

# Project Administration Manual

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Project Number: 47181-004

Loan Numbers: XXXX

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Islamic Republic of Pakistan: Pehur High Level  
Canal Extension Project

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

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.

The Khyber Pakhtunkhwa Irrigation Department, the executing agency, is wholly 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 executing agencies of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At Loan Negotiations the borrower and ADB shall agree to the PAM and ensure consistency with the legal agreements. Such agreements 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.

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.

## ABBREVIATION

ADB	–	Asian Development Bank
AES		Agriculture Extension Services
AWB	–	Area Water Board
EMP	–	environmental management plan
EIA	–	environmental impact assessment
FFS		farmer field school
FO	–	Farmer organization
KPAD	–	Khyber Pakhtunkhwa Agriculture Department
KPID	–	Khyber Pakhtunkhwa Irrigation Department
KPP	–	Khyber Pakhtunkhwa Province
LARP	–	land acquisition and resettlement plan
masl	–	meter above mean sea level
M&E	–	monitoring and evaluation
O&M	–	operation and maintenance
OCR	–	ordinary capital resources
OFWM	–	on farm water management
PAM	–	project administration manual
PHLC	–	Pehur High Level Canal
PHLCE	–	Pehur High Level Canal Extension
PIO	–	project implementation office
PMO	–	project management office
WUA	–	water users' association

## WEIGHTS AND MEASURES

ha	–	hectare
kg	–	kilogram
m	–	meter
m <sup>3</sup>	–	cubic meter
m <sup>3</sup> /s	–	cubic meter per second
km <sup>3</sup>	–	cubic kilometer

## GLOSSARY

<i>abiana</i>	–	irrigation service fee
<i>biraderi</i>	–	clan
<i>chakbandi</i>		delineating the command area served by various elements off irrigation system
conjunctive use	–	use of surface water and groundwater to meet water needs in the same geographic area
<i>rabi</i>	–	winter crop growing season from about October to March
<i>kharif</i>	–	summer crop growing season from about April to September

## NOTE

In this report, "\$" refers to US dollars.



## I. PROJECT DESCRIPTION

1. The Pehur High Level Canal Extension (PHLCE) Project will develop new irrigated area of over 8,727 hectare (ha) in Swabi and Nowshera districts located in the middle-east of Khyber Pakhtunkhwa Province (KPP), in which water resources for agricultural production is currently dependent on rainfall only. To supply reliable irrigation water to the new irrigated area, the PHLCE Project will finance the extension of the existing Pehur High Level Canal (PHLC) system for a population of about 75,000.
2. The 1991 Water Apportionment Accord forms the basis for distribution of water among the provinces. The share of water of KPP under the water accord is 7.03 billion cubic meter ( $m^3$ ) (4.29 billion  $m^3$  in kharif and 2.84 billion  $m^3$  in rabi). However, due to capacity constraint KPP cannot use its entire allocated share. The average water withdrawals by KPP from 1999-2013 amounted to 6.8 billion  $m^3$  (4.2 billion  $m^3$  in kharif and 2.6 billion  $m^3$  in rabi), which is about 0.23 billion  $m^3$  less than the allocated share of the province.<sup>1</sup>
3. In late nineties, construction of the PHLC was started with financing from Asian Development Bank (ADB).<sup>2</sup> The main aim of the PHLC Project was to realize the full agricultural potential of about 40,300 ha in the project area by (i) alleviating shortage of irrigation supplies to about 35,800 ha at the far reaches of the Upper Swat Canal system; (ii) reclaiming about 6,000 ha of waterlogged land within the Upper Swat Canal system command area; and (iii) providing irrigation development for about 4,500 ha of mainly rainfed land outside Upper Swat Canal system command in Topi Priority Area. The PHLC was designed for a maximum discharge of 28.7  $m^3/s$  and had an annual water allocation of 0.57 million  $m^3$  from the Tarbela reservoir. The commissioning of PHLC in 2003 not only ensured the availability of water to the tail end of the Upper Swat Canal but also provided an opportunity to develop new areas for irrigation as some of the proposed new areas could not be developed. These new areas identified included Janda Boka, Indus, and Ambar. At that time, the requirement of pumping irrigation for these areas had been recognized. As all the area proposed to be included in the PHLC was not developed PHLC does not operate at its design discharge of 28.7 cubic meter per second ( $m^3/s$ ) and does not make use of its authorized share.
4. Due to sediment deposition in the reservoir the minimum draw down level of Tarbela Dam has been raised to El 420 masl (elevation in meter above mean sea level) as compared to 396 masl at the design stage. Thus, availability of additional head of 23.8 meter (m) gives an opportunity to irrigate additional areas through gravity which could not be included at the time PHLC was designed. It is now possible to irrigate parts of Janda Boka and Indus Ambar areas under gravity through construction of pressure pipes utilizing the available head from Tarbela Dam and running the canal on a higher contour. The estimated minimum operating level of Tarbela Dam for 2020 is 423.5 m, which is taken as the design level for the PHLCE Project.
5. The PHLCE will mainly irrigate lands in Swabi District. The entire area of the district is fertile and produces good crops. However, most of the cultivated area is rainfed and under favourable environmental conditions and sufficient rainfall gives very good output. Construction of PHLC has brought prosperity to the area and enhanced the agricultural output. The sources of irrigation in Swabi district are canals, government tube wells, and private tube wells.

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<sup>1</sup> As per data of Canal withdrawals from IRSA (Indus River System Authority).

<sup>2</sup> ADB. 1993. *Report and Recommendation of the President to the Board of Directors: Pehur High Level Canal Project*. Manila.

6. According to crop use statistics the total reported area of Swabi district is 148,689 ha out of which 87,046 ha has been reported as cultivated area. In the cultivated area, the total irrigated area is 37,248 ha in which the Government canals irrigate 24,787 ha, tube wells irrigates 94 ha of land, wells irrigate 11,427 ha, lift pump irrigate 121 ha and other sources irrigate 819 ha of land. Almost 49,798 ha of land had been reported as rain fed. The project will convert about 8,727 ha of rainfed area to irrigated agriculture aiming to increase the present rainfed cropping intensity of 52.4% to irrigated 165.75%. The project will result in improving the living conditions of the local population through economic growth from irrigated agriculture. The pressure pipes and canal system have extra capacity to increase the irrigated area by 1,400 ha in future, which will increase the total cultivable command area of PHLCE to 10,127 ha. The project will thus increase the existing 24,787 ha area in Swabi District irrigated by government canals to 34,950 ha an increase of 41% over the present canal irrigated area. At this stage the economic viability of the project is based on additional production from the proposed cultivable command area of 8,727 ha only.

