set out in the Loans and Project Agreements. The review will allow for any necessary midcourse corrections to ensure successful implementation and the achievement of the project objectives. Within 6 months of physical completion of the project, PID will submit a project completion report to ADB.<sup>29</sup>

## D. Reporting

70. PID will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions; (c) updated procurement plan and (d) updated

<sup>28</sup> ADB's project performance reporting system is available at:  
<http://www.adb.org/Documents/Slideshows/PPMS/default.asp?p=evaltool>.

<sup>29</sup> Project completion report format available at: <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>

implementation plan for next 12 months; and (iii) a project completion report within 6 months of physical completion of the project. To ensure that project continues to be both viable and sustainable, project accounts and the executing agency, together with the associated auditor's report, should be adequately reviewed.

### E. Stakeholder Communication Strategy

71. The project implementation process will be transparent to civil society organizations. For land acquisition and resettlement, transparent indicators will include (i) the payment process of entitlements; (ii) the duration between compensation payments; and (iii) the period for vacating the impact zone being at least 3 months. Publically disclosed six-monthly external monitoring reports will serve as a detailed source of information on implementation. Qualified local NGOs could bid on the contract for the external monitoring agency. Civil society organizations will participate in the process of provision of health and education facilities as provided by the project. The Pakistan Worker Foundation (for labor standards) and Punjab Law Department (for contractor standards) will be informed through monitoring by the Engineer and reporting through EA quarterly reports.

72. The following documents will be disclosed.

Project Documents	Means of Communication	Responsible Party	Frequency	Audience(s)
Project Information Document (PID)	ADB's website	ADB	initial PID no later than 30 calendar days of approval of the loan; quarterly afterwards	General Public
Design and Monitoring Framework (DMF)	ADB's website	ADB	draft DMF after fact-finding mission	Project-affected people
Initial Environmental Examination (IEE)	ADB's website	ADB	at least 120 days before Management consideration	General Public, project-affected people in particular
Resettlement Planning Documents	ADB's website	ADB	post fact-finding mission	General Public, project-affected people in particular
Indigenous Peoples Planning Documents	ADB's website	ADB	post fact-finding mission	General Public, project-affected people in particular
Legal Agreements	ADB's website	ADB	no later than 14 days of Management approval of the project	General Public
Project Administration Manual	ADB's website	ADB	After loan negotiations	General Public
Social and Environmental Monitoring Reports	ADB's website	ADB	routinely disclosed, no specific requirements	General Public, project-affected people in particular
Major Change in Scope	ADB's website	ADB	within 2 weeks of approval of the change	General Public

Project Documents	Means of Communication	Responsible Party	Frequency	Audience(s)
Completion Report	ADB's website	ADB	within 2 weeks of circulation to the Board for information routinely disclosed, no specific requirements	General Public
Evaluation Reports	ADB's website	ADB		General Public

## F. Assurances

73. In addition to the standard covenants, the Governments of Pakistan and Punjab have given the following assurances, which will be incorporated as appropriate in the legal documents for the project.

74. **Safeguards.** The Government of Punjab will ensure that the project is implemented in full compliance with (i) all applicable laws and regulations of the Government of Pakistan and the Government of Punjab, and ADB's SPS (2009), (ii) respective resettlement plans, initial environmental examination reports, and environmental management plans.

75. **Land Acquisition and Resettlement.** PID will ensure that land acquisition and resettlement proceed in accordance with applicable laws, and ADB's SPS (2009) on involuntary resettlement, as well as in accordance with the resettlement plans. PID will (i) disclose subproject resettlement plans to APs in a form and language easily comprehensible to APs prior to submission to ADB for review and approval before award of related civil works contracts or a similar milestone; (ii) monitor and submit the quarterly progress and completion reports on land acquisition and resettlement; (iii) appoint a qualified external expert prior to commencement of land acquisition and resettlement activities; and (iv) ensure that reports are simultaneously submitted to Punjab and ADB. PID will ensure that the LARP is fully implemented prior to the commencement of civil works.

76. PID will ensure that (i) compensation for land and structures will be provided to APs in full at replacement value including financial assistance/grants, if any, prior to taking possession of their assets; and that essential public infrastructure affected by land acquisition and resettlement are replaced appropriately and expeditiously; (ii) acquire or make available on a timely basis (i.e., strictly in accordance with the schedule as agreed under the related civil works contract) the land and rights in land, free from any encumbrances; and (iii) clear the utilities, trees, and any other obstruction from such land, on a timely basis (i.e., strictly in accordance with the schedule as agreed under the related civil works contracts), as required for construction activities relating to each section of the related civil works contract under the project.

77. **Environment.** PID will prepare and implement the SSEMP as described in IEE in accordance with the Government of Punjab Laws and ADB's SPS (2009). PID will obtain all necessary national and provincial statutory clearances (i.e., environmental, forest clearance etc.) prior to commencing any civil work. PID shall ensure that all conditions attached to these clearances are implemented and monitored. PID will report to ADB any change of the alignment or "as change" in a project component that occurs after the approval of IEE report by ADB. ADB's prior approval will be required before putting into effect any such changes, where in the opinion of ADB, additional environmental assessment is required. PID will submit a semiannual report on implementation of the SSEMP as part of the progress reports on the project implementation. PID will provide the contractors with the environmental assessment study

reports including the IEEs and EMPs, and ensure that the contractors properly prepare and implement the mitigation measures and SSEMP.

**78. HIV/AIDS and Human Trafficking.** PID will ensure that civil works contracts under all the subprojects incorporate provisions requiring contractors to (i) carry out HIV/AIDS and women/children trafficking awareness and prevention programs for laborers; and (ii) follow and implement legally mandated provisions on labor (including equal pay for equal work), health, safety, sanitation, and working conditions. PID will engage qualified locally based consultants under construction supervision contracts to carry out the HIV/AIDS prevention and anti-trafficking component as agreed with ADB. PMO will supervise the consultants and work closely with Pakistan's National AIDS Control Program and other networks dedicated to preventing sexually transmitted infections, HIV/AIDS, and women/children trafficking; and to the empowerment of women and children.

**79. Investment Program Management.** The Government will cause PID to consult with ADB on all significant matters relating to management and implementation of the TPBIP to ensure continuity, transparency, efficiency, and good management. All matters relating to selection or appointment, or any changes to such selection or appointment, of any project director or deputy project director, will be duly notified to ADB along with the qualifications of the incumbents and the departing officers and reasons for such changes. The appointment of a project director or deputy project director cannot be terminated or terms of such appointment altered in any material way until the third anniversary of such appointment unless a determination of gross dereliction of duty or such other serious misconduct is made through due process.

**80. Counterpart funding and progress payment.** Government of Punjab will ensure that the counterpart funds are available and released on time to implement the project. The Government of Punjab will annually update its irrigation sector development program to incorporate revised estimates of the funding requirements for the subprojects financed under TPBIP. PID will ensure the timely certification and release of payment to the contractor/consultants during implementation as per the provisions of the respective contracts.

**81. Policy Dialogue.** Government of Punjab will keep ADB informed of, and exchange views on, sector issues, policy reform discussions with other multilateral or bilateral agencies that may have implications for implementation of the project. The Government of Punjab will provide ADB with an opportunity to comment on any resulting policy proposals. The Government of Punjab will submit to ADB its annually updated irrigation sector development program.

**82. Operation and Management (O&M).** The Government of Punjab will ensure that adequate funds are allocated in its annual budgets and made available throughout the project period for the O&M of the existing structures and TPBIP thereon after its construction. The Government of Punjab will ensure that Strategic guidelines for robust O&M for barrages are available by April 2018 and implemented by June 2020. The Government of Punjab will ensure a 5-year (i) periodic inspection of each barrage by an independent panel of experts; (ii) special maintenance such as sediment removal; and (iii) allocation of funds associated to special inspection and maintenance requirements. PID will arrange one such inspection during construction of these barrages. PID will also ensure and hydraulic removal of sediment through gates operation during floods.

83. **Labor Laws.** The Government will cause PID to ensure that the civil works contractors comply with all applicable labor laws and regulations and do not employ or use children as laborers. The Government will cause PID to encourage civil works contractors to hire women and minorities. The Government will ensure that PID provides equal opportunity for women in the project activities, as well as requires contractors to not differentiate wages between men and women for work of equal value. The Government, through PID, will ensure that a specific clause to this effect is included in all relevant bidding documents, and compliance is strictly monitored and documented during Investment Program implementation.

84. **Midterm Reviews.** A comprehensive midterm review, the timing to be determined in agreement with ADB and PID, will be undertaken jointly by ADB and PID to review all aspects of project implementation, including procurement financing and scheduling matters. Changes in project scope or implementation arrangements conducive to improved project performance will be identified and agreed on if appropriate.

85. **Good Governance, Performance Audit and Anticorruption.** The Government of Punjab will ensure that (i) relevant provisions of ADB's *Anticorruption Policy* (1998, as amended to date) are included in all bidding documents for the project; and (ii) all contracts financed by ADB in connection with the project include provisions specifying the right of ADB to audit and examine the records and accounts of PMO (Barrages); PID; and all contractors, suppliers, consultants, and other service providers as they relate to the project. All procurement activities will be subject to an independent performance audit by an independent auditor appointed by the Government of Punjab and acceptable to ADB. The performance audit will be performed at least twice during the project implementation. The auditor will also perform random or spot checks for contract implementation activities under the project's contracts. All external costs related to such investigations will be borne by the applicable project. Punjab will ensure updating the project information on the PID/PMO's already established website periodically that will present physical and financial progress and procurement/contract related information.

## X. ANTICORRUPTION POLICY

86. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project.<sup>30</sup> All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all project contractors, suppliers, consultants and other service providers. Individuals/entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.<sup>31</sup>

87. To support these efforts, relevant provisions are included in the Loan Agreement regulations and the bidding documents for the project. The Government will comply with, and will ensure that PID complies with, ADB's Anticorruption Policy (1998, as amended to date). The Government, consistent with its commitment to good governance, accountability and transparency, agrees (a) that ADB has the right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive or coercive practices relating to the project; and (b) to cooperate fully with any such investigation and to extend all necessary assistance, including providing access to all relevant books and records, as may be necessary for the satisfactory completion of any such investigation. In addition, the Government will (a) conduct periodic inspections on the contractors' activities related to fund withdrawals and settlements; (b) ensure

<sup>30</sup> Available at: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>.

<sup>31</sup> ADB's Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>

that all contracts financed by ADB in connection with the project include provisions specifying the right of ADB to audit and examine the records and accounts of all contractors, suppliers, consultants, and other service providers as they relate to the project; and (c) the construction supervision consultant shall verify the contractors' invoices in accordance with working drawings and contract specifications.

## **XI. ACCOUNTABILITY MECHANISM**

88. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make a good faith effort to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.<sup>32</sup>

## **XII. RECORD OF PAM CHANGES**

89. All revisions/updates during course of implementation should be retained in this section to provide a chronological history of changes to implemented arrangements recorded in the PAM.<sup>33</sup>

**Table 5. Sample Table for Recording PAM Changes**

<b>PAM Version</b>	<b>Created Date</b>	<b>Revision Date</b>	<b>Reasons of Change</b>	<b>Main Contents of Change</b>
V1.0	Sep 2014	NA	Initial	NA

<sup>32</sup> For further information see: <http://www.adb.org/Accountability-Mechanism/default.asp>

<sup>33</sup> The Punjab Government and ADB shall ensure that changes to the PAM during Investment Program implementation must be consistent with the FFA and applicable loan agreements.



## OUTLINE TERMS OF REFERENCE OF CONSTRUCTION SUPERVISION CONSULTANT

### I. BACKGROUND

1. Trimmu barrage, commissioned in 1939 is located downstream of the confluence of Jhelum and Chenab Rivers. The barrage was designed to pass a maximum flood discharge of 18,264 m<sup>3</sup>/s (645,000 cusecs). The safe discharging capacity is reduced to 12,743 m<sup>3</sup>/s (450,000 cusecs) due to the formation of a bela upstream of the barrage, whereas hydrologic studies indicate that the Barrage should be upgraded for a flood of 24,788 m<sup>3</sup>/s (875,000 cusecs). Panjnad barrage across river Chenab downstream of its confluence point of River Sutlej has a design discharge of 19,822 m<sup>3</sup>/s (700,000 cusecs). Hydrologic studies indicate that the barrage should be upgraded for a flood of 24,495 m<sup>3</sup>/s (865,000 cusecs). The overall CCA of the canals command by the two barrages is 1.82 million ha, which is about 22.2 % of the total CCA of the Punjab and about 11.88 % of the entire CCA of the country.

2. Three canals, with total withdrawal capacity of 577.1 m<sup>3</sup>/s (20,380 cusecs) off take from the Trimmu barrage. Haveli Canal and Trimmu-Sidhnai (T.S.) Link Canal off take from its left flank having design discharge capacity of 146.4 cms (5,170 cusec) and 354 cms (12,500 cusec) respectively whereas the Rangpur Canal which off takes from the right bank has a design capacity of 76.7 cms (2,710 cusec). Haveli Canal irrigates 275,190 ha (679,985 acres) in Jhang and Multan districts, whereas, Rangpur Canal feeds 132,600 ha (327,650 acres) in Jhang and Muzaffargarh Districts. Water transferred to Ravi River through T.S. Link is then diverted into Sidhnai-Mailsi (S.M.) Link to serve about 677,015 ha (1.672 million acres), in Vehari, Lodhran and Bahawalpur Districts. The overall CCA of the Trimmu barrage Command Canals is 1.085 M. ha (2.68 million acres) that is 13.19% of the total CCA (20.31 million acres) of the Punjab.