7. The farm size in the command area is very small, and thus a large number of farmers will benefit from the project. There are 8,630 farms with an average size of 1.01 ha. According to distribution by size, the number of farms comes to 7,266; 1,214; 130; 12 and 7 in the farm size categories of I, II, III, IV, and V, respectively.<sup>3</sup> Thus, about 84.2% of the farms are less than 2 ha size and occupy 51.5% of the cultivable farmland and 98.27% of the farmers own a farm of less than 5 ha and collectively occupy 87.3% of the cultivable farmland of the command area. Vast majority of farmers are owners and own most of the farmland which is quite favorable for development of the project. 81.7% farms in the project area are operated by the owners, possessing 75.83% of farmland. The tenant operated farms are 9.6%, farming on 12.3% of farmland. The land owners in the project area are looking forward to convert from rainfed to irrigated farming as their incomes and the values of their properties would appreciate with project development.

8. **Climate change.** Climate change studies were carried out during project preparation stage.<sup>4</sup> These studies indicate that during the last century, average annual temperature in Pakistan increased by 0.6°C, which is in agreement with the global trend, with the temperature increase over northern Pakistan being higher than southern Pakistan (0.8°C versus 0.5°C). These studies project that the average temperature over Pakistan will increase in the range 1.3°C to 1.5°C by 2020, 2.5°C to 2.8 °C by 2050 and 3.9°C to 4.4 °C by 2080, corresponding to an increase in average global surface temperature by 2.8°C to 3.4 °C by the end of the 21<sup>st</sup> century.

9. The median scenario change projection indicates that the annual rainfall in the project area will not substantially increase; only 5% by 2050. However, there will be obvious change for 2100, with an average increase across the project area of 8%. While it is projected that climate change will impact the frequency and intensity of extreme rainfall events, with fewer but larger rainfall events expected (IPCC, 2007), degree of variation of floods (i.e., variation of return periods) cannot be estimated with confidence as different models give different results. However, the projected increased rainfall is not uniform and is more pronounced during the wet months. This means that more frequent floods will be experienced and consequently adequate discharge capacity of cross-drainage structures must be provided.

<sup>3</sup> Category I = Less than 2.02 ha, II = 2.02 to < 5.06 ha, III = 5.06- < 10.12 ha, IV = 10.12- < 20.23 ha, V = 20.23 -> 20.23 ha.

<sup>4</sup> ADB. 2013. *Project Preparatory Technical Assistance for KP Water Resources Sector Project (Consultant Final Report)*. Manila.



10. Irrigation water requirements have been estimated for the targeted cropping pattern with due consideration to climate change impact on agriculture by 2050. The studies conclude that climate change impact will result in nominal increase of 1.36 million m<sup>3</sup> in annual irrigation water requirements, which is available from the source (Tarbela Reservoir). The additional requirements fall mostly within the designed canal capacity except for the month of October, wherein the system capacity is projected to be 5% less than the demand. Thus, the crops will face a minor stress of 5% during this period. However, it should be noted that PHLCE canals have extra capacity to increase the irrigated area by 1,400 ha in future, which will augment the potential water balance deficit due to the climate change. During the remaining period, the required additional discharge due to the climate change would be easily accommodated by the PHLCE system. If needed, climate change impact can be neutralized by staggering the sowing time of crops grown at high intensity like maize and wheat in order to reduce the peak requirements during May and October.

#### **A. Impact and Outcome**

11. The project impacts, which are aligned with the government strategy will be the following (i) increased irrigated agriculture area in the KPP; and (ii) ensured food security for the decade 2010-2020 in KPP.<sup>5</sup> The outcome will be increased agricultural production in the project areas.

#### **B. Outputs**

##### **1. Output 1: Available agricultural water in project areas increased**

12. This output includes (i) construction of the irrigation system in Janda Boka-Malikabad area (JBMA); (ii) construction of the irrigation system in Indus Ambar area (IAA); (iii) developments of efficient monitoring and evaluation (E&M) system to assess the irrigation efficiency of PHLCE system and sustainable PHLCE O&M plan and rule.

##### **a. Construction of the irrigation system in JBMA**

13. **Connection with Gandaf Tunnel.** The outlet to the pressure pipe will off take from the Gandaf tunnel just downstream of the access chamber before the Pehur Hydropower station off take point. A valve chamber was constructed about 21 m from the tunnel centerline with a valve inside. The diameter of the pipe which was plugged for future Janda Boka Irrigation Scheme is 0.60 m.

14. **Pressure pipe and Outlet Works.** A 3,939 m long proposed pressure pipe will connect the Gandaf Tunnel with the Janda Boka area canal. This pipe is proposed to be 1.22 m diameter steel pipe up to Janda Boka Minor after which 850 millimeter pressure pipe continues to Janda Boka Main Canal. The change in diameter results in decrease of head loss and consequently it is possible to feed higher elevations of the area through gravity. The pipe is proposed to be buried at a minimum depth of 1.5 m to absorb the ground loading and coated with protective material to be safe against corrosion. Concrete cover has been provided and depth of excavation has been increased at the locations where it is crossing vehicular roads to avoid the direct impact of load on the pipe. Drainage and two air/vacuum valves are proposed along the pipe to protect against the abnormal flow conditions in the pipe. The pipe outlet is provided with a control system to regulate the flow for seasonal variation. Before the valve and operation room, a thrust block is proposed to absorb the transient pressure of the emergency

<sup>5</sup> KPP Government. 2009. *Comprehensive Development Strategy 2010-2017*. Peshawar.

wave. The control system comprises two valves i.e., a gate valve for open/shut conditions and a sleeve valve for regulation and energy dissipation.

15. A stilling well is proposed at the outlet to dissipate excess energy during the higher level in the reservoir. The well is protected with steel sheets against the high pressure jets of the incoming water. A sleeve valve is proposed to be protected against vibrations by anchoring it with the chamber walls. A control room will be provided for the operator and emergency spare parts. A weir at the other side of the well is proposed to spill the water into a stabilizing pool which will carry it to the canal.

16. **Main Janda Boka Canal.** The Main Canal has been proposed to be a contour channel, running at higher contour and irrigating areas only on its left side. Fifteen (15) numbers of direct outlets are also provided in the main canal. A minor canal offtakes directly from the Pressure Pipe in which five (5) outlets will be provided. Janda Boka command area is bounded by high level semi-hilly area to the north, PHLC canal to the south, Gadoon Industrial Area to the east, and the Maini Village to the west. Part of the land is already covered by the Gadoon Industrial Estate, Maini Village and high hills. The Gross Command Area after excluding Gadoon Industrial Estate and major settlements is 1,374 ha, while the cultivable command area (after accounting for roads, nullahs, etc.) is 1,316 ha which can be commanded under gravity from Tarbela. The command area is divided into subcommand areas (engineering *chackbandi*) with a total discharge of 0.65 m<sup>3</sup>/s.