3. Panjnad barrage was constructed during the period 1925-1929 with design discharge of 12,743 m<sup>3</sup>/s (450,000 cusec) and upstream HFL RL 104.09 m (341.5 ft), to irrigate 741,613 ha (1.8325 million acres) area of Bahawalpur and Rahimyar Khan districts by diverting 336.5 m<sup>3</sup>/s (11,882 cusec) through Panjnad and Abbasia canals. The barrage was having 4 bays as left pocket and 29 bays as the main weir with total clear water way of 603.5 m (1980 ft.). In September 1929, flood of 15,574 m<sup>3</sup>/s (550,000 cusec) was received at the barrage site and the Islam enquiry committee recommended raising its design discharge capacity to 19,822 m<sup>3</sup>/s (700,000 cusec). Accordingly the already constructed right guide bank was dismantled and an annexed weir comprising 14 bays (bays no. 34 to 47) was constructed, raising its capacity to 19,822 m<sup>3</sup>/s (700,000 cusec) with the same HFL, crest RL and pond level. The barrage was re-commissioned in the year 1932. Hydrologic studies indicate that the Barrage should now be capable to pass a 100 year return period flood of 24,495 m<sup>3</sup>/s (865,000 cusecs).

4. Three canals, with total withdrawal capacity of 408.7 m<sup>3</sup>/s (14,433 cusecs) off take from the Panjnad barrage. Panjnad Canal with a capacity of 220 m<sup>3</sup>/s (7769 cusecs) and Abbasia Canal with a capacity of 30.1 m<sup>3</sup>/s (1,064 cusecs) were constructed initially. In 1992, Abbasia link canal was constructed, adjoining Abbasia canal, with the discharge capacity of 158.6 m<sup>3</sup>/s (5600 cusec). The canal system irrigates 655,614 ha of land in Bahawalpur and Rahimyar Khan Districts with a population of 7.55 million.

## II. OBJECTIVES OF THE ASSIGNMENT

5. The Trimmu and Panjnad Barrages Improvement Project (TPBIP) seeks to rehabilitate and upgrade two major barrages; (i) Trimmu barrage; and (ii) Panjnad barrage on the Chenab River.<sup>34</sup> The major interventions involve increasing the safe carrying capacity of the two barrages and improvements to the structures and gates etc. The works will be implemented through two ICB-Contracts (one each for Trimmu barrage and Panjnad barrage) in an orderly manner with a high standard of workmanship and specified quality of materials within the stipulated construction period and in conformity with the approved drawings, specifications & contract management as per Multilateral Development Bank Harmonized Edition of FIDIC General Conditions of Contract for Construction, acceptable environmental standards and in accordance with the Client's requirements. The estimated construction time for Trimmu and Panjnad barrages is forty eight (48) months and forty two (42) months respectively including twelve (12) months of Defects Notification Period (DNP). The estimated duration of consultancy services is fifty one (51) months, including twelve (12) months of maintenance period during which the consultants shall maintain minimum staff to perform the required tasks of finalizing the contracts. In order to complete the start-up project review activities well in time, the consultants will be installed about six (06) months ahead of the planned mobilization of work contractors. The consultants will require three teams: one at Lahore, other at Trimmu barrage to supervise the barrage contract and another one at Panjnad barrage to supervise its contract. The consultancy assignment envisages time input of 671 person-months of key-experts (32 person-months of international experts and 639 person-months of national experts). It also includes time input of 542 person-months of the non-key experts.

### 6. Rehabilitation and Upgrading of Trimmu Barrage

Following works are proposed at Trimmu barrage.

- (i) Enhancing the existing flood discharge capacity of Trimmu barrage to 24.788 m<sup>3</sup>/s (875,000 cusec) for passing 100-year return period flood discharge determined through hydrological analysis.
- (ii) Rehabilitation and upgrading of the existing barrage and its ancillary works, enabling them to perform their designed functions and to ensure improved and reliable irrigation supplies.
- (iii) Partial removal of shoal (Bela).
- (iv) Improved capacity of the farmers and EA's staff.

### 7. Rehabilitation and Upgrading of Panjnad Barrage:

Following works are proposed at Panjnad barrage.

- (i) Enhancing the existing flood discharge capacity of Panjnad barrage to 24,495 m<sup>3</sup>/s (865,000 cusec) for passing 100-year return period flood discharge determined through hydrological analysis.
- (ii) Rehabilitation and upgrading of the existing barrage and its ancillary works, enabling them to perform their designed functions and to ensure improved and reliable irrigation supplies.
- (iii) Improved capacity of the farmers and EA's staff.

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<sup>34</sup> Feasibility study and Tender documents for the project have been prepared under PIAP (Loan PAK 2300).

8. The consultants selected for supervision of construction on the Trimmu and Panjnad Barrages Improvement Project (TPBIP) will be responsible for:

- a) Carrying out all required surveys and investigations, if needed, reviewing the detailed design of all required civil, mechanical and electrical works and updating the design as required based on newly generated information;
- b) Contract procurement<sup>35</sup> and contract management of the civil, mechanical and electrical works contract for both the barrage and the associated head regulators and river training works; and
- c) Provision, of all necessary working drawings, ensuring quality of construction and strict compliance with the resettlement plan, and implementation of, and compliance with the site specific environmental management plan (SSEMP), specifications and measurement and certification of work completed facilitating contractor progress payments.

### III. SCOPE OF WORK

9. The scope of services for the consulting services will include but is not limited to:

#### A. General Scope

- (i) Review and up-date the Contractor's programme for the implementation of the various phases of the project and revise critical path analysis, if necessary.
- (ii) Assist PMO in maintaining detailed financial accounts and other project records, and prepare other documentation as may be required by the PID/ PMO or ADB;
- (iii) Review and oversee preparation of site specific environmental management plan (SSEMP) based on the EMP in the bidding documents, review and supervise implementation of the environmental mitigation measures and monitoring plan in line with ADB's safeguard policy statement (2009);
- (iv) Assist PMO in revising and updating SSEMP, EMP & IEE/EIA reports and the draft Resettlement Plan prepared during detailed design, if necessary;
- (v) Prepare rules for optimal sediment sluicing through the two barrages, as well as rules for both flood management and normal barrage operations and incorporate all into a detailed operation manual for each Barrage;
- (vi) Assist PMO in preparing Environment Health Safety Plan, Change Management Statement if required, Gender Action Plan (GAP) and Resettlement Plans (RPs) for all locations where project civil works will involve land acquisition and/or livelihood disruption on Rights of Way;
- (vii) Keep the Employer informed of technical and Environment/Social issues and the progress of all contractual works both by direct contacts and through discussions or correspondence;

<sup>35</sup> The Consultants, according to the recruitment schedule and the procurement schedule for the main works contract may well arrive late in time to support PMO in the evaluation of bids and award of contract.

- (viii) Support PMO in monitoring and carrying out activities related to implementation of Environmental Management, GAP and resettlement plans in line with relevant ADB guidelines. In this respect the consultant will ensure that all project components designed and supervised by the Consultants are implemented in an environmentally friendly manner and where necessary adequate mitigation measures are taken;
- (ix) Assist PMO/ EA in implementation of resettlement plan;
- (x) Scrutinize and approve the Contractor's staff and labour proposals and work programme;
- (xi) Provide technical support to PMO as required specially in submitting with-draw application to ADB for direct payment of the contractor;
- (xii) Prepare responses to audit observations and paras in respect of the payments certified by them and assist the Employer in getting them resolved during and after completion of the project;
- (xiii) Prepare detailed implementation plans preferably using modern software such as Primavera (P6) or equivalent for monitoring the project activities and generating progress reports using 'earned value' criteria. This shall provide a baseline for all subsequent plan amendments, if needed;
- (xiv) Carry out evaluation of bids, make recommendations and prepare all relevant documents for award of contracts;
- (xv) Prepare monthly and quarterly progress reports from the quality control and quantity survey and measurement, using the latest software acceptable to the Employer;
- (xvi) Prepare a comprehensive construction completion report on completion of the contract, inclusive of as-built drawings based on the "as constructed" drawings, prepared by the Contractor, as appropriate;
- (xvii) Assist the Employer in taking over the contract works and prepare list of items of work to be completed by the Contractor during defects notification period (DNP);also prepare inventory of buildings installation and plants etc.;
- (xviii) Attend project level meetings, all Steering Committee meetings and meetings with ADB missions as required;
- (xix) Provide necessary support to the Panel of Experts (POE) for review of the project design and on-construction related issues;
- (xx) Assist PMO/ EA in commissioning of both the sub projects; and
- (xxi) Assist PMO/ EA during the Defect Notification Period as Engineer and ensure that all defects are satisfactorily removed;

## **B. Specific Scope**

### **1. Contract and Construction Management**

- (i) Undertake full administration of the construction contract and supervise construction works (including civil, electrical & mechanical works) assuming the role of “the Engineer” and undertake all tasks as per Multilateral Development Bank Harmonized Edition of FIDIC General Conditions of Contract for Construction. This shall include on-site supervision of the contractors’ work for compliance with the specifications, review of Contractor’s submittals, verification of progress, preparation of interim payment requests; certificates and checking and approving the quality assurance procedures produced by the contractors;
- (ii) Oversee and supervise construction of works ensuring compliance to detail provided in the construction drawings and strict adherence to construction specifications;
- (iii) Review/ confirm/ recommend appropriate changes to the construction schedule of the contractor keeping in view river flows and seasonal changes. Monitor and update the contractor’s program at regular intervals and revise critical path analysis, if necessary;
- (iv) Put in place a comprehensive quality control program including detailed methodology for inspection, sampling and testing and confirm its adequacy in the field and ensure that its employment is satisfactorily carried out;
- (v) Establish a comprehensive program for quality control, surveying and measurement and ensure its implementation throughout the contract period;
- (vi) Inspect and witness tests when necessary during manufacture of electrical and mechanical materials and machinery for compliance with specifications. The cost of such tests shall be recoverable from the works contracts;
- (vii) Witness any acceptance test and advise the Employer whether the works or any part thereof have been completed as per specifications and certify outcome of acceptance test in support of provisional acceptance certificate of completion;
- (viii) Carry out measurements & verification of works and agreement of quantities with the contractor (s) and give recommendations. Prepare instructions of permissible variations to the works for approval by the Employer;
- (ix) Check the contractor’s claims for additional payment as per conditions of contract and advise the Employer accordingly;
- (x) Prepare all the supporting documents and provide legal and contract-related support to the Employer for contractual disputes and legal actions, adjudication or arbitration between the Employer and the Contractor and attend court/hearing, if required;
- (xi) Verify contractors requests for progress payments on the basis of quality control and quantity survey and measurement data ensuring that quantitative progress reporting is adequate to support the contractors requests for progress payments;
- (xii) Conduct dispute resolution, as per provisions in the conditions of contract;

- (xiii) As instructed by the client, supervising engineering or other studies associated with the project and its components, undertaken by the contractor or any other agency as appointed by the Client;
- (xiv) Testing of material at site, off-site testing and inspection of goods and materials in factory, if needed;
- (xv) Review design calculations and shop drawings submitted by the contractors on all M&E works and approve or amend the same in consultation with the client;
- (xvi) Supervise the repairs, replacement and installation of mechanical and electrical equipment in a satisfactory and safe manner in accordance with the specifications and contract requirements;
- (xvii) Testing and commissioning of M&E equipment in association with the client;

## **2. Review of Designs, Estimates and Drawings**

- (i) Checking and ensuring the adequacy of the hydraulic/ structural/ electrical and geotechnical design criteria and making modifications where necessary;
- (ii) Review and in consultation with PMO, update the recommendations of the Design Consultants as deemed appropriate. Detailed designs were prepared by the Consultant in 2013, which have formed the basis for tendering. The Consultant will review these designs and where necessary revise or elaborate to incorporate any newly introduced operational procedures, changes;
- (iii) Analyze design options for all facets of the Barrage and appurtenant structures as well as proposed construction programs with a view to cost effective construction, including but not limited to structural design of all Barrage components and hydraulic optimization of the structure taking account of the river regime and the frequency of discharges of varying magnitude;
- (iv) Prepare agreed amendments to the detailed design, and all required construction (working) drawings, for all aspects of the construction works; The Consultants shall amplify where necessary the contract drawings and specifications by preparing working drawings, which shall be in sufficient detail to enable the appointed contractors to construct the civil, mechanical and electrical works. Working drawings shall be prepared to normal international standards and completed and issued to the contractors in accordance with the agreed program. The Consultant shall also check and approve all designs and working drawings prepared by the Contractor;
- (v) The consultant shall prepare 3D view and exploded 3D of the barrage and allied works with normal view, so that each component can be fully viewed in 3D;
- (vi) Review the results of the hydraulic model tests carried out earlier, following design as a basis on which to specify necessary design modifications, particularly with respect to height and alignment of guide and marginal bunds;
- (vii) Assess the morphological changes and river behavior at project sites using numerical modeling and check adequacy of proposed design and ensure that the designs remain compatible with river conditions;

- (viii) Prepare detailed design report by way of updating the tender level design report for the project giving in sufficient details, the additional investigations carried out, additional design analyses, applied results of significant additional computation besides basic points;
- (ix) Prepare and Supply ten (10) copies of above Design Report as well as one (1) soft copy to the client for record and future references;
- (x) Incorporate changes in the design/ drawings as and when required by the client;
- (xi) Review and either confirm or recommend appropriate changes to the construction schedule which is dependent on the seasonal distribution of flow in the Chenab River;
- (xii) Oversee and supervise construction of works ensuring compliance to detail provided in the construction drawings and strict adherence to construction specifications;
- (xiii) Prepare/ revise Engineer's Estimate and PC-1 for approval as and when required;

### **3. Surveys and Investigations**

- (i) Plan and execute additional surveys, geotechnical investigations and other such activities where necessary to provide a basis for both design modifications and subsequent preparation of construction drawings. The consultants with prior approval of the client shall hire the services of such other agencies responsible for carrying out the aforesaid surveys, investigations and model studies etc.