17. **Canal and Drainage Structures:** Main structures on the Janda-Boka canals are aqueducts, drainage culverts, super passages, road bridges, foot bridges, outlets etc. The outlets are mostly proportional dividers i.e., bifurcaters and trifurcaters but for the smaller chaks and in the canal reach, open flumes have also been proposed. The proposed structures include; four falls/drop, one aqueduct, nine cross drainage culverts, 14 road bridges, 11 foot bridges, one minor, and 20 outlets.

#### **b. Construction of the irrigation system in IAA**

18. **Connection with Gandaf Tunnel.** The proposed pressure pipe starts from the downstream of the control valve and passes through a number of villages to reach the Ambar area where it opens into a discharge basin. Total length of the pipe is about 24.17 km. The pipe diameter for a discharge of 4.19 cumecs (148.06 cusecs) is 2.00 m (10.76 ft). The pipe is proposed to be buried at a minimum depth of 1.5 m to absorb the ground loading and coated with protective material to safe against corrosion. Concrete cover has been provided and depth of excavation has been increased at the locations where it is crossing vehicular roads to avoid the direct impact of load on the pipe. Similarly, it crosses a number of Nullahs and canals including Kundal and Badri. Again the depth is increased and surface is protected by riprap/stone apron to avoid the chances of exposure due to scour. It is proposed to connect the new pressure pipe with the existing steel liner of the Gandaf Tunnel at the point of access chamber just before the Janda Boka pipe and power offtakes. Although the other works could be carried out at any time, the connection will be established in a closure period by closing the bulkhead and control gates at the head of the Gandaf Tunnel. This arrangement will ensure that there will be no disruption of power generation in the Pehur power station as well as disruption of irrigation in PHLC.

19. **Pressure pipe and Outlet Works.** The proposed pressure pipe starts from the downstream of the control valve and passes through a number of villages to reach the Ambar area where it opens into a discharge basin. The total length of the pressure pipe is

approximately 24,170 m and pipe diameter is 2.0 m. The pressure pipe has been sized to be able to carry discharge of 4.19 m<sup>3</sup>/s. The pipe will be buried in ground at a minimum depth of 1.5 m (4.93 ft) to absorb the ground loading. The pressure pipe crosses a number of rivers and canals including Kundal and Badri, where the depth of the pressure pipe is increased and surface is protected by a stone apron to avoid the chances of exposure due to scour. There are about 19 drainage valves and 17 air-vacuum valves. These valves are protected in RCC chambers and projected above the ground. At the end, normal control valves and stilling wells are proposed. Water with surface waves will fall into a stabilizing pond through a spill weir in the well and reach the canal through a transition section.

20. **Main Indus Ambar Canal.** The main Indus-Ambar canal will serve both the Indus and Ambar areas by gravity. It will start from the downstream end of the stabilizing pond. The total length of the canal is 27,400 m. The canal includes one Syphon in between Indus and Ambar areas and one aqueduct to cross the link channel (Mira Branch–Indus Branch Link Channel).

21. **Distribution Canal System in IAA.** Apart from direct off takes to the IAA from main Indus-Ambar Canal, there are five minor canals serving the Ambar area. Indus Area is divided into two distinct portions i.e., north and south of Motorway M-1. Northern part is mostly served directly from the main Indus-Ambar Canal, therefore there is only one minor to the right of the canal. To serve the southern part, an aqueduct through an existing culvert or underpass is proposed to cross the Motorway. After crossing the motorway, another minor is offtaking from the distributary. The distributary canal will end at the point where it will be linked with the existing Indus Branch to feed the Nandrak Minor to overcome the shortage in the tail of the system.

**c. Development of M&E system to assess the irrigation efficiency and sustainable PHLCE O&M plan and rule.**

22. An M&E system using satellite remote sensing technology and field-monitored irrigation water flow will be developed to assess irrigation performance efficiently of existing PHLC and proposed PHLCE systems. The M&E system with field calibration will also be used for crop growing assessment, which will help the KPP Agriculture Department (KPAD) assess the status of agriculture production, and the KPP Irrigation Department (KPID) conduct objective abiana assessment with expected abiana collection more than the average collection range of 50%-60% in KPP. At project completion, the M&E system will be handed over to KPID and KPAD whose staff will be trained on the use of the system. Also, a rule and sustainable plan of PHLCE O&M with expected increase of abiana collection and KPP's committed budget allocation will be developed by incorporating the M&E system in the plan.

**2. Output 2: Water-use skill and farm management capacities increased in the project areas**

23. This output will maximize the agricultural benefits resulting from the increased water availability through Output 1. This includes (i) construction of on-farm level irrigation canals (i.e., watercourses and farm turnouts); (ii) formation and capacity development of WUAs; and (iii) trainings to farmers on profitable farming system and efficient water use skills through demonstration activities and farmer field schools (FFSs).

**a. Construction of on-farm level irrigation canals**

24. Estimated 20 and 86 watercourses will be constructed in JBMA and IAA, respectively with the total estimated length of over 120 km. Farm turnouts will also be installed, one for each farm. These watercourses will be connected with irrigation system through outlets which will be constructed under Output 1, and will deliver the water to the tail end of farmlands in all project areas. The construction of watercourses will be undertaken on participatory basis. The watercourses will be constructed with the participation from water users' associations (WUAs) that will be formed under the project and beneficiaries who will provide land for watercourses at no cost and will provide unskilled labor thus contributing about 10% of the cost of the watercourse construction in kind. Other costs such as material, skilled-labor will be financed under the project.

**b. Formation and capacity development of WUAs**

25. There will be 106 WUAs (each WUA will in principle operate and maintain one watercourse.) formed and trained to cover all project areas. The PIO will develop WUA's organization, and operation and management manual for smooth WUAs' formation and efficient watercourse O&M by WUAs.

26. The WUA is responsible for the following (i) provide right of way for constructing the watercourse; (ii) arrange unskilled labor required for construction of watercourse and installation of structures; (iii) settle any disputes amongst the water users in respect of channel alignment, fixation of farm-turnouts, distribution of work etc.; (iv) regularly undertake O&M of the watercourse; (v) undertake construction / improvement of farmers' branches and field ditches; (vi) participate in the process of water allocations and distribution (*warabandi*) within the watercourse command; (vii) facilitate distribution of non-water inputs; (viii) access funding from various government and non-government organizations to carry out development works in agriculture sector; (ix) arrange collective purchase and distribution of agriculture inputs (i.e., seed, fertilizer and pesticides) on time; and (x) assist KPID in collection of *abiana*.<sup>6</sup>

27. In KPP, WUAs have been established under KPP's on-farm water management (OFWM) program. While these WUAs functioned well during the rehabilitation or construction of watercourses, these become redundant after completion of the rehabilitation or construction process. Thus, currently, the WUAs are not adequately equipped and trained to undertake their tasks efficiently. They are not quite conversant with water distribution and measurement in a practical way. Under the Project, WUAs will be trained to develop their capacity for overall water resources management and efficient use of irrigation water.

28. The WUAs will be formed through social mobilization by the PIO and will be registered under "On Farm Water Management & Water Users' Association Ordinance [Act]-1981 (Amended 2001)".<sup>7</sup> To ensure continued periodic training to the new office bearers and staff, training modules will be prepared by the project implementation office (PIO) in consultation with OFWM directorate and Agriculture Extension Services, and periodic short training sessions will be conducted within the area of each WUA to address various topics which will cover the following but not limited to: (i) administrative and financial management of WUA, (ii) introduction of new practices and technologies like information on new crops introduced, (iii) double cropping, (iv) minimum tillage, (v) efficient methods of irrigation, water conservation and water

<sup>6</sup> Abiana will be collected by KPID.

<sup>7</sup> The On-Farm Water Management and Water Users' Associations Ordinance, 1981.

saving technologies, (vi) off-season production, (vi) tunnel farming, (vii) efficient harvesting and post-harvest, and (viii) financial management, preparing crop budgets, and selecting most suitable crop mix at a farm. Also, the WUAs will be trained on how to collectively procure the agriculture inputs (e.g., seeds, fertilizers, pesticides) and distribute the same among their members.

**c. Trainings to farmers on profitable farming system and efficient water use skills through demonstration activities and FFSs**

29. One hundred (100) demonstration plots will be established on selected farmers' fields to demonstrate the effectiveness of the following: (i) improved irrigated farm practices including efficient farm operation and balanced use of agricultural inputs, (ii) use of certified seeds, (iii) precise land levelling; (iv) cultivation of high value crops, and (v) high efficiency irrigation systems, depending on the demonstration plot. For the first year of the activity, 50 demonstration plots will mainly demonstrate profitable farming system, and efficient water use skills using irrigation water from constructed PHLCE system will be demonstrated in different 50 demonstration plots for the second year of the activity, inviting total target 2,500 farm households. Each FFS will also train participants on efficient water use such as (i) improved field channel layout and operation at the watercourse level, (ii) practices for improved water use efficiency, (iii) scheduling irrigation according to crop water requirements, and (iv) other management techniques to maximize production per unit volume of irrigation water applied.

30. These demonstration plots will be owned by the respective farmers who will be obliged to bear all running costs and follow the advice of the experts of the PIO with support from Agriculture Extension Services (AES) and OFWM Directorate. All inputs for use on the demonstration plots will be provided by the Project. These plots will also include part of the area cultivated using uncertified seeds, so as to demonstrate the yield difference between certified and uncertified seeds. The average size of the demonstration plots will be about 5 ha. As the average farm size is about one ha, many demonstration plots will be established as clusters of small size plots. The proceeds from the agriculture on the demonstration plots will go to the owners of the land. Farmers from the distributary where the demonstration plot is located will be shown round and trained in use of water conservation technologies, introduction of high value crops and achieving high yields from crops.

31. The results obtained at the demonstration plots will be disseminated through farmer field schools (FFSs) and field trips by inviting over 2,500 farm households. The FFSs will be held in both rabi and kharif seasons. The staff of PIO will be responsible for training of farmers through FFSs with the support from the AES Directorate.

32. The field offices of AES Department and OFWM Directorate lack proper office facilities like desk top computers, lap tops, printers and office furniture etc. To fulfill their intended tasks, required equipment and office furniture will be provided under the Project.

33. The M&E system to be developed under Output 1 with field calibration will inform crop growing area in each crop type, estimated crop yield, water use efficiency cropping type, in each determined crop area size, and this will also help KPAD to assess the status of agriculture production, and KPID assess and collect abiana. The staff of KPAD will be trained to use the system.

## II. IMPLEMENTATION PLANS

### A. Project Readiness Activities

34. The loan for the project is expected to become effective in December 2016 and will be implemented over a period of five years.

35. The terms of reference of the project implementation consultant (PIC) and its cost estimated was already developed and submitted to KPID in December 2015. Prior to the approval of the loan, the advertisement and necessary processing to recruit the project implementation consultant (PIC) will commence by ADB on behalf of the KPID while the EA retains the responsibility for negotiating and signing the contract with the consultant, issuing the notice to proceed, and supervising the consultant's services to enable KPID to start implementing the Project immediately after the loan signing. The PIC will be contracted by the PMO and the detailed design for civil work packages will commence under PMO using retroactive financing prior to the loan effectiveness.<sup>8</sup> The PC-1 document will be prepared based on the feasibility level design and will be approved by the government of Pakistan prior to the loan negotiations. PMO staff and key staff in each project implementation office (PIOs) be appointed and/or employed prior to the PIC contract. Regardless of the actual schedule of PIC contract, an accounts manager and two accountants in the PMO will be fielded within 3 months after loan effectiveness. Disbursement of the proceeds of ADB loan will be conditional upon the fielding of the accounts staff.

36. The main project readiness activities are provided in Table 1.

**Table 1: Project Readiness Activities**

Indicative Activities	2016											2017		Responsibility	
	3	4	5	6	7	8	9	10	11	12	1	2			
Start advertisement and processing to recruit PIC				X											KPID
Completion of Feasibility Design		X													PPTA Consultant
PC-1 Approval								X							GoP
Loan negotiations								X							ADB-GoP
ADB Board approval									X						ADB
PMO and key PIO staff										X					KPID
PIC contract											X				PMO under KPID
Loan signing											X				ADB-GoP
Government legal opinion provided												X			GoP
Government budget inclusion				X											GoP
Loan effectiveness													X		GoP-ADB

ADB = Asian Development Bank, GoP = Government of Pakistan, PIC = Project Implementation Consultant, PIO = project implementation office, PMO = project management office.

<sup>8</sup> The PMO director was assigned all contractual matter by the KPID.