## **IV. REPORTS AND DOCUMENTS**

1. **Reporting Requirements:** The consultants will have a dual reporting function to the Executing Agency (EA) and ADB. The consultants will prepare the following reports in English with Arial font (12 for headings and 11 for body text). The tables should use 10 Arial. The consultant will submit TOC for each report for prior approval of the client. The consultant will provide these reports as per agreed program given below.
  - i) **Monthly Progress Reports:** Monthly Progress Reports shall be presented on regular basis. The report shall indicate progress in the execution of the works required under the consultancy assignment. The progress reports shall detail progress under each of the civil works contracts. The issues that may hinder implementation as planned shall be flagged in these reports along with the suggested solutions.
  - ii) **Quality Assurance Plan (QA/QC Manual:** QA/QC Manual shall be presented by the consultants before start of construction works. The plan shall include comprehensive quality control program including detailed methodology for inspection, sampling and testing and confirm its adequacy in the field.
  - iii) **Resettlement Plans:** The project is "Category A" under ADB's resettlement guidelines meaning that there may likely be serious impacts due to the project. The ADB and Government of Punjab have agreed to the following principles with regard to resettlement under the project (i) the approach to resettlement under the project should be not to remove all persons who have encroached on the right of way(s), but to move

only those persons who will be directly affected, (ii) design have been drafted with the objective of minimizing resettlement activities, and (iii) contract packages and execution of civil works have been directed to minimize resettlement activities. The Consultants would assist PMO in updating the Land acquisition and resettlement plan (LARP) and assist PMO in preparing LARP to meet ADB requirements for any other area affecting more than 200 persons.

- iv) **Detailed Design Report:** Both the draft and final version of Detailed Design Report shall be prepared separately. The Report shall consist of detailed design after incorporating the agreed amendments in the already prepared design by the design consultants.
- v) **Quality Control and Assurance Report:** The Quality Control and Assurance Report shall consist of periodic inspections, results of testing, sampling etc. which were done to ensure the quality assurance of works.
- vi) **Quarterly Financial Reviews:** Quarterly Financial Review shall be prepared and submitted on regular basis. The Reviews shall indicate the revised cost estimates for each component of the project compared with the original budgetary provisions and recommendations for action needed to control expenditure or seek additional funding, if required.
- vii) **M&E Strategy Report:** The M&E Strategy Report shall dwell upon identification of indicators and survey methodology.
- viii) **PPMS Baseline (Baseline/ Benchmark) Report:** The baseline information report should be based on DMF requirements of inputs, outputs, outcome and impacts and provide clear baseline indicators/ software modules for future comparison.
- ix) **Midterm Evaluation Report:** The Midterm Evaluation Report shall consist of (i) impact assessment of project activities; and (ii) organized monitoring database.
- x) **Project Completion Report:** Both the draft and final version of the Project Completion Report shall be prepared for each barrage separately. The report shall describe the civil works and operational procedures, highlighting any specific requirements, list any major problems encountered and detail what action was taken, review the training needs for the operating staff and give appropriate recommendations and, summarize the final quantities and financial statement. It shall also give a resume of (i) project implementation experience (ii) suggestions for improvement, sustainability and exit strategy; and (iii) impact assessment. The PCR shall include as-built drawings based on the “as constructed” drawings, prepared by the Contractor.
- xi) **Operation and Maintenance Manual:** Both the draft and final version of O&M Manual shall be prepared for each barrage separately. The O&M Manual shall give the nature of periodic inspections to be made, physical interventions to be made by way of preventive and curative maintenance to be carried out every year, data to be collected and records maintained. The O&M procedures should be detailed and those should be do-able to maintain integrity of the structures for their design life. Resultantly, yard sticks (both physical and financial) for the maintenance intervention works need to be prepared to facilitate planning of the O&M activities every year.



xii) **Minimizing Environmental impact and implementation of the Environmental Management Plan:** An initial environmental examination (IEE) has been conducted as the project is category “B” for the environment. The IEE indicates that no significant adverse environmental impacts will be caused by the project, and the project should actually result in improved environmental conditions. The Consultants selected under these Terms of Reference shall ensure that for all project components for which they are responsible for supervision that they fully comply with the environmental management plan and the SEMP and that they follow the IEE recommendations. Also report progress on the EMP regularly in the progress reports. Review the bi-annual environmental monitoring reports for accuracy based on the contractor’s monthly reports.

2. **Deliverables:** The schedule for various reports and documents that are likely to prepare is given below. Additional reports shall be prepared as required. The consultants will supply the deliverables as per schedule given below with respective soft copy:

Report	No. of Copies	Submission deadline
Draft Inception Report	5	45 days after the effectiveness of Consulting Services Agreement
Final Inception Report	10	One week after the review of Draft Inception Report by the Client
Monthly Progress Report	10	10 <sup>th</sup> . of the following month
Quality Assurance Plan (QA/QC Manual)	10	One month after the consultants mobilization and before start of construction
Draft Design Review Report	25	Two months after the consultants mobilization
Final Design Review Report	25	Two weeks after the review of Draft Design Review Report by the Client
M&E Strategy Report	10	Four months after the commencement of services
PPMS Baseline (Baseline/ Benchmark) Report	10	Six months after the commencement of services
Draft O&M Manual	15	Two years after the construction starts
Final Modified O&M Manual	15	One month after the review of Draft O&M Manual by the Client, but before substantial completion of works
Quarterly Financial Reviews	25	10 <sup>th</sup> of the following quarter
Measurement Register/ Record in support of IPC's as per agreed methodology	2	With each relevant contractor's verified monthly statement
Quality Control and Assurance Report	10	One month after start of the following construction year
Mid-Term Evaluation Report	25	Mid-way of the project
Revised Planning Commission Proforma-I (PC-I)	50	As and when required
Draft Project Completion Report	25	Two months before the anticipated completion date of each sub-project
Final Project Completion Report	25	One month after the review of Draft Project Completion Report by the Client
Revised Planning Commission Proforma-I (PC-I)	50	As and when required
Planning Commission Proforma-IV (PC-IV)	50	At completion of works

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Complete Inventory of works/ structures completed/ tools & plants	10	At completion of the project
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## V. PROGRAM

10. The supervision consultants will act in the role of “Engineer” for the separate ICB contracts of the two barrages.

11. The Main ICB contract for Trimmu barrage will be implemented over a 48 months period. The Main ICB contract for Panjnad barrage will be implemented over a 42 months period. The Construction Supervision Consultants shall begin the works not later than one month after signing the Consulting Services Agreement. The Consultants should note that tenders for the project are likely to be awarded before the Construction Supervision Consultants mobilize. The first task of the Consultants will be to review the detailed designs and specifications in such a manner not to jeopardize the scheduled start of construction. Any changes required as a result of this review will be brought to the notice of the Employer and will be incorporated in the designs as necessary.

12. The proposed project implementation schedule is shown in the following chart.

## Implementation Schedule

Indicative Activities	2014			2015				2016				2017				2018				2019				2020			
	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
<b>A. DMF</b>																											
Output 1: Trimmu Barrage																											
1.1 Bidding and award of contract																											
1.2 Construction work																											
Output 2: Panjnad Barrage																											
2.1 Bidding and award of contract																											
2.2 Construction work																											
Output 3: Improved Capacity																											
3.1 Specialized training																											
3.2 Hands-on training																											
<b>B. Management Activities</b>																											
Recruitment of PMO staff																											
Recruitment of consultants																											
Implementation of LARP																											
Implementation of EMP																											
Development of PPMS																											

## VI. ORGANIZATION OF CONSULTANTS TEAMS

13. The Consultant will maintain three offices and three teams; design office at Lahore and one Field office each at Trimmu and Panjnad barrages. The Design Team and the Team leader/ Deputy Team leader will be based in Lahore and will spend time at Trimmu and Panjnad Barrages as required. The respective constructive supervision teams will be based at Trimmu and Panjnad barrages. The design office at Lahore will serve as principal Office during the Supervision Phase.

14. **Design Office:** the Consultants will establish the Design Office at Lahore. The cost of renting, furnishing, equipping and maintaining the office will be included in Consultants' financial proposal.

15. **Field Offices:** The supervisory team shall be adequately staffed, with materials testing facility, surveyors, site supervision team and administrative staff. The Consultants would be responsible for establishing, equipping and maintaining the Supervision Team's offices at Trimmu and Panjnad barrages. PID will provide unfurnished accommodation at Trimmu and Panjnad barrages for establishing the Field Offices (Section VIII refers). The cost of providing, equipping and maintaining the field offices shall be included in the proposal of the Consultants for inclusion in the Consulting Services Contract.

16. **Security Arrangements:** The Consultants should note that the security risks at Lahore, Trimmu and Panjnad are low to medium. The Consultants should review the security situation and identify any specific security requirements at Lahore, Trimmu and Panjnad as deemed necessary and include the details of security arrangements in their proposal. The cost of these arrangements should be included in the Financial Proposal.

## VII. INDICATIVE STAFFING REQUIREMENTS

17. The following is the Employer's indicative estimation of the composition of the Design and field teams for the project but the prospective consultants should propose their own breakdown of staffing and level of effort / staff work based on their own evaluation of the proposed services. The consultants should propose a realistic deployment schedule for all positions depending on work requirements as all positions listed below would have inputs for different durations.

18. About 671 person-months of key staff including (i) 32 international person-months and (ii) 639 national person-months (inclusive of 100 unallocated person-months) are to be provided by the consulting firm for supervision of construction of the project. The assignment further includes about 542 person-months of Non-key experts inclusive of 135 unallocated person-months. In addition, the Client will depute some staff of PMO on deputation to work with the Consultants for on job training in design review, procurement/ contract management and construction supervision. The seconded staff will work as Consultant's staff and will be paid the same pays and allowances as are paid to Consultant's national staff with similar qualifications and experience. Payment to the seconded staff will be made from the provisional sum in the consultancy contract. Failure of the Client to provide the seconded staff will not entitle the consultants to deploy additional staff.

### Indicative Staffing Requirements for Construction Supervision of TPBIP

Sr.	Position	Qualification	General/ Overall experience (Years)	Job Specific experience (Years)	Input in months of Experts	Allocation for Trimmu barrage or Panjnad barrage
<b>KEY STAFF</b>						
<b>Project Team at Lahore</b>						
<b>KEY EXPERTS (International)</b>						
1	Construction Management Specialist/ Team Leader	B.Sc. Civil Engineering and M.Sc. Construction Management or M.Sc. Civil Engineering	25	20 years work experience in designing, planning & construction supervision of large scale water resources/ irrigation structures on major river systems. Five years' specific experience in supervision of water resources projects (dams/ barrages) in Asia as Chief Engineer/ Team Leader. Also 2 years' experience of implementing, in a senior supervisory position, large water resources projects using ICB procedures under FIDIC Conditions of Contract for Construction.	24	Both
2	Contract/ Claims Specialist	B.Sc. Civil Engineering and preferably M.Sc. Construction Management	20	15 years' work experience in the procurement of civil works, contract management and processing of claims. Also 10 years' specific experience related to procurement under ADB/ World Bank Projects using ICB procedures under FIDIC Conditions of Contract for Construction.	2	Both
3	Electrical/ Instrumentation Specialist	B.Sc. Electrical Engineering and preferably M.Sc. Electrical/ Instrumentation	20	15 years' professional experience in design/ monitoring of instrumentation on hydraulic structures. Also 5 years' specific experience in similar position on dams/ barrages.	3	Both
4	Mechanical/ Gates Specialist	B.Sc. Mechanical Engineering or equivalent	20	15 years' work experience in design and installation of gates/ gearings on large water sector projects. Also 5 years' specific experience related to design and installation of gates & hoisting arrangements on dams/ barrages.	3	Both
<b>Sub-Total International Staff</b>					<b>32</b>	
<b>KEY EXPERTS (National)</b>						
<b>Headquarters</b>						

Sr.	Position	Qualification	General/ Overall experience (Years)	Job Specific experience (Years)	Input in months of Experts	Allocation for Trimmu barrage or Panjnad barrage
1	Contract & Claims Specialist/ Deputy Team Leader	B.Sc. Civil Engineering and preferably M.Sc. Construction Management.	20	15 years' work experience in the procurement of civil works and contract management. Also 5 years specific experience related to procurement under ADB/ World Bank Projects using ICB procedures under FIDIC Conditions of Contract for Construction.	48	Both
2	Planning & Scheduling/ Costing Engineer	B.Sc. Civil Engineering and preferably M.Sc. Hydraulics/ Construction Management	15	10 years work experience in planning & design of hydraulic structures and construction supervision of large scale water resources/ irrigation structures on major river systems. Also 5 years' specific experience in supervision of water resources projects (dams/ barrages).	40	Both
3	Structural Design Engineer	B.Sc. Civil Engineering and preferably M.Sc. Structural Engineering.	15	10 years professional experience in design of hydraulic structures. Also 5 years' specific experience in structural design of river control structures, bridges and other hydraulic structures on major rivers and large canals.	24	Both
4	Hydraulic Design Engineer	B.Sc. Civil Engineering and preferably M.Sc. water resources/ Hydraulics	15	10 years professional experience in design of civil works in major hydraulic projects. Also 5 years' specific experience in design of barrages/ head works and canal head regulators in South Asia.	24	Both
5	Electrical Design Engineer	B. Sc Electrical Engineering and preferably M.Sc. Electrical Engineering	15	10 years professional experience in motorized control on large construction projects. Also 5 years' specific experience in similar position on dams/ barrages hydraulic structures on major rivers.	12	Both
6	Mechanical Design Engineer	B. Sc. Mech. Engineering and preferably M.Sc. Mechanical Engineering	15	10 years work experience in design and installation of gates and hoisting arrangements for large hydraulic structures on major river. Also 5 years' specific experience in similar position on dams/ barrages.	12	Both
7	Monitoring and Evaluation Specialist	Master's degree in Economics/ Social Sciences or four year degree in related development professions like engineering.	20	10 years professional experience in developing and implementing monitoring and evaluation strategies & plans for large scale irrigation projects.	48	Both