**B. Overall Project Implementation Plan**

37. The project implementation schedule is shown in Figure 1. Implementation of activities will except for PIC activities start from November 2016 prior to the expected loan effectiveness in December 2016, and the project's physical completion and loan financial closings are expected on 31 December 2022 and 30 June 2023, respectively.

**Figure 1: Proposed Project Implementation Schedule**

No.	Outputs/Components/Major Activities	Year-1				Year-2				Year-3				Year-4				Year-5				Year-6				Year-7			
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
1	Project Management																												
	Formation of PMO and Recruitment of the PIC																												
a	Formation of PMO			X																									
b	Recruitment of PIC																												
2	Output1: Increased Available Agricultural Water																												
	Detailed Design and Bidding																												
a	Detailed Engineering Design and Budding Document																												
b	Bidding and Bid Evaluation																												
	Construction of Pressure Pipes and Irrigation System																												
c	Construction of Main System in IAA																												
d	Construction of Main System in JBMA																												
e	Land Acquisition and Resettlements																												
f	Defect Notification (O&M) for Construction Contract																												
g	Development of a M&E System for PHLC and PHLCE																												
h	Full Implementation of O&M Plan and its Guideline																												
3	Output 2: Improved Water-use Skill and Farm Management Capacity																												
	JBMA																												
a	Formation of WUAs																												
b	Construction of Watercourses and Farm Turnouts																												
c	Farmers' Capacity Building (demonstration and FFSS)																												
	IAA																												
d	Formation of WUAs																												
e	Construction of Watercourses and Farm Turnouts																												
f	Farmers' Capacity Building (demonstration and FFSS)																												

IAA = Indus Ambar area, JBMA = Janda Boka-Malikabad area, M&E = monitoring and evaluation, O&M = operation and maintenance, PMO = project implementation consultant, PMO = project management office, WUA = water users' association.

Source: Asian Development Bank estimates.



### III. PROJECT MANAGEMENT ARRANGEMENTS

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

38. **Project Steering Committee.** The Project Steering Committee (PSC) established during the project preparatory technical assistance (PPTA) will continue during implementation stage. The PSC will provide oversight and policy guidance for the project, review progress, and make key decisions for the project. The PSC is chaired by the Additional Chief Secretary (development), Planning and Development Department (P&DD) and include Secretaries of Khyber Pakhtunkhwa Irrigation Department (KPID), Khyber Pakhtunkhwa Agriculture Department (KPAD), Member Board of Revenue, the Project Coordinator, the Project Director, and the team leader of the project implementation consultant as members. As the water supply component had been removed from the project scope, PHED will no longer be a member of the PSC. One member of district administration will also be included for the implementation stage. Representatives of farmers will also be invited to participate in PSC as necessary. Organization structure of PSC is given in Figure 2.

39. **Project Coordinator:** The Government of KPP will nominate a Project Coordinator who would be responsible for project oversight on behalf of the Government.<sup>9</sup>

40. **Executing and Implementing Agencies.** KPID will be the executing agency (EA) for the project and thus, will be responsible for management and implementation of the entire project. KPAD responsible for OFWM and AEC will be the implementing agency (IA). The project management office (PMO) will facilitate project steering Committee meetings by inviting representatives from the EA and IA to report implementation status and seek policy and management guidance for the project.

41. KPID will implement Output 1(Available water for agriculture-use increased in project areas) while KPAD will be responsible for implementation of Output 2 (Water-use and farm management capacities increased in project areas). Within KPAD, OFWM Directorate will be responsible for organization and training of WUAs, ACS Directorate for training of farmers through farmer training school while both these directorates will be jointly responsible for selection, design, operation, and management of demonstration farms.

42. **Project Management Office and Project Implementation Offices.** A Project Management Office (PMO) and a Project Implementation Office (PIO) will be established in the field at Gohati, District Swabi in the existing buildings of KPID. Currently, the existing buildings of KPID in District Swabi are not in use and would require major renovation. The PMO will be headed by Project Director. Organization structure of PMO is given in Figure 3.

43. The PMO will be responsible for (i) management of overall project activities in accordance with the project design; (ii) implementation of Output 1 activities, (iii) coordinating activities between the KPID and KPAD, PIO and other agencies concerned; (iv) ensuring compliance with environmental and social safeguard requirements; (v) maintaining appropriate accounts, including reports on withdrawal applications and disbursement; (vi) carrying out recruitment of consulting services and procurement activities; (vii) monitor, evaluate and report on project progress; and (viii) preparing quarterly progress and other reports in format acceptable to ADB. The PIO will be responsible for implementation of Output 2 activities which constitute construction of watercourses and outlets, establishment of demonstration farms,

<sup>9</sup> It is highly likely that Chief Engineer (North), KPID will be the Project Coordinator.

training of farmers, capacity development of KPAD field offices, and organization and training of WUAs.

44. The detailed role and responsibilities of each organization are provided in Table 2.

**Table 2: Roles and Responsibilities in each Organization**

Organization	Management Roles and Responsibilities
<b>Economic Affairs Division, Ministry of Economic Affairs and Statistics</b>	<p><b>Borrower:</b></p> <ul style="list-style-type: none"> <li>(i) Signing of loan agreement;</li> <li>(ii) Allocate and release counterpart funds;</li> <li>(iii) Endorse to ADB the authorized staff with approved signatures for withdrawal applications (WAs) processing; and</li> <li>(iv) Process and submit to ADB any request, when required, for reallocating the loan proceeds.</li> </ul>
<b>Khyber Pakhtunkhwa Finance Department (KPF)</b>	<ul style="list-style-type: none"> <li>(i) Timely provision of land acquisition and resettlement budget to KPID; and</li> <li>(ii) Timely provision of operation and maintenance budget to KPID in accordance with loan covenant and PAM.</li> </ul>
<b>KPID</b>	<p><b>Executing Agency:</b></p> <ul style="list-style-type: none"> <li>(i) Assign Directors (one for output 1 and another for output 2);</li> <li>(ii) Establish the PMO and PIOs with the required staffing;</li> <li>(iii) Overall responsibility for managing of project outputs (KPID responsible for the output 1, and KPAD responsible for outputs 2);</li> <li>(iv) Overall responsibility for reporting on physical, non-physical, procurement and financial progress for project activities including the development of the government's project completion report and its submission to ADB;</li> <li>(v) Timely provision of agreed counterpart funds for project activity and PMO and PIO operations;</li> <li>(vi) Conduct timely financial audits as per agreed timeframe and taking recommended actions;</li> <li>(vii) Comply with Loan Agreement covenants; and</li> <li>(viii) Public disclosure of project outputs.</li> </ul>
<b>PMO (For overall project management and implementation of Output 1)</b>	<p><b>A: On Overall Project Management</b></p> <ul style="list-style-type: none"> <li>(i) Regularly update overall implementation plan, prepare annual project budget, and request KPF for operation budget;</li> <li>(ii) Establish imprest account and maintaining the project accounts;</li> <li>(iii) Prepare and submit withdrawal applications;</li> <li>(iv) Update procurement plan, as necessary;</li> <li>(v) Recruit consultants and procuring works and goods;</li> <li>(vi) Coordinate with other government agencies, departments and units, local governments, district office, union councils, communities as necessary;</li> <li>(vii) Guide the plans, surveys, studies, detailed designs, capacity development activities, demonstration activities, workshops to be prepared or implemented by the consultants;</li> <li>(viii) Monitor and supervise consulting services and PIO operations;</li> <li>(ix) Monitor and supervise works conducted by contractors, and the delivery of goods procured by suppliers with the support of the</li> </ul>

Organization	Management Roles and Responsibilities
	<p>consultants;</p> <p>(x) Finalize, disclose and implement land acquisition and resettlement plan;</p> <p>(xi) Implement gender action plan and updating the plan as necessary;</p> <p>(xii) Monitor project progress and evaluating project benefits and social and environmental impacts;</p> <p>(xiii) Conduct economic analysis at the midterm of the project implementation;</p> <p>(xiv) Manage loan disbursement and maintaining financial accounts;</p> <p>(xv) Prepare periodic implementation progress reports;</p> <p>(xvi) Prepare and disclose safeguards monitoring reports; and</p> <p>(xvii) Establish and implement an effective grievance redress mechanism for the project.</p> <p><b>B: On Implementation of Output 1</b></p> <p>(i) Day-to-day field level implementation of the respective works and activities for output 1;</p> <p>(ii) Conduct inspection of the quality and standard of works and goods, and provide feedback, guidance, and instruction to the contractors and suppliers;</p> <p>(iii) Supervise the performance and outputs of the contractors, suppliers and consultants;</p> <p>(iv) Prepare periodic progress reports and other required documents; and</p> <p>(v) Coordinate implementation activities with district office, local governments, union councils, communities, and other PIO.</p>
<b>PIO (For Output 2)</b>	<p>(i) Day-to-day field level implementation of the respective works and activities for output 2;</p> <p>(ii) Conduct inspection of the quality and standard of works and goods, and provide feedback, guidance, and instruction to the contractors and suppliers;</p> <p>(iii) Supervise the performance and outputs of the contractors, suppliers and consultants;</p> <p>(iv) Prepare periodic progress reports and other required documents for submission to the PMO; and</p> <p>(v) Coordinate implementation activities with district office, local governments, union councils, communities, and other PIO.</p>
<b>ADB</b>	<p><b>Financier</b></p> <p>(i) Assist the EAs and PMO by providing timely guidance at each stage of the project for smooth implementation;</p> <p>(ii) Review all the documents submission by the PMO that require ADB approval;</p> <p>(iii) Conduct periodic project review missions, a midterm review, and a project completion mission;</p> <p>(iv) monitor EAs' compliance of all loan covenants</p> <p>(v) Timely process withdrawal applications and release eligible funds;</p> <p>(vi) monitor EAs' compliance of financial audit recommendations;</p> <p>(vii) Regularly update the project performance review reports with the assistance of the EAs and PMO; and</p> <p>(viii) Regularly post on ADB website the updated project information documents for public disclosure, and the safeguards documents as per disclosure provision of the ADB Safeguards Policy Statement (2009), and ADB Public Communications Policy.</p>

Source: ADB.

## B. Key Person Involved in Project Implementation

### 1. Executing Agencies and ADB

<b>Executing Agency and Implementing Agency for Output 1</b>	
<b>KPID</b>	Engr. Syed Mujahid Saeed Chief Engineer North Khyber Pakhtunkhwa Irrigation Department, Peshawar Telephone: +92-333-910-1017 e-mail: mujahidsaeed@gmail.com
<b>Implementing Agency for Output 2</b>	
OFWM Directorate	Engr. Muhammad Khurshid Afridi Director General, OFWM Directorate 19 Jamrud Road ATI Campus, Peshawar, Pakistan Telephone: +92 91 922 4308
Agriculture Extension Directorate	Iqbal Hussain Director General Jamrud Road, Peshawar, Pakistan Telephone: +92 91 9224223
<b>ADB</b>	
Environment, Natural Resources and Agriculture Division	Akmal Siddiq Director Telephone No. +63 2 632 6748 Email address: asiddiq@adb.org
Mission Leader	Ryutaro Takaku Senior Water Resources Specialist Tel (632) 632-5158 Fax (632) 636-2017 Email: rtakaku@adb.org
Resident Mission Focal	Asad A. Zafar Senior Project Officer (Agriculture and Natural Resources), Level 8, North Wing, Serena Business Complex, Khayaban-e-Suhrawardy, G-5, Islamabad, Pakistan Telephone: +92 51 260 0351 to 69, 2087300 Email: azafar@adb.org

### 2. PMO and PIOs

45. KPID is responsible to identify PMO staff while KPAD will nominate staff for PIO for Output 2. Proposed key PMO staff would require ADB's approval. The roles and tasks of key PMO and PIO staffs are provided in Table 3.