Sr.	Position	Qualification	General/ Overall experience (Years)	Job Specific experience (Years)	Input in months of Experts	Allocation for Trimmu barrage or Panjnad barrage
8	Social Safeguards Specialist	Master's degree in Social Sciences	15	10 years professional experience in planning and implementing resettlement plans. Also 5 years' specific experience in similar position in irrigation infrastructure projects.	12	Both
9	Environmental Specialist	Master's degree in Environmental Sciences	15	10 years professional experience in conducting environmental screening/ assessment of major water resources projects. Also 5 years' specific experience in similar position on water resources projects in accordance with GoP and ADB's Environmental Guidelines.	12	Both
<b>Sub-Total at Headquarters</b>					<b>232</b>	
<b>Field Staff at Trimmu barrage</b>						
1	Chief Resident Engineer	B. Sc. Civil Engineering and preferably M.Sc. Construction Management	20	15 years' work experience in construction planning and supervision of large hydraulic structures on major rivers. Also 5 years' specific experience in similar position on dams/ barrages.	48	Trimmu
2	Resident Engineer (Civil)	B. Sc. Civil Engineering and preferably M.Sc. Construction Management	15	10 years' work experience in construction supervision of large hydraulic structures on major rivers. Also 4 years' specific experience in construction supervision on dams/ barrages.	48	Trimmu
3	Resident Engineer (Mechanical)	B. Sc. Mechanical Engineering and preferably M.Sc. Mechanical/ Hydro-Mechanical Engineering	15	10 years' work experience in design and installation of gates & hoisting arrangements for large hydraulic structures on major rivers. Also 4 years' specific experience in similar position on dams/ barrages.	12	Trimmu
4	Resident Engineer (Electrical)	B. Sc. Civil Engineering and preferably M.Sc. Civil Engineering	15	10 years' work experience in supervision of installation of motorized control and hoisting arrangements for large hydraulic structures on major rivers. Also 4 years' specific experience in similar position on dams/ barrages.	6	Trimmu
5	Material Engineer/ Quality Control Specialist)	B. Sc. Civil Engineering and preferably M.Sc. concrete structures/ Construction Management/ Geo-tech. Engg.	15	10 years' work experience in quality control on construction of large construction projects. Also 5 years' specific experience in similar position on dams/ barrages hydraulic structures on major rivers. He should be well versed with testing requirements for enforcing quality control on water resources projects.	27	Trimmu

Sr.	Position	Qualification	General/ Overall experience (Years)	Job Specific experience (Years)	Input in months of Experts	Allocation for Trimmu barrage or Panjnad barrage
6	Grouting/ Geo-tech Specialist	Geologist with Master's degree or B.Sc. Civil Engg with experience in Geotech Engg. A Master's degree or Ph.D in Civil Engg. with speciality in Foundations is preferable.	15	10 years specific experience related to design and supervision of grouting operations for hydraulic structures on major rivers.	10	Trimmu
7	Electrical/ Instrumentation Expert	B.Sc. Electrical Engineering and preferably M.Sc. Elec/ Instrumentation	15	10 years professional experience in design/ monitoring of instrumentation on large hydraulic structures. Also 5 years' specific experience in similar position on dams/ barrages.	10	Trimmu
<b>Sub-Total at Trimmu barrage</b>					<b>161</b>	
<b>Field Staff at Panjnad barrage</b>						
1	Chief Resident Engineer	B. Sc. Civil Engineering and preferably M.Sc. Construction Management	20	15 years' work experience in construction planning and supervision of large hydraulic structures on major rivers. Also 5 years' specific experience in similar position on dams/ barrages.	42	Panjnad
2	Resident Engineer (Civil)	B. Sc. Civil Engineering and preferably M.Sc. Construction Management	15	10 years' work experience in construction supervision of large hydraulic structures on major rivers. Also 4 years' specific experience in construction supervision on dams/ barrages.	42	Panjnad
3	Resident Engineer (Mechanical)	B. Sc. Mech. Engineering and preferably M.Sc. Mechanical/ Hydro- Mech. Engineering	15	10 years' work experience in design and installation of gates & hoisting arrangements for large hydraulic structures on major rivers. Also 4 years' specific experience in similar position on dams/ barrages.	12	Panjnad
4	Resident Engineer (Electrical)	B. Sc. Civil Engineering and preferably M.Sc. Civil Engineering	15	10 years' work experience in supervision of installation of motorized control and hoisting arrangements for large hydraulic structures on major rivers. Also 4 years' specific experience in similar position on dams/ barrages.	6	Panjnad



Sr.	Position	Qualification	General/ Overall experience (Years)	Job Specific experience (Years)	Input in months of Experts	Allocation for Trimmu barrage or Panjnad barrage
5	Material Engineer/ Quality Control Specialist)	B. Sc. Civil Engineering and preferably M.Sc. concrete structures/ Construction Management/ Geo-tech. Engg.	15	10 years' work experience in quality control on construction of large construction projects. Also 5 years' specific experience in similar position on dams/ barrages hydraulic structures on major rivers. He should be well versed with testing requirements for enforcing quality control on water resources projects.	24	Panjnad
6	Grouting/ Geo-tech Specialist	Master's degree in Geology or B.Sc. Civil Engg with experience in Geotech Engg. Master,s degree or PhD in Civil Engg. with speciality in Foundations is preferable.	15	10 years specific experience related to design and supervision of grouting operations for hydraulic structures on major rivers.	10	Panjnad
7	Electrical/ Instrumentation Expert	B.Sc Electrical Engineering and preferably M. Sc. Elec/ Instrumentatio n	15	10 years professional experience in design/ monitoring of instrumentation on large hydraulic structures. Also 5 years' specific experience in similar position on dams/ barrages.	10	Panjnad
<b>Sub-Total at Panjnad barrage</b>					<b>146</b>	
<b>TOTAL KEY STAFF</b>					<b>571</b>	
<b>NON - KEY STAFF</b>						
<b><u>Headquarters</u></b>						
1	Office Engineer	B.Sc. Civil Engineering	15	10 years work experience in implementation of civil works projects. Also 5 years' specific professional experience as Office Engineer on major water sector infrastructure projects.	40	Both
<b>Sub-Total</b>					<b>40</b>	
<b>Field staff at Trimmu barrage</b>						
1	Resettlement Expert	Master's degree in Sociology	15	10 years professional experience on resettlement/ social studies for large water sector projects. Also specific experience in similar position on at least 2 such projects funded by ADB/ World Bank.	9	Trimmu
2	Assistant Resident Engineer (Civil) (2 No.)	B.Sc. Civil Engineering	10	5 years professional experience in the construction supervision of large hydraulic structures on major rivers.	54	Trimmu

Sr.	Position	Qualification	General/ Overall experience (Years)	Job Specific experience (Years)	Input in months of Experts	Allocation for Trimmu barrage or Panjnad barrage
3	Assistant Resident Engineer (Mechanical)	B.Sc. Mechanical Engineering	10	5 years professional experience in design and installation of gates & hoisting arrangements on large hydraulic structures on major rivers.	24	
4	Assistant Resident Engineer (Electrical)	B.Sc. Electrical Engineering	10	5 years professional experience in installation of motorized control and hoisting arrangements on large hydraulic structures on major rivers.	16	
5	Junior Environmentalist	Graduation and preferably Master's degree in environmental Science	12	8 years professional experience in conducting environmental screening/ assessment of major water resources projects. Also 3 years' specific experience in similar position on water resources projects in accordance with GoP and ADB's Environmental Guidelines.	24	Trimmu
<b>Sub-Total</b>					<b>127</b>	
<b>Field staff at Panjnad barrage</b>						
1	Resettlement Expert	Master's degree in Sociology	15	10 years professional experience on resettlement/ social studies for large water sector projects. Also specific experience in similar position on at least 2 such projects funded by ADB/ World Bank.	6	Panjnad
2	Assistant Resident Engineer (Civil) (2 No.)	B.Sc. Civil Engineering	10	5 years professional experience in the construction supervision of large hydraulic structures on major rivers.	48	Panjnad
3	Assistant Resident Engineer (Mechanical)	B.Sc. Mechanical Engineering	10	5 years professional experience in design and installation of gates & hoisting arrangements on large hydraulic structures on major rivers.	20	
4	Assistant Resident Engineer (Electrical)	B.Sc. Electrical Engineering	10	5 years professional experience in installation of motorized control and hoisting arrangements on large hydraulic structures on major rivers.	12	
5	Junior Environmentalist	Master's degree in environmental Science	12	6 years professional experience in conducting environmental screening/ assessment of major water resources projects. Also 3 years' specific experience in similar position on water resources projects in accordance with GoP and ADB's Environmental Guidelines.	24	Panjnad
<b>Sub-Total</b>					<b>110</b>	

Sr.	Position	Qualification	General/ Overall experience (Years)	Job Specific experience (Years)	Input in months of Experts	Allocation for Trimmu barrage or Panjnad barrage
<b><u>PMO Support Staff</u></b>						
1	Senior Engineer Procurement/ Contracts	B.Sc. degree in Civil/ Mech. Engineering	15	10 years' work experience in the procurement of civil works and contract management. Also 5 years' specific experience related to procurement of works & consulting services under ADB/ World Bank/ JBIC funded projects with 2 years' experience in similar position on projects using ICB procedures under FIDIC Conditions of Contract for Construction.	30	Both
2	Senior Engineer Design/ Construction	B.Sc. Civil Engineering and preferably M.Sc. Hydraulics or Construction Management	15	10 years' work experience in the procurement of civil works and contract management. Also 3 years' specific experience related to procurement under ADB/ World Bank/ JBIC funded projects.	30	Both
3	Senior Engineer Mechanical	B.Sc. degree in Mechanical/ Elec. Engg.	15	10 years' work experience in design and installation of gates/ gearings and installation of motorized control/ hoisting arrangements respectively on large hydraulic structures on major rivers. Also 5 years' specific experience in similar position on dams/ barrages.	10	Both
4	Monitoring and Evaluation Expert	Master's degree in Economics/ Social Sciences OR Graduation in engineering discipline	15	7 years professional experience in developing and implementing monitoring and evaluation strategies & plans for large scale irrigation projects.	30	Both
5	Finance and Accounts Expert	Master's degree in Business Management (Finance), Accounting or other relevant fields.	15	10 years' experience in the management affairs and establishing & operating financial accounting systems for major infrastructure development projects undertaken by Government Agencies. Also 5 years specific experience in similar position on ADB/ World Bank/ JBIC funded projects.	30	Both
<b>Total PMO Support Staff</b>					<b>130</b>	
<b>TOTAL NON – KEY STAFF</b>					<b>407</b>	
<b>TOTAL PROFESSIONAL STAFF (Less Unallocated person-month)</b>					<b>978</b>	

**Notes:**

- (i) The total person-months requirement for professional staff is 1213 (Key Staff: 671 + Non-Key Staff: 542 = 1213 person-months). This includes 235 Unallocated person-months (Key Staff: 100 = Non-Key Staff: 135 = 235 person-months).
- (ii) The pool of unallocated professionals is kept to support the implementation of assignment components as and when required.
- (iii) The above positions do not include miscellaneous semi-technical input i.e., surveyors, draftsmen, auto-CAD operators, quantity surveyors, laboratory technicians and social enumerators, etc. who are used for costing purposes, but not included in summaries of man-months of Consultants input which refers only to professional man-months of input.

19. In the evaluation of the technical proposals the Key staff will be evaluated individually and the other technical support staff will be evaluated collectively for adequacy of the nominated staff and consultants' ability to provide all the required staff. The Consultants should submit CVs for all positions of Key staff. Any TBN position in the key staff will be marked zero. As the CVs of Key Staff will form the basis of technical evaluation, the Consultants should note that under normal circumstances, barring resignation or serious health problems/death of any of the nominated staff, no substitution of key staff will be allowed in the first year of the assignment.

**VIII. SERVICES AND OBLIGATIONS OF THE EMPLOYER**

20. The Employer shall make available to the Consultants at no charge the following facilities:

- (i) Access to all reports, studies, data, photographs, maps, and institutions relating to the works, access to all sites for surveys and investigations.
- (ii) Assistance to procure all necessary administrative documents including but not limited to visas, exchange control documentation, import licences, exemption certificates, work permits, driving licences, residents visas.
- (iii) Free unfurnished office accommodation for field offices for the supervisory teams at Trimmu and Panjnad barrages. The Consultants will provide all normal office furniture, computer equipment, printers, stationary, telephone/fax machine and air conditioners and office maintenance including the utilities. The cost of all agreed expenditure will be reimbursed under the Consulting Services Contract.
- (iv) Free unfurnished family accommodation in field offices for the Consultants' selected senior staff.
- (v) Free unfurnished bachelor accommodation commensurate with grade, at the field offices for the consultants. These facilities will be provided for under the civil works contracts.
- (vi) Free use of vehicles procured by the Consultants for official purposes and approved personal use, during the entire period of consultancy services.
- (vii) Permission to use facilities such as Guest Houses, payable at the official rates, will be granted where possible, to members of the Consultants' staff in connection with their official duties.

- (viii) The Client will depute some staff of PMO on deputation (seconded staff) to work with the Consultants for on-job training in design review, procurement/ contract management and construction supervision.

**Note:** Free unfurnished office or residential accommodations for field offices will be provided on availability by the client. The consultants will, however, arrange these facilities at their own during first eighteen (18) months of the assignment.

## **IX JOB DESCRIPTION AND QUALIFICATIONS OF CONSULTANTS' STAFF**

### **A. KEY STAFF**

**21. Construction Management Specialist/ Team Leader (International; 24 person-months):** Responsibilities of the Construction Management Specialist/ Team Leader will include but not limited to the following:

- (i) Assist PMO in implementation of the project.
- (ii) Assume full responsibility for the consultant's team and performance of services under the consultancy contract;
- (iii) Ensure that the consulting team undertakes comprehensive review of the detailed designs and specifications which were prepared by the design consultants in 2013;
- (iv) Ensure that the consulting team undertakes comprehensive construction supervision and contract administration of the civil works for the Trimmu and Panjnad Barrages Improvement Project, where the Consultants will act as "the Engineer" and undertake all tasks as defined under FIDIC General Conditions of Contract for Construction;
- (v) Oversee the consultants' teams activities ensuring compliance to detail provided in the construction drawings and strict adherence to construction specifications;
- (vi) Oversee quality control methodology put in place, confirming its adequacy and ensuring that its employment is satisfactorily carried out;
- (vii) Ensure that detailed and quantitative progress reporting adequate to support the contractors requests for progress payments are routinely prepared;
- (viii) Keep the Employer informed of technical issues and progress of all works both by informal and formal meetings and correspondence and assist in any project issue which the Employer may require;
- (ix) Take overall responsibility for preparation of the Operational Manual for the project, reviewing the draft in detail with PMO Barrages and PID prior to finalization and printing;
- (x) Participates in Dispute Board meetings to explain and discuss issues raised by the Contractor/Employer or DB;
- (xi) Assist the Employer in preparing responses to audit objections and quarries of the financiers or other Government Authorities;
- (xii) Coordinates with all related Employers organizations for project issues; and
- (xiii) At the end of the construction activities guide and ensure that the team prepares a comprehensive construction completion report, inclusive of as-built drawings as appropriate.

22. **Contract/ Claims Specialist (International; 2 person-months):** Responsibilities of the Contracts/claims Specialist will include but not limited to the following:

- (i) Supervise the work of national Contract & Claims Specialist
- (ii) Advise PMO on all contractual matters;
- (iii) Render necessary advice and assist the Team Leader/Deputy Team Leader in contract administration and procurement issues / assignments; and
- (iv) Analyse contractor's claims in consultation with the project team and give appropriate advice to PMO.

23. **Electrical/ Instrumentation Specialist (International, 3 person-months):** Responsibilities of the Instrumentation Engineer will include but not limited to the following:

- (i) Supervise the work of national Electrical/ Instrumentation experts;
- (ii) Review and update the complete electrical design & automation plans prepared by detailed design consultants and the Contractor and advises the Team Leader/Deputy Team Leader for necessary amendments where needed;
- (iii) Review the shop drawings for motorization of gates and other electronic works prepared by the Contractor and submit recommendations to the Team Leader/Deputy Team Leader;
- (iv) Review specifications and selection of Piezometers and related communication equipment up to central control;
- (v) Conduct a detail check of As-built Drawings of Motorization / Electronic / Electrical works prepared by the Contractor; and
- (vi) Participate in the preparation of O&M Manual for Motorization / Electronic / Electrical works and Instrumentation.

24. **Mechanical/ Gates Specialist (International; 3 person-months):** Responsibilities of the Mechanical/ Gates Specialist will include but not limited to the following:

- (i) Review the gate system design carried out by the detailed design consultants and suggest any improvements/changes required for proper functioning of gates;
- (ii) Prepare detailed instructions to be followed by the national mechanical engineer and the resident engineer (mechanical) and supervise the review of the design calculations and shop drawings prepared and submitted by the contractor;
- (iii) Pay periodical visits to site for overseeing the installation and testing processes and brief the Chief Resident Engineer and Resident Engineer (Mechanical);
- (iv) Review the testing standards, testing process and results and brief the Chief Resident Engineer and Resident Engineer (Mechanical) accordingly; and
- (v) Advise and render any relevant assistance that is required by the Team Leader;
- (vi) Contribute in preparation of Operation and Maintenance Manual for gates and hoisting arrangements.

25. **Contract & Claims Specialist/ Deputy Team Leader (National; 48 person-months):** Responsibilities of the Contract/ Claims Specialist will include but not limited to the following:

- (i) Act as Team Leader during the absence of Team Leader;

- (ii) Assist the Team leader in ensuring that the consulting team undertakes comprehensive review of designs and specifications and carries out construction supervision and contract administration of the civil works for the project assuming the role of “the Engineer” and undertake all tasks as defined under FIDIC General Conditions of Contract for Construction;
- (iii) Assist the team leader in overseeing the consultants’ teams activities ensuring compliance to detail provided in the construction drawings and strict adherence to construction specifications;
- (iv) Assist the Team Leader in overseeing quality control methodology put in place, confirming its adequacy and ensuring that its employment is satisfactorily carried out;
- (v) Render necessary advice and assist the Team leader and International Contracts/claims Specialist in contract administration and procurement issues / assignments/contractual claims;
- (vi) Assist the Team Leader in resolving any Contractual issue which the Team Leader may refer;
- (vii) Determines Extension of time for completion and other claims in accordance with the conditions of contract in consultation with the Team Leader and Chief Resident Engineer;
- (viii) Provides assistance to the Employer in dispute resolution as per provisions in the conditions of contract;
- (ix) Assist the Team Leader in keeping the Employer informed of contractual and claims issues by direct contacts and through discussions or correspondence; and
- (x) Assist the Team Leader/ Chief Resident Engineer in holding meetings with the Contractor on Contract and claims issues; and
- (xi) Assist the team leader in preparation of a comprehensive project completion report (PCR), Operational Manual and any other duty/assignment the Team Leader may entrust.

**26. Planning & Scheduling/ Costing Engineer (National; 40 person-months):**  
Responsibilities of the Planning and Scheduling/ Costing Engineer will include but not limited to the following:

- (i) Reports to the Team Leader;
- (ii) Take the overall responsibilities for project planning, scheduling, reporting and project costing including preparation of Engineer Estimate/revised PC-1;
- (iii) Analysis and approval of Tender Schedule, Baseline Schedule, Revised Baseline Schedule and Recovery Schedule submitted by the contractor on a computerized system Primavera Enterprise for Engineering & Construction (P6) software;
- (iv) Assist the Project Manager in the determination of Extension of Time for Completion from the Contractor’s Work Schedule;
- (v) Furnishes progress schedules and Earned Value Reports to the Project Manager;
- (vi) Monitors that the Contractor adheres to the contractual requirements of Construction Schedule mentioned in the Special Provisions; and
- (vii) Monitoring of various activities shown on the Baseline schedule.

27. **Structural Design Engineer (National; 24 person-months):** Responsibilities of the Structural Design Engineer will include but not limited to the following:

- (i) Review all relevant technical documents;
- (ii) Organize, supervise and carry-out any additional investigations deemed necessary for structural aspects of all features to be included in the project;
- (iii) Analyse structural design options where changes are required; and
- (iv) Assist in drafting relevant portions of the O &M Manual for the project with emphasis on procedures/practices to ensure the long term structural integrity of the structures.

28. **Hydraulic Design Engineer (National; 24 person-months):** Responsibilities of the Hydraulic Design Engineer will include but not limited to the following:

- (i) Review all relevant documents;
- (ii) Organize and supervise topographic surveys and any other investigations required to provide necessary input for design;
- (iii) Supervision and follow-up of physical model tests, if any, and take the leadership in recommending modifications to and refinement of the model to ensure reliable output;
- (iv) Review hydraulic design options for the Barrage, divide walls, head regulators and downstream works;
- (v) Coordinate and supervise detailed design of all hydraulic aspects of the works including preparation of relevant additional construction drawings and specifications which may be required ; and
- (vi) Draft relevant portions of the Operational Manual for the project with emphasis on operating rules based upon water level observations coupled with available flood prediction information.

29. **Electrical Design Engineer (National; 12 person-months):** Responsibilities of the Electrical Design Engineer will include but not limited to the following:

- (i) Review and update the complete electrical design & automation plans prepared by detailed design consultants and the Contractor and advises the Team Leader/ Deputy Team Leader for necessary amendments where needed;
- (ii) Review the shop drawings for motorization of gates and other electronic works prepared by the Contractor and submit recommendations to the Team Leader/ Deputy Team Leader;
- (iii) Review specifications and selection of Piezometers and related communication equipment up to central control;
- (iv) Conduct a detailed check of As-built Drawings of Motorization / Electronic / Electrical works prepared by the Contractor; and
- (v) Participate in the preparation of O&M Manual for Motorization / Electronic / Electrical works.

30. **Mechanical Design Engineer (National; 12 person-months):** Responsibilities of the Mechanical Design Engineer will include but not limited to the following:



- (i) Review the gate system design carried out by the detailed design consultants and suggest any improvements/changes required for proper functioning of gates;
- (ii) Review the design calculations and shop drawings prepared and submitted by the contractor;
- (iii) Pay periodical visits to sites for overseeing the installation and testing processes and brief the Chief Resident Engineer and Resident Engineer (Mechanical);
- (iv) Review the testing standards, testing process and results and brief the Chief Resident Engineer and Resident Engineer (Mechanical) accordingly;
- (v) Advise and render any relevant assistance that is required by the Team Leader; and
- (vi) Contribute in preparation of Operation and Maintenance Manual for gates and hoisting arrangements.

31. **Monitoring and Evaluation Specialist (National; 48 person-months):** Responsibilities of the Monitoring and Evaluation Specialist will include but not limited to the following:

- (i) Review all documents relevant to the project;
- (ii) Assist the team leader in the development and establishment of an appropriate monitoring and evaluation strategy and plan, including input, progress, output and impact indicators;
- (iii) Computerize the monitoring and evaluation system so that it is compatible with and forms a part of the Management Information System;
- (iv) Supervise baseline, intermediate and end of project socio-economic surveys;
- (v) Develop appropriate analytical methodology for the socio-economic impact assessment;
- (vi) Conduct in depth workshops for PMO staff and for those who will carry out the surveys in the field covering the survey design, sampling criteria, questionnaire requirements, interview methodology and survey analysis; and
- (vii) Supervise the work of those conducting the field surveys and analyzing assessment results.

32. **Social Safeguards Specialist (National; 12 person-months):** Responsibilities of the Social Safeguards Specialist will include but not limited to the following:

- (i) Review all documents relevant to the project;
- (ii) Assist the team leader and work with the resettlement unit within PMO in developing and satisfactorily monitoring of implementation of resettlement plans;
- (iii) Assist PMO in complying with ADB's Guidelines on Involuntary Resettlement in accordance with ADB's Safeguards Policy Statement (SPS; 2009);
- (iv) Training of selected PMO staff with a view to strengthening the PID's capacity to adequately oversee resettlement activities; and
- (v) Prepare internal monitoring reports on implementation of safeguards as per SPS (2009).

33. **Environmental Specialist (National; 12 person-months):** Responsibilities of the Environmental Specialist will include but not limited to the following:

- (i) Review all relevant documents, particularly the Environmental Impact Assessment study;
- (ii) Work with PMO Barrages to prepare/update a cost effective environmental management and monitoring plan for the rehabilitation of the barrage which is in line with IEE recommendations so as to ensure minimal environmental effects both during and following the construction period;
- (iii) Work with the contractor to review the site specific environmental management plan for each sub-project, and assist PMO Barrages in the SSEMP endorsement activity;
- (iv) Prepare and execute required appropriate actions to mitigate any negative environmental impacts associated with construction activities in collaboration with PMO Barrages and all concerned stakeholders;
- (v) Prepare a detailed reforestation plan for the project and following construction oversee its implementation as required in the IEE/ EMP;
- (vi) Develop training materials for PID, and PMO Barrages staff to support environmental protection measures and to monitor and mitigate potential environmental impacts;
- (vii) Work with PMO to update and establish a cost effective environmental management and monitoring system for the construction consistent with IEE recommendations so as to ensure minimal environmental effects both during and following the construction period;
- (viii) Prepare and execute actions to mitigate any negative impacts associated with construction activities in collaboration with PMO and all concerned stakeholders;
- (ix) Ensure that any environmental impact assessments, if required, fully comply with ADB guidelines safeguards policy statement (SPS, 2009) and ensure, that all required mitigation measures are identified and acceptable environmental management and monitoring plans reflecting full details regarding the estimated mitigation costs are in place through the SSEMP; and
- (x) Besides assisting in finalizing the biannual environmental monitoring report, he/she will also assist the PMO in finalization of quarterly progress report, annual progress report and any specific report asked by PMO.