**Table 3: Roles and Responsibilities of Key PMO and PIO Staff**

Position	Roles and Responsibilities
Project Director	<ul style="list-style-type: none"> <li>(i) Draft annual work programs for each output, submit them to the project director and its deputy and obtaining their agreements;</li> <li>(ii) Consult with the chief accountant to monitor budgetary expenditure, review disbursement requests, prepare the annual budget and submit these the project director and its deputy for agreements;</li> <li>(iii) Ensure the hiring of suitably qualified staff to implement the all outputs in accordance with ADB requirements;</li> <li>(iv) Guide and collaborate with the relevant staff to monitor output implementation in accordance with the agreed work program;</li> <li>(v) Attend, hold or participate in seminars, workshops, media events etc. to represent the project;</li> <li>(vi) Conduct site visits as required to monitor and correct implementation of the project;</li> <li>(vii) Develop and submit recommendations to the project director and its deputy to resolve issues which arise in the course of project implementation;</li> <li>(viii) Support the project director and its deputy in the overall project management and preparation of reports for the Government and its relevant agencies;</li> <li>(ix) Manage all staff directly working on the project, including staff grievance procedures and make recommendations to the project director and its deputy on hiring decisions;</li> <li>(x) Coordinate with relevant key staff to maintain an overview of the day-to-day operations of the project;</li> <li>(xi) Provide operational support to key staff members in the implementation of their responsibilities;</li> <li>(xii) Draft a comprehensive project reporting system, submit it to the project director and its deputy for agreements and implementations;</li> <li>(xiii) Coordinate implementation of project outputs with the relevant project related agencies;</li> <li>(xiv) Assist the project director and its deputy to coordinate interaction with relevant ministries and agencies, as may be required;</li> <li>(xv) Liaise with local government administrations participating in the project to ensure successful implementation of project activities;</li> <li>(xvi) Draft project implementation reports and submit to the project director and its deputy for agreements and distributions;</li> <li>(xvii) Ensure quality, timely submission to ADB and disclosure of safeguards monitoring reports;</li> <li>(xviii) Ensure the establishment and effective implementation of a grievance redress mechanism for the project to deal with concerns from displaced persons, and communities;</li> <li>(xix) Liaise with ADB staff and supervision missions to ensure successful completion of missions and ongoing project monitoring;</li> <li>(xx) Implement recommendations of ADB supervision missions and associated aide-memoires, as agreed by the project director and its deputy; and</li> <li>(xxi) Manage and supervise all activities for implementation of Output 1.</li> </ul>
Director Finance (PMO)	<ul style="list-style-type: none"> <li>(i) Responsible for taking care of financing, funds flow arrangements, payments, recording, and monitoring of both ADB and Government funds; establish monitoring and management procedures for the imprest account and Statement of Expenditure (SOE) procedures;</li> <li>(ii) Ensure timely preparation of the annual audited project accounts and submission to ADB within 6 months of financial year end;</li> <li>(iii) Cooperate with the Project Manager and the PMO staff to develop a strategy for guiding and supporting purchase operations made by the PMO in regard to project components;</li> <li>(iv) Maintain information on ADB disbursement guidelines, and other resources needed by staff in carrying out disbursements, imprest account operation, SOE procedures;</li> <li>(v) Negotiate and prepare standard bidding packages and specifications to evaluate, enter into contracts, oversee delivery, issue invoices, inspect/test procured items, and make payments to suppliers/contractors;</li> <li>(vi) Coordinate with the specialists of the PMO, to develop and implement payment mechanisms and procedures to support purchases of goods, consulting services, and construction services;</li> <li>(vii) Communicate through the Project Director information and/or documentation to the Government or ADB for their inspection, obtaining comments and/or for commencement of funding.</li> </ul>
Deputy	(i) Develop an Operational Manual covering the procurement policies, procedures and standard

Position	Roles and Responsibilities
Director (Procurement, PMO)	<p>documents in order to minimize cost and ensure a scheduled carrying out of procurement activities in line with the requirements of the Government and ADB;</p> <ul style="list-style-type: none"> <li>(ii) Maintain an information database on procurements of technical services, suppliers of equipment, ADB procurement guidelines, standard and model bidding documents, and other resources needed by staff in carrying out project components;</li> <li>(iii) Negotiate and prepare standard bidding packages and specifications to evaluate, enter into contracts, oversee delivery, issue invoices, inspect/test procured items, and make payments to suppliers/contractors;</li> <li>(iv) Establish a monitoring system within the procurement unit of the PMO for overseeing project procurement actions and coordinating necessary approvals or correcting shortcomings in procedures; and</li> <li>(v) Communicate to the Government or ADB for their inspection, obtaining comments and/or for commencement of funding.</li> </ul>
Deputy Director (Environment, PMO)	<ul style="list-style-type: none"> <li>(i) Ensure that EMP will be updated during detailed design completed;</li> <li>(ii) Ensure that bidding documents include all requirement to implement IEE and its EMP;</li> <li>(iii) Ensure that the bidder selected will have adequate resources to implement and update EMP;</li> <li>(iv) Undertake environmental safeguards monitoring activities and prepare environmental safeguard reports to be submitted to ADB; and</li> <li>(v) Ensure that the any works are implemented in accordance with ADB SPS 2009 as well as the government law and regulation related to environment;</li> </ul>
Deputy Director (Resettlement , PMO)	<ul style="list-style-type: none"> <li>(i) Ensure that the LARP will be updated during detailed design and any update or corrective actions as may be required during implementation;</li> <li>(ii) Ensure that the final LARP is disclosed to DPs and implemented as per schedule;</li> <li>(iii) Ensure that bidding documents, capacity building programs, any activity for output 1 include all requirements relevant to implement the LARP;</li> <li>(iv) Responsible for preparing the internal resettlement monitoring reports, with support from the Project Implementation Consultants, for submission to ADB;</li> <li>(v) Oversee the conduct of consultations with DPs;</li> <li>(vi) Ensure that DP concerns and complaints are resolved in a timely and effective manner, and report on emerging LAR issues during project implementation;</li> <li>(vii) Follow-up on actions needed to address issues and recommendations raised in the internal and external resettlement monitoring reports; and</li> <li>(viii) Ensure that the any works are implemented in accordance with ADB SPS 2009 as well as the government law and regulation related to resettlement.</li> </ul>
Deputy Director (Sociology, PMO)	<ul style="list-style-type: none"> <li>(i) Ensure that LARP and GAP will be updated during detailed design and planning completed;</li> <li>(ii) Ensure that bidding documents, capacity building programs, demonstration activities, any activities for output 1, include all requirement to implement LARP and GAP;</li> <li>(iii) Ensure that the bidder selected will have adequate resources to implement and update GAP;</li> <li>(iv) Undertake gender monitoring activities and prepare gender reports to be submitted to ADB;</li> <li>(v) Ensure regular and effective stakeholder communication and engagement throughout the project implementation; and,</li> <li>(vi) Oversee the conduct of consultations with stakeholders and formation of water users associations.</li> </ul>
M&E Officer (PMO)	<ul style="list-style-type: none"> <li>(i) Ensure that appropriate M&amp;E strategy and plans are developed to assess the achievement of each project output;</li> <li>(ii) During initial phase of the implementation of the project, reconfirm and/or update: (a) activities with milestones, performance targets and indicators with baselines, all of which are defined in the Design and Monitoring Framework, (b) requirements indicated in the Summary Poverty Reduction and Social Strategy, and (c) Gender Action Plan;</li> <li>(iii) Ensure to update (a) activities with milestones, performance targets and indicators with baselines, all of which are defined in the Design and Monitoring Framework, (b) requirements indicated in the Summary Poverty Reduction and Social Strategy at the project completion, and (c) Gender Action Plan; and</li> <li>(iv) Ensure that baseline, intermediate and end-of project socio-economic surveys and impact assessment in each output of the project are planned and conducted.</li> </ul>
PIO Output 2 Director	<ul style="list-style-type: none"> <li>(i) Serve as the 'Engineer' and 'Coordinator' for all activities including civil works, delivery of goods, services, capacity building, demonstration activities for Output 2;</li> <li>(ii) Oversee all activities for Output 2, which related mainly to the construction of the water courses and its outlets; selection, design, implementation and monitoring of demonstration plots; training of farmers through farmer field schools; capacity development of KPAD field offices in the project area; and organization and training of WUAs. Monitor their</li> </ul>