34. **Chief Resident Engineer (2 National; 90 person-months):** Responsibilities of the Chief Resident Engineer will include but not limited to the following:

- (i) Assist the Team Leader in carrying out all aspects of his TOR;
- (ii) Assume the responsibility for effective supervision and contract administration of the civil and mechanical works during the period of construction supervision;
- (iii) Ensure that the consulting team under his/her control undertakes comprehensive construction supervision and contract administration of the civil and mechanical works required to be carried out by the Consultant in the role of "the Engineer" as defined under FIDIC General Conditions of Contract for Construction;
- (iv) Oversee the activities of the teams under his/her control related to supervising construction works ensuring compliance to detail provided in the construction drawings and strict adherence to construction specifications;
- (v) Ensure that the quality control methodology is strictly followed;

- (vi) Ensure that detailed and quantitative progress reporting is adequate to support the contractor's requests for progress payments are routinely prepared;
- (vii) At the end of the construction activities guide and ensure that the team prepares a comprehensive construction completion report, inclusive of as-built drawings as appropriate;
- (viii) Ensure that the contractor follows the implementation schedule;
- (ix) Review the plan for execution of critical activities arrange for timely completion of these activities; and
- (x) Ensure effectively implementation of EMP.

35. **Resident Engineer - Civil (2 National; 90 person-months):** Responsibilities of the Resident Engineer (Civil) will include but not limited to the following:

- (i) Assist the Chief Resident Engineer in carrying out all aspects of his TOR relating to civil works;
- (ii) Carry out effective supervision and contract administration of the civil works during the period of construction supervision;
- (iii) Ensure that the consulting team under his/her control undertakes comprehensive construction supervision and contract administration of the civil works required to be carried out by the Consultant in the role of "the Engineer" as defined under FIDIC agreements;
- (iv) Oversee the activities of the teams under his/her control related to supervising construction works ensuring compliance to detail provided in the construction drawings and strict adherence to construction specifications;
- (v) Ensure that the quality control methodology is strictly followed;
- (vi) Ensure that detailed and quantitative progress reporting is adequate to support the contractor's requests for progress payments are routinely prepared;
- (vii) At the end of the construction activities guide and ensure that the team prepares a comprehensive construction completion report, inclusive of as-built drawings as appropriate;
- (viii) Ensure that the contractor follows the implementation schedule;
- (ix) Review the plan for execution of critical activities arrange for timely completion of these activities; and
- (x) Ensure effectively implementation of EMP.

36. **Resident Engineer - Mechanical (2 National; 24 person-months):** Responsibilities of the Resident Engineer (Mechanical) will include but not limited to the following:

- (i) Assist the Chief Resident Engineer in carrying out all aspects relating to supervision of erection of mechanical equipment including gates and hoisting systems etc.;
- (ii) Assume the responsibility for effective supervision and contract administration of the component under his control during the period of construction supervision required to be carried out by the Consultant in the role of "the Engineer" as defined under FIDIC agreements;

- (iii) Oversee the activities of the teams under his control related to supervising construction works ensuring compliance to detail provided in the construction drawings and strict adherence to construction specifications;
- (iv) Ensure that the quality control methodology is strictly followed;
- (v) Ensure that detailed and quantitative progress reporting is adequate to support the contractor's requests for progress payments are routinely prepared; and
- (vi) At the end of the construction activities guide and ensure that the team prepares a comprehensive construction completion report, inclusive of as-built drawings and an operation and maintenance manual.

**37. Resident Engineer - Electrical (2 National; 12 person-months):** Responsibilities of the Resident Engineer (Electrical) will include but not limited to the following:

- (i) Assist the Chief Resident Engineer in carrying out all aspects relating to supervision of electrical equipment including motorization of gates and hoisting systems;
- (ii) Assume the responsibility for effective supervision and contract administration of the component under his control required to be carried out by the Consultant in the role of "the Engineer" as defined under FIDIC General Conditions of Contract for Construction;
- (iii) Ensure compliance to detail provided in the construction drawings and strict adherence to construction specifications;
- (iv) Ensure that quality control methodology is strictly enforced;
- (v) Ensure that detailed and quantitative progress reporting is adequate to support the contractor's requests for progress payments are routinely prepared; and
- (vi) At the end of the construction participate in preparation of a comprehensive construction completion report, inclusive of as-built drawings and an operation and maintenance manual.

**38. Materials Engineer/ Quality Control Specialist (2 National; 51 person-months):** Responsibilities of the will include but not limited to the following:

- (i) Prepare a Quality Control Manual for the construction supervision of the project. The Manual will describe the testing requirements during construction;
- (ii) Advise on suitability of various construction materials proposed to be used in construction;
- (iii) Ensure that the Quality Control Manual is strictly followed by the project team and bring any deficiencies to the notice of the Team Leader/ Deputy Team Leader/ Resident Engineer;
- (iv) Evaluate contractor's proposal for establishment of field laboratory and approve other laboratories for testing;
- (v) Ensure that detailed and quantitative progress reporting is adequate to support the contractor's requests for progress payments are routinely prepared;
- (vi) Establish and oversee appropriate standards and quality control procedures; and
- (vii) Ascertain that the construction inspectors are fully cognizant of all required density testing during construction and the methodology to be employed.

39. **Grouting/ Geo-tech Specialist (2 National; 20 person-months):** Responsibilities of the Grouting Specialist will include but not limited to the following:

- (i) Review all relevant technical documents;
- (ii) Carry out (organize and oversee) a comprehensive review of foundation conditions at each of the existing features and ensure conditions are such to ensure the long-term integrity of the project components;
- (iii) Identify any remedial foundation stabilization work to be included in the package of works for the construction of the barrage;
- (iv) During the construction phase, investigate and evaluate any unexpected foundation conditions encountered and recommend alternative treatment as appropriate; and
- (v) Design and supervise grouting operations.

40. **Electrical/ Instrumentation Expert (2 National; 20 person-months):** Responsibilities of the Electrical/ Instrumentation Expert will include but not limited to the following:

- (i) Review the proposed instrumentation program and based on the review suggest if additional instrumentation is required;
- (ii) Prepare specifications of additional instrumentation, if required;
- (iii) Supervise installation and commissioning of the instruments;
- (iv) Prepare a program for monitoring the various types of instruments; and
- (v) Prepare sections of O&M Manual relating to the Instrumentation.

## **B. NON - KEY STAFF**

41. **Office Engineer (National; 40 person-months):** Responsibilities of the Office Engineer will include but not limited to the following:

- (i) Reports to the Team Leader;
- (ii) Maintain record of design/drawings along with other documents in office;
- (iii) Keep all hard and soft copies of all version of the designs and drawings and ensure that latest versions are being issued for implementation;
- (iv) Allocate specific number to different versions of drawings;
- (v) Maintain record of record of all project related documentation;
- (vi) Assist Team Leader in compilation of O&M Manual for Trimmu barrage and Panjnad barrage;
- (vii) Maintains Record of Construction drawings, Shop drawings and As Built drawings;
- (viii) Conducts Office Documentation on behalf of Team Leader;
- (ix) Assist in preparation of weekly and monthly progress reports and ensure timely submission of Deliverables; and
- (x) Assist in preparation of revised PC-1 and Engineer's Estimate of the project.

42. **Resettlement Expert (2 National; 15 person-months):** Responsibilities of the Resettlement Specialist will include but not limited to the following:

- (i) Support PMO in monitoring and carrying out activities related to implementation of resettlement plans in line with relevant ADB guidelines. In this respect the consultant will ensure that all project components designed and supervised by the Consultants the ADB guidelines for resettlement and where necessary adequate mitigation measures are taken;
- (ii) Assist PMO in revising and updating the draft Resettlement Framework and draft Resettlement Plan prepared during detail design stage, if necessary;
- (iii) Assist PMO in preparing Resettlement Plans (RPs) for all locations where civil works will involve land acquisition and/or livelihood disruption on Rights of Way;
- (iv) Ensure that LARP complies with requirements and procedures in ADB 2009 Safeguard Policy Statement (SPS) on Involuntary Resettlement and the Indigenous People, Land Acquisition and Resettlement Framework (LARF) and Project Administration Manual (PAM);
- (v) Together with the relevant agencies prepare other necessary safeguard documents, assist PMO in establishing relevant committees and institutions as required by the LARF and serve as the internal monitor during implementation of the safeguards as required (LARF);
- (vi) Ensure that provisions of social safeguard compliance and procedures included in contract are followed; prepare internal monitoring reports and provide information to external monitors;
- (vii) Assist PMO is in complying with *SPS, 2009 Guidelines for Involuntary Resettlement* for cases where resettlement or temporary disruption of production cannot be avoided;
- (viii) In accordance with the resettlement framework identify and prepare any necessary amendments to existing resettlement plans and/or, if required, prepare additional plans and support their implementation by the relevant Government agencies; and
- (ix) Review Government resettlement policies and practices, recommend improvements and, if necessary, provide draft guidelines for Government's consideration.

**43. Assistant Resident Engineers–Civil/ Electrical/ Mechanical (4+2+2=8 National; 174 person-months):** Responsibilities of the Assistant Resident Engineer within his/ her own discipline will include but not limited to the following:

- (i) Assist the respective Resident Engineers in carrying out all aspects of their TOR;
- (ii) Assume the responsibility for effective supervision and contract administration of the civil/mechanical/electrical works, as the case may be, during the period of construction supervision;
- (iii) Undertake comprehensive construction supervision and contract administration of the works required to be carried out by the Consultant in the role of “the Engineer” as defined under FIDIC agreements;
- (iv) Supervise the construction works ensuring compliance to detail provided in the construction drawings and strict adherence to construction specifications;
- (v) Ensure that the quality control methodology is strictly followed;
- (vi) Ensure that detailed and quantitative progress reporting is adequate to support the contractor's requests for progress payments are routinely prepared; and

- (vii) Assist in the preparation of a construction completion report, inclusive of as-built drawings as appropriate.

44. **Junior Environmentalist (2 National; 48 person-months):** Responsibilities of the Junior Environmentalist will include but not limited to the following:

- (i) Report to Chief Resident Engineer;
- (ii) Review all relevant documents, particularly the Environmental Impact Assessment study;
- (iii) Ensure implementation of Environmental Management Plan at Site under the guidance of Environmental Specialist;
- (iv) Assist Environment Specialist to prepare/update a cost effective environmental management and monitoring plan for the rehabilitation of the barrage which is in line with IEE recommendations so as to ensure minimal environmental effects both during and following the construction period; and
- (v) Work with the contractor to review the site specific environmental management plan for each sub-project, and assist PMO Barrages in the SSEMP endorsement activity.

45. **Senior Engineer Procurement/ Contracts (National; 30 person-months):** Responsibilities of the Senior Engineer Procurement/ Contracts will include but not limited to the following:

- (i) Provide capacity support to the PMO procurement Render necessary advice;
- (ii) Assist the PMO in preparing/ updating procurement plans;
- (iii) Assist the PMO in routine procurement activities regarding goods, works and services;
- (iv) Oversee the working of Consultants and Contractors engaged by PMO in contract management/ administration;
- (v) Assist the PMO in reviewing and determining contractor's claims; and
- (vi) Assist the PMO in any contractual issue may require.

46. **Senior Engineer Design/ Construction (National; 30 person-months):** Responsibilities of the Senior Engineer Design/ Construction will include but not limited to the following:

- (i) Review the construction drawings, construction planning and construction scheduling;
- (ii) Assist and advise the PMO in the process of reviewing the consultant's proposed amendments/ alterations to design aspects, technical specifications and scheduling of the project; and
- (iii) Assist and keep the PMO abreast of the project construction activities; emerging issues, remedial measures and conformance/ deviation from the agreed work schedules.

47. **Senior Engineer Mechanical (National; 10 person-months):** Responsibilities of the Senior Engineer Mechanical will include but not limited to the following:

- (i) Assist the PMO in reviewing the gate system design carried out by the detailed design consultants and suggesting necessary improvements/ changes if required;
- (ii) Assist the PMO in reviewing the design calculations and shop drawings prepared and submitted by the contractor; and
- (iii) Advise and render any relevant assistance that is required by the PMO on design and installation aspects of the Barrage gates system.

48. **Monitoring and Evaluation Expert (National; 30 person-months):** Responsibilities of the Senior Engineer Mechanical/ Electrical will include but not limited to the following:

- (i) Review all documents relevant to the project;
- (ii) Assist PMO in the development and establishment of an appropriate monitoring and evaluation strategy and plan, including input, progress, output and impact indicators;
- (iii) Assist the PMO in computerize the monitoring and evaluation system so that it is compatible with and forms a part of the Management Information System;
- (iv) Supervise baseline, intermediate and end of project socio-economic surveys;
- (v) Develop appropriate analytical methodology for the socio-economic impact assessment;
- (vi) Assist PMO in supervising the work of those conducting the field surveys and analyzing assessment results;
- (vii) Review and assist PMO in updating/ finalizing the RAP prepared during project preparation on the basis of the detailed design, and in preparing RAP to meet ADB requirements for any other area affecting more than 200 persons. He will also scrutinize the aforementioned resettlement plans for developing the vetted resettlement plans;
- (viii) Assist PMO in monitoring that all project components reviewed and supervised by the consultants are implemented in an environmentally friendly manner and where necessary adequate mitigation measures are taken; and
- (ix) Review and Assist PMO in finalizing the PPMS Baseline (Baseline/ Benchmark) Report for the project.

49. **Finance and Accounts Expert (National; 30 person-months):** Responsibilities of the Senior Engineer Mechanical/ Electrical will include but not limited to the following:

- (i) Review all documents relevant to the Project Finances;
- (ii) Working with PMO, PID, and the Department of Finance establish separate accounts for the project under a comprehensive computerized financial management system adequate to allow ready identification of the goods and services and other items of expenditure financed out of the ADB loan proceeds to fully disclose the use of funds from various sources for project purposes;
- (iii) Assist PMO, in maintaining the separate accounts established in (ii) above in accordance with sound accounting principles acceptable to both the Department of Finance and ADB;
- (iv) Ensure that PMO have these accounts audited annually in accordance with appropriate auditing standards, consistently applied by independent auditors whose qualifications, experience and terms of reference are acceptable to both



ADB and the Department of Finance;

- (v) Assist PMO in setting up and operating the imprest account for ADB loan funds in commercial banks acceptable to both ADB and the Department of Finance in full accordance with the procedures detailed in ADB's Disbursement Handbook;
- (vi) Assist PMO in examination of the Project Financial Reviews prepared by the consultants and recommendations for action needed to control expenditure/ seeking additional funding; and
- (vii) Review and assist PMO for preparing responses to audit observations and paras in respect of the payments certified by the consultants and getting them resolved at appropriate level.

## PROCUREMENT CAPACITY ASSESSMENT REPORT AND RECOMMENDATIONS

<b>Proposed Project Name:</b> Trimmu and Panjnad Barrages Improvement Project	<b>Proposed Amount (US\$):</b> 173
<b>Executing/Implementing Agency:</b> Punjab Irrigation Department	<b>Source of Funding:</b> ADB
<b>Assessor:</b> PIAIP Consultant	<b>Date:</b> 28 November 2013
<p><b>Expected Procurement</b>  The expected procurement include two civil works contracts following international competitive bidding (ICB) procedures for rehabilitation and upgrading Trimmu and Panjnad barrages, two consultancy packages for construction supervision using quality- and cost-based selection (QCBS) method (90:10) and project management support using quality-based selection (QBS), individuals consultant and 6 national shopping packages for vehicle, equipment and furniture etc.</p> <p><b>General Procurement Environment Assessment</b>  <u>Risk Assessment:</u> Low  <u>Summary of Findings:</u>  All the procurement including Works, Goods and Services are governed through Public Procurement Regulatory Authority (PPRA) established by Government of Pakistan. However, procurement guidelines by ADB and World Bank are used for those projects, which are funded by them.  There is difference in the bidding documents prepared according to PPRA/Pakistan Engineering Council guidelines and those are based on ADB Guidelines or ADB standard bidding documents. For instance:</p> <ul style="list-style-type: none"> <li>Federal Government follows PPRA guidelines for procurement. Pakistan Engineering Council has adopted the PPRA rules and framed standard bidding documents for ICB and NCB contracts on the basis of FIDIC, General Conditions of Contract Part-I (1987 reprinted in 1992 with further amendments)-FIDIC- IV.</li> <li>ADB is included in multinational development Bank (MDB). Punjab Irrigated Agriculture Investment Program (PIAIP) financed by ADB uses the MDB Harmonized Edition. The MDB Harmonized Edition is very close to the FIDIC New Red Book (Civil Works) 1999-FIDIC-V. FIDIC- IV has 72 clauses for Civil Works whereas there are 20 clauses in the MDB Harmonized Edition. As such the procurement policies of ADB are different from national practices. For instance the following are additional provisions in the MDB Harmonized Edition. <ul style="list-style-type: none"> <li>(a) The Engineer and its employees are also Employer's Personnel- CI1.1.2.6</li> <li>(b) The Engineer shall be deemed to act for the Employer –CI3.1(a)</li> <li>(c) No Engineer's Decision, but DB (Dispute Board) Decision - CI 20.4</li> </ul> </li> </ul> <p>As most of the projects in Water and Energy sector are being funded by ADB and World Bank, the impact of ADB and World Bank guidelines on the procurement practices is significant. There is a need for the PPRA/ Pakistan Engineering Council to adopt the FIDIC-V Conditions of Contract with appropriate amendments suitable for the country's specific conditions.</p> <p><b>Organizational and Staff Capacity</b>  <u>Risk Assessment:</u> Medium  <u>Summary of Findings:</u>  The Punjab Irrigation Department (PID)—the executing agency (EA), has established project</p>	

management office (PMO) for Barrages in 2004. Since then, the PMO has acquired a good skill in procurement through special and hands-on trainings on five on-going/complete Barrages projects. Although procurement unit exists and required skill is available, but number of staff are far less than the workload. Additional dedicated staff will be needed for the proposed Trimmu and Panjnad Barrages Improvement Project (TPBIP). The physical resources are however satisfactory for project implementation.

## **Information Management**

Risk Assessment: Low

### Summary of Findings:

The signed original contract and the evaluation report are retained for at least two years after project completion. In addition to these two documents, a copy of the original invitation document, winning bid or proposal, and contract administration papers are also available for inspection. Contract documentation is well maintained.

## **Procurement Practices**

### Procurement of Goods and Works

Risk Assessment: Low

### Summary of Findings:

The PMO has procured ADB funded three ICB contracts (NKB-ICB-01 for \$188.0 million, PC-ICB-01 for \$46.0 million and SB-ICB-02 for \$28.5 million) during last 12 months. The proposed TPBIP has two ICB contracts for \$128 million and NCB shopping for \$0.8 million. The procurement unit already uses ADB Procurement Guidelines (2013) for ICB and NCB contracts and same will be used for the procurement under the proposed project.

### Consulting Services

Risk Assessment: Low

### Summary of Findings:

Among the two consultancy packages, \$9.0 million for construction supervision with Engineer's responsibility of the ICB civil works contracts will be recruited using QCBS (90:10) procedures. However, individual consultant will be recruited for safeguards external monitoring.

ADB Guidelines on the use of consultants (March 2013; amended time to time) will be used for the recruitments. Handbook for consultant selection by Planning and Development Department, Government of Punjab is used to the extent that it does not contradict with the ADB guidelines. The PID has capacity to select and manage these types of services. The EA has procured two consultancy services in the last 12 months for new Khanki Barrage Construction Project (Loan 2841-PAK(SF) and Loan 2971-PAK for Pakpattan Canal and Suleimanki Barrage Improvement Project. In addition, three consultancy services were procured in last 36 months for Rehabilitation and Modernization of Jinnah Barrage.

## **Effectiveness**

Risk Assessment: Low

### Summary of Findings:

The institutional arrangements and practices contribute to the overall effectiveness of the EA/IA's procurement transactions and contracts. PID is well established department and managing provincial

large-scale irrigation system since more than six decades. PMO has experience of implementing five Barrages projects since its establishment in 2004. Both the organizations have rich experience and strong procedural mechanisms. Oversight by Punjab Planning and Development Department provides required high-level decision-making support. Although PMO staff already received training on ADB procurement guidelines, more training is recommended.

### **Accountability Measures**

Risk Assessment: High

#### Summary of Findings:

EA/IA follows the Punjab Government rules and practices. Head PMO Barrages decides on day-to-day matters, when major decisions should be agreed by the Secretary PID as the Head of the EA. A procurement committee comprising members from other Ministries and Punjab Planning and Development Department takes final procurement related decision. The borrower and EA/IA which operate the control and oversight mechanisms do not impact directly on ADB's procurement policies. The EA/IA adheres to its own systems of control and oversight. Financial accountability functions are dictated by the PPRA Rules and Audit & Accounts procedures.

The risk is assessed high because of incompatibility of accountability systems and oversight issues as stated below:

- PPRA may bring the violations of PPRA rules-2004 to the notice of Procurement Agencies. The Procurement Agencies are not bound by law to follow the PPRA in letter and spirit. The role of PPRA is weak as an accountability/oversight body. PPRA Rules do not serve the requirements of ADB's Anticorruption Policy.
- The EA/IA exercises its own system of control and oversight/supervision which may vary from person to person. There is no mechanism to prevent collusion between the EA/IA and the Supervision Consultants, especially because the Engineer and its employees are also Employer's Personnel- CI1.1.2.6 of GCC.
- Financial accountability system is not satisfactory as the PPRA Rules and Audit and Accounts procedures are not fully implemented. The annual audit by the Accountant General Punjab Office does not ensure financial control during procurement process and execution of work.

### **Summary Assessment**

#### **Specific Recommendations, Project Implementation**

<b>Risks</b>	<b>Recommended Action</b>	<b>Responsibility and comment</b>
Punjab Government to ensure the timely release of counterpart funds, as per loan covenants.	Audit of the project accounts should be done in accordance with the International Standards on Auditing, by the Auditor acceptable to ADB.	Punjab Government provides assurances.
<b>Capacity Constraint</b>	<b>Recommended Action</b>	<b>Responsibility and comment</b>
Financial management of PMO needs to be strengthened	<ul style="list-style-type: none"> <li>• PMO (Barrages) specialists and Consultant's financial staff must undergo trainings on ADB financial management procedures to further strengthen its capacity and enable the PID to undertake itself the internal audit;</li> <li>• PID should maintain separate accounts for each of the projects and have</li> </ul>	<ul style="list-style-type: none"> <li>• PID should implement the recommended capacity building measures on priority.</li> </ul>

	such accounts audited annually, in accordance with appropriate auditing standards consistently applied by independent auditors whose qualifications, experience, and terms of reference are acceptable to ADB.	• PID/PMO
<b>General Recommendations, EA/IA</b>		
<b>Risks/Capacity Constraint</b>	<b>Recommended Action</b>	<b>Responsibility and comment</b>
Delays in giving timely decisions on allocation of funds and approval of PC-1 etc.	PMO and the consultants need to be more proactive to avoid delays.	Punjab Government/PID/PMO and ADB should ensure that the bidding process and consultants selection are transparent and follow the ADB guidelines.
<b>General Recommendations, Procurement Environment</b>		
<b>Risk/Capacity Constraint</b>	<b>Recommended Action</b>	<b>Responsibility and comment</b>
General procurement environment is moderate. The Procurement law (PPRA) is weak. PPRA reports the discrepancies in procurement, if any, to the procurement agencies. There is no professional procurement cadre in Pakistan.	A comprehensive Procurement law is needed to regulate the Procurement process at federal and provincial levels.	Government of Punjab may start consultation preparing and enacting new procurement laws.

**PROCUREMENT CAPACITY ASSESSMENT APPENDIX 1**  
**GENERAL PROCUREMENT ENVIRONMENT ASSESSMENT**

<b>Risk Ratings</b>	Extremely High	High	Average	Low
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**I. Specific Assessment and Ratings**

<b>Question</b>	<b>Yes/No</b>	<b>Narrative Explanation</b>	<b>Risk</b>
<b>A. LEGAL AND REGULATORY FRAMEWORK</b>			
1. Is there a procurement law? <i>Is there a single law governing procurement that is consistent with internationally accepted principles and practices; or is procurement governed through various laws, decrees etc.?</i>	Yes	All Procurement are governed through Public Procurement Regulatory Authority (PPRA), established by Gov't of Pakistan. However, the Guidelines of ADB/ World Bank are adopted for the projects funded by them.	Average
2. Does the procurement law have implementing regulations? <i>Does the procurement law have implementing rules and regulations that support it by providing the details that are not normally found in a law? Are these clear, comprehensive and consolidated as a set of regulations that are available in a single and accessible place? Are these regularly updated?</i>	Yes	Public Procurement Law has implementing rules and regulations promulgated by the Punjab Government and are clear, comprehensive and consolidated. These rules are regularly updated.	Low
3. Are the procurement law and regulations clear and concise? <i>If there is a single law that is easy to follow, then the risk is "low". If the law is complex and difficult to follow, then the risk is "average". If there is no single law, then the risk is "extremely high" or "high".</i>	Yes	PPRA rules are clear and concise and easy to follow.	Low
4. What does the procurement law/regulation cover? <i>If there is a single law, the risk will be "low" if it covers drafting and use of standard bidding documents, evaluation, contracting through to the management of contracts, including payment, warranty and defects liability periods. The less the procurement process is covered the higher the risk. If there is no single law, then the risk is "extremely high" or "high".</i>	Yes	PPRA Law/Rules are a single law. It covers procurement of Goods/Works and consultancy services. The Pakistan Engineering Council has prepared Bidding Documents based on PPRA Rules	Low
5. Does the procurement law/regulation cover the procurement of consulting	Yes	PPRA rules also cover procurement of consulting services.	Low

Question	Yes/No	Narrative Explanation	Risk
<p>services?  <i>If there is a single procurement law that also covers consulting services, then the risk is "low". If consulting services are not covered, or there is no law, then the risk is "extremely high" or "high".</i></p>			
<p>6. Does the procurement law/regulation differentiate between processes for goods, works and consulting services?  <i>If there is a single law that deals separately with consulting services, then the risk is "low". If there is a single law that provides some differentiation, but the processes are similar, then the risk is "average". If there is no single law, or it applies the same processes to consulting services as for goods and works, then the risk is "extremely high" or "high".</i></p>	Yes	<p><i>There is a single law that deals procurement of goods, works and services. However guidelines for procurement of consulting services have been separately issued by the Punjab Government.</i></p>	high
<p>7. Does the law/regulation require the advertisement of all procurement opportunities?  <i>A "low" risk may be indicated if advertisement is required for all procurements above \$25,000. An "average" risk may be indicated if advertisement is required only for procurements above \$100,000. A "high" risk may be indicated if advertisement is required for all procurements above a threshold that is higher than \$100,000. An "extremely high" risk should be indicated if no advertisement is required.</i></p>	Yes	<p>Law/ regulation require the advertisement of all procurement opportunities above \$ 20000 in print media or newspapers having wide circulation and also on PPRA Authority's website.</p>	Low
<p>8. Are contract awards advertised?  <i>The same thresholds as stated at A7 should be applied.</i></p>	Yes	<p>Contract awards are advertised on relevant websites.</p>	Low
<p>9. Are there restrictions on goods, works and services on the basis of origin?  <i>If there is no limitation, restriction and/or preference scheme, then the risk is "low". If there are restrictions or a national preference scheme, then the risk is "average". If procurement is solely limited to those of national origin, then the risk is "extremely high" or "high".</i></p>	Yes	<p>The restrictions are only for the countries not recognized by the Government of Pakistan.</p>	Low
<p>10. Does the procurement law or</p>	Yes	<p><i>Exception is given to SOEs that</i></p>	Low

Question	Yes/No	Narrative Explanation	Risk
relevant legislation and regulation provide acceptable provisions for the participation of state-owned enterprises (SOEs)? <i>If an exception is given to SOEs that are legally and financially autonomous and are not dependent agencies of the purchaser/employer, then the risk is "low". Otherwise, the risk is "extremely high" or "high".</i>		<i>are legally and financially autonomous and are not dependent agencies of the purchaser/employer.</i>	
11. Are there restrictions on the nationality of bidders and consulting firms to be invited? <i>If there is no limitation, restriction and/or preference scheme, then the risk is "low". If there are nationality restrictions or a national preference scheme, then the risk is "average". If procurement is solely limited to national firms and individuals, then the risk is "extremely high" or "high".</i>	Yes	There are no restrictions on the bidders having nationality of a country recognized by Pakistan Govt.	Low
12. Are foreign bidders and consultants forced to submit offers through or with local partners? <i>If this is never required, then the risk is "low". If this is required under certain circumstances, then the risk is "average". If this is always required, then the risk is "extremely high" or "high".</i>	No	Foreign bidders and consultants are never forced to submit offers through or with local partners.	Low
13. Is there a domestic preference scheme? <i>If there is no scheme, then the risk is "low". If it is applied in limited circumstances, then the risk is "average". If a domestic preference scheme is applied across the board, then the risk is "extremely high" or "high".</i>	Yes	<i>There is no domestic preference scheme.</i>	Low
14. Is there a national standard mandated for the use for quality control purposes? <i>If there are no mandated national standards or if these have direct and accessible international equivalents, then the risk is "low". If there are mandated national standards that have no international equivalents, then the risk is "high".</i>	No	<i>There are no mandated national standards.</i>	low
15. Are any agencies or parts of public expenditure exempt from the procurement law/regulation?	Yes	<i>Only Limited goods such as defense equipment are exempted from the Procurement</i>	Average



Question	Yes/No	Narrative Explanation	Risk
<i>If yes, such as defense equipment, then the risk may range from "average" to "extremely high, depending on the extent of the exemption. For example, if an exemption is outrightly granted to medicines, text books or other similar commodities, then the risk is "extremely high".</i>		<i>regulations.</i>	
16. Is the default method for procurement open competition? <i>If yes, then the risk is "low". If no, or if it is not clearly established, then the risk may be "extremely high" or "high".</i>	Yes	The method for procurements is open competition to ensure fair and transparent procurement.	Low
17. Is open competition easily avoided? <i>If avoidance requires the approval of an oversight agency, then the risk is "low". If open competition can be avoided by senior management decision, then the risk is "average". If the procurement law/regulation allows the avoidance of open competition above a certain national threshold on the basis of circumstances that are not in response to natural disasters, i.e. simple urgency, then the risk is "extremely high" or "high".</i>	No	Deviation from open competition is rare, such as for national security, subject to prior approval of the PPRA Authority.	Low
18. Does the procurement law/regulation require pre-qualification? <i>If it is only for complex or high value contracts, then the risk is "low". If no pre-qualification is allowed, then the risk is "average". If it applies to all contracts, then the risk is "high".</i>	Optional	In cases where procurement for expensive and technically complex equipment/ works/ services is required, the prequalification process is adopted.	Low
19. Does the procurement law/regulation require the pre-registration of bidders? <i>If no pre-registration is required, then the risk is "low". If it is only required for special types of goods, such as medicines, then the risk is "average". If yes, then the risk is "extremely high" or "high".</i>	Yes	No pre-registration of bidders is required.	Low
20. Does the procurement law/ regulation mandate the use of standard documents? <i>If it does and there are documents for goods, works and consultants services, then the risk is "low". If it</i>	Yes	<i>There are standard documents for goods, works and consultants services.</i>	Low

Question	Yes/No	Narrative Explanation	Risk
<i>is required just for only two of the three procurement types, then the risk is "average". If it is required for only one of the procurement types, or it is required but no documents have yet been issued, then the risk is "high". If standard documents are not required, then the risk is "extremely high".</i>			
21. Have these standard documents been approved for use on ADB projects? <i>If yes, then the risk is "low". If some, but not all, then the risk is "average". If no, then the risk is "extremely high" or "high".</i>	Yes	For ADB financed projects, the standard bidding documents prescribed by ADB are used.	
22. Is there a national procurement manual or guide? <i>If an omnibus procurement manual or guide exists, then the risk is "low". If a manual exists, but it is out of date or is not widely used/distributed, then the risk is "average". If there is no manual, then the risk is "extremely high" or "high".</i>	Yes	PPRA Rules/ Pakistan Engineering Council Guidelines are available.	Low
<b>B. INSTITUTIONAL FRAMEWORK</b>			
23. Which body oversees public procurement? <i>If there is a regulatory body at an adequate level in government, and financing is secured by the legal/regulatory framework, then the risk is "low". If the body is at an adequate level, but financing is subject to administrative decisions and can be changed easily, then the risk is "average". If the level of the body is too low or financing is inadequate for proper discharge of its responsibilities, then the risk is "high". If there is no body, or the body is too low with no independence to perform its obligations, then the risk is "extremely high".</i>		PPRA	Low
24. What powers does the oversight body have? <i>The rating may range from "low" to extremely high", depending on whether the body exercises all, some, a few or none of the following responsibilities: providing advice to contracting entities, drafting amendments to the</i>		PPRA is a body endowed with the responsibility of overseeing the observance of regulations and procedures for public procurements. PPRA monitors the public procurements and any discrepancies are reported to the procurement agencies.	

Question	Yes/No	Narrative Explanation	Risk
<p><i>legal/regulatory framework, monitoring public procurement, providing procurement information, managing statistical databases, reporting on procurement to other parts of government, developing/supporting the implementation of initiatives for improvements to the public procurement system, and providing implementation tools and documents to support capacity development.</i></p>			
<p>25. Is there a nationwide procurement training plan?</p> <p><i>If procurement trainings are regularly implemented nationwide and needs are regularly assessed, then the risk is "low". If there is an existing program, but it is insufficient to meet national needs, then the risk is "high". If there is no formal training program, then the risk is "extremely high". Consider also the existence of a helpdesk.</i></p>	Partially	Training programs are occasional.	High
<p>26. Is there a procurement accreditation or professionalization program?</p> <p><i>If there is an externally recognized program, then the risk is "low". If it is a government sponsored program, then the risk is "average". If there is no accreditation or professionalization program, then the risk is "high".</i></p>	No	There is no such program	High
<p>27. Are major projects identified within agencies' appropriations or budgets?</p> <p><i>If yes, then the risk is "low". If no, but a system is in place for the ring-fencing of project funds, then the risk is average. If neither condition exists, then the risk is "high".</i></p>	Yes	All projects are identified within agencies' budgets.	Low
<p>28. Is the procurement cycle tied to an annual budgeting cycle, i.e. can procurement activity only commence once a budget is approved?</p> <p><i>If yes, and a medium-term expenditure framework is in place, then the risk is "low". If an activity may start up to, but excluding contract award, then the risk is "average". If the procurement cycle</i></p>	Yes	The procurement cycle is normally tied to an annual budgeting cycle	Low

Question	Yes/No	Narrative Explanation	Risk
<i>is not tied to an annual budget, then the risk is "extremely high" or "high".</i>			
29. Once an appropriation or budget is approved, will funds be placed with the agency or can the agency draw them down at will? <i>If yes, then the risk is "low". If not, such as when additional bureaucratic controls are imposed (such as a cash release system), then the risk is "extremely high" or "high".</i>	Yes	Release of funds is mandatory after approval of budget, before incurring of expenditure	Low
30. Is there a nationwide system for collecting and disseminating procurement information, including tender invitations, requests for proposals, and contract award information? <i>If there is an integrated information system that provides up-to-date information and is easily accessible at no or minimum cost, then the risk is "low". If there is such an integrated information system that covers majority of contracts, but access is limited, then the risk is "average". If there is a system, but it only provides information on some of the contracts and is not easily accessible, then the risk is "high". If there is no procurement information system, except for some individual agency systems, then the risk is "extremely high".</i>	No	There is no such system in vogue.	
31. When an agency is implementing a project using funds from the national budget, are there general experiences/reports of funding delays that significantly hamper procurement? <i>If no, then the risk is low. If yes, then the risk is "extremely high" or "high".</i>	Seldom	Very rare.	
32. Is consolidated historical procurement data available to the public? <i>If yes, then the risk is "low". If the data is too much or too little, then the risk is "average". If none, then the risk is "extremely high" or "high".</i>	Yes	Data is available with Executing Agencies.	Low
33. Does the law/regulation require the collection of nationwide statistics	Yes	Nationwide statistics on procurement is collected by	

Question	Yes/No	Narrative Explanation	Risk
on procurement? <i>If yes and statistics are actually collected, then the risk is "low". If yes, but data is not collected or used, then the risk is "average". If there is no requirement, then the risk is "extremely high" or "high".</i>		PPRA.	
<b>C. PROCUREMENT MARKET AND OPERATIONS</b>			
34. Do formal mechanisms exist to encourage dialogue and partnerships between the government and the private sector, and are these well established in the procurement law/regulation? <i>If such mechanisms exist, such as programs to build the capacity of private companies and small businesses to participate in public procurement, and these are effective, then the risk is "low". If such mechanisms exist, but there is no proof of its effectiveness, then the risk is "average". If no such mechanisms exist, then the risk is "extremely high" or "high".</i>	Yes	Chambers of Commerce in each province encourages dialogue and partnerships between the government and the private sector. Securities and Exchange Commission of Pakistan (SECP) has the administrative authority to carry out reform of Pakistan's Capital Market. SECP's mandate includes investment financial services, leasing companies, <u>Housing</u> finance services, venture capital investment, discounting services, investment advisory services, <u>real estate investment trust</u> and asset management services, etc.	
35. Are private sector institutions well organized and able to facilitate access to the market? <i>If the private sector is competitive, well organized and able to participate in open competition, then the risk is "low". If there is a reasonably well functioning private sector, but competition for large contracts is concentrated in a relatively small number of firms, then the risk is "average". If the private sector is relatively weak and/or competition is limited owing to monopolistic or oligopolistic features in important segments of the market, then the risk is "high". If the private sector is not well organized and lacks capacity and access to information for participation in the public procurement market, then the risk is "extremely high".</i>	Yes	Construction industry is quite competitive and there are prestigious institutions like DESCON in the market.	
36. Is there an alternative disputes resolution process independent of the government and courts? <i>If there is an arbitration law with an independent process, then the risk is "low". If there is no arbitration law, but the standard contracts use</i>	Yes	<i>There is an arbitration law with an independent process.</i>	

Question	Yes/No	Narrative Explanation	Risk
<p><i>ICC or similar dispute resolution provisions, then the risk is "average". If alternative dispute resolution is not practiced, or if arbitration is through the courts or can be overturned by the courts, then the risk is "extremely high" or "high".</i></p>			
<b>D. INTEGRITY OF THE PROCUREMENT SYSTEM</b>			
37. Are there systematic procurement process audits? <i>If yes, then the risk is "low". If only financial audits are conducted, then the risk is "average". If no systematic audits are conducted, then the risk is "extremely high" or "high".</i>	Yes	There are audit departments of large organizations and Government has independent Audit Department headed by the Auditor General of Pakistan.	
38. Does the procurement law/regulation contain provisions for dealing with misconduct, such as fraud and corruption? A cross reference to an anti-corruption law will suffice. <i>If yes, then the risk is "low". If no, then the risk is "extremely high" or "high".</i>		PPRA has regulations containing provisions for dealing with misconduct, such as fraud and corruption.	
39. Is fraud and corruption in procurement regarded as a criminal act, whereby the penalty includes imprisonment? <i>If yes, then the risk is "low". If no, then the risk is "extremely high" or "high".</i>	Yes	Fraud and corruption cases in procurement are dealt under criminal act and the penalties include imprisonment.	
40. Have there been prosecutions for fraud and corruption? <i>If there have been successful prosecutions for fraud and corruption, then the risk is "low". If prosecutions seem to focus solely on low grade/junior staff, then the risk is "average". If there is no evidence of any prosecution, then the risk is "extremely high" or "high".</i>	Yes	There have been prosecutions for fraud and corruption in procurement.	
41. Does the legal/regulatory framework allow for sovereign immunity to agencies for claims against them? <i>If plaintiffs can sue the government for contractual non-performance, then the risk is "low". If they cannot, then the risk is "extremely high" or "high".</i>	Yes	<i>Plaintiffs can sue the government for contractual non-performance.</i>	
42. Do the regulations allow for the	Yes	There is provision for Debarment	

Question	Yes/No	Narrative Explanation	Risk
debarment of firms and individuals? <i>If there is a debarment process that is transparent and equitable, and undertaken by an independent oversight agency, then the risk is "low". If there is a process and it is administered by a single agency, such as the Ministry of Finance, then the risk is "average". If it is administered by the procuring agency, then the risk is "high". If there is no debarment mechanism, then the risk is "extremely high".</i>		of firms and individuals under PPRA Rules.	

## II. General Ratings

Criterion	Risk
A. Legal and Regulatory Framework	Low
B. Institutional Framework	Low
C. Procurement Market and Operations	Low
D. Integrity of the Procurement System	Low
OVERALL RISK RATING	Low