Position	Roles and Responsibilities
	implementation in relation to the agreed work plan; (iii) Coordinate with Agriculture Extension department for farmers training through demonstration plots and farmer field schools (iv) Report any deviations from the work plan to the PMO Director; (v) Establish monitoring and evaluation system for output implementation; (vi) Support the PMO Director for the execution of the Output 2; (vii) Identify any operational problems and raise them with the PMO Director; (viii) Coordinate with local KPID office, and, local governments to resolve any issues in implementing Output 2, inform them of the outputs status; (ix) Organize orientation or training programs to educate project participants; and (x) Cooperate with the PMO Director, to draft an annual work plan for the PIO, which will be submitted to the Project Director for approval.

### C. Details of Cost for Project Management

46. The total costs of project management are estimated at PRs401 million (Table 4). Details are given in Tables 5-8. All these costs except for duties and taxes will be fully financed by ADB.

**Table 4: Summary of Project Management Expenses**

Sr. No.	Description	Amount (PRs)
<b>1</b>	<b>Project Management Office (including PIO for Output 1)</b>	<b>269,865,500</b>
i	Salary Costs	<b>214,945,500</b>
ii	Direct Costs	54,920,000
<b>2</b>	<b>Project Implementation Office for Output 2</b>	<b>131,429,000</b>
i	Salary Costs	<b>79,440,000</b>
ii	Direct Costs	<b>51,989,000</b>
<b>TOTAL PROJECT MANAGEMENT COSTS</b>		<b>401,294,500</b>

Table 5: Details of PMO Salary Costs

Sr.#	Designation	Man- Months	Monthly Gross Salary (Rs)	Total Amount (Rs)	Total Amount (\$)
<b>Project Director Unit</b>					
1	Project Director	62	285,000	17,670,000	168,286
<b>Engineering and Contracts</b>					
2	Director Technical / DPD	62	250,000	15,500,000	147,619
3	Dy Director Civil	48	185,000	8,880,000	84,571
4	Deputy Director Mechanical	48	185,000	8,880,000	84,571
5	A.D Engineering	54	150,000	8,100,000	77,143
6	Dy. Director Contract	54	185,000	9,990,000	95,143
	A.D Contract	54	150,000	8,100,000	77,143
7	Assistant Director Mechanical	48	150,000	7,200,000	68,571
	Sub Engineers	144	75,000	10,800,000	102,857
<b>Monitoring &amp; Evaluation</b>					
	M&E Specialist	62	200,000	12,400,000	118,095
<b>Social &amp; Environment</b>					
7	Director Social & Environment	62	250,000	15,500,000	147,619
8	Dy Director Environment	62	185,000	11,470,000	109,238
9	Dy Director Resettlement	62	185,000	11,470,000	109,238
10	Dy Director Social and Gender	62	185,000	11,470,000	109,238
	Deputy Collector	36	125,000	4,500,000	42,857
	Zilladar	36	75,000	2,700,000	25,714
	Patwari	36	35,000	1,260,000	12,000
<b>Administration and Finance</b>					
11	Manager Accounts	62	185,000	11,470,000	109,238
12	Accountant	48	75,000	3,600,000	34,286
13	Accountant	48	75,000	3,600,000	34,286
<b>Office Support</b>					
13	Manager Admn.	62	85,000	5,270,000	50,190
14	Office Support Staff	8		14,880,000	141,714
<b>Total</b>				<b>204,710,000</b>	<b>1,949,619</b>
	<b>Unallocated</b>			<b>10,235,500</b>	<b>97,481</b>
	<b>Grand Total</b>			<b>214,945,500</b>	<b>2,047,100</b>



Table 6: Details of PMO Non-Salary Costs and Operational Expenses

Sr. No.	Description	Unit	Quantity	Unit Rate	Amount (Rs.)
1	Refurbishment of Office Building	sq.m	1260	5,500	6,930,000
<b>Purchase of Furniture</b>					
1	Office Tables	No.	12	10,000	120,000
2	Office Chairs	No.	12	3,500	42,000
3	Visitor Chairs	No.	72	1,500	108,000
4	Conference Table	No.	1	25,000	25,000
5	Conference Chairs	No.	12	1,500	18,000
6	Computer Tables	No.	24	7,000	168,000
7	Computer Chairs	No.	12	2,000	24,000
8	Support Staff Tables	No.	10	7,000	70,000
9	Support Staff Chairs	No.	10	1,500	15,000
10	Drawing Cabinets	No.	10	10,000	100,000
11	Filing Cabinets	No.	10	8,000	80,000
12	Side rack	No.	15	5,000	75,000
13	Almirahs	No.	5	8,000	40,000
14	Curtains for windows	LS			-
15	Electric fixtures like bulbs, fans etc.	LS			-
16	Pedestal/ Bracket fans	LS		20,000	20,000
<b>Total: -</b>					<b>905,000</b>
<b>Purchase of Equipment</b>					
1	Computers with UPS	No.	18	85,000	1,530,000
2	B/W Printer / Scanner / Photocopier (A3)	No.	2	250,000	500,000
3	Printer (A-4, Black and White)	No.	3	50,000	150,000
4	Laptop	No.	6	125,000	750,000
5	Colour Printer / Scanner / Photocopier (A-3, Coloured Laser)	No.	1	750,000	750,000
6	Scanner (A-4)	No.	1	30,000	30,000
7	Networking Hub	No.	1	50,000	50,000
8	Networking of Computers	LS		150,000	150,000
9	Multimedia	No.	1	100,000	100,000
10	Fax Machine	No.	1	25,000	25,000
11	Telephone Exchange	No.	1	100,000	100,000
12	Telephone Sets and networking	LS		150,000	150,000
13	Heater (Gas)	No.	15	3,000	45,000
14	Air Conditioner Split Unit (1.5 ton)	No.	15	60,000	900,000
15	Generator	No.	1	1,000,000	1,000,000
16	Refrigerator	No.	1	50,000	50,000
17	Spiral Binding Machine	No.	1	20,000	20,000
18	Lamination Machine	No.	1	15,000	15,000
19	Digital Camera	No.	5	30,000	150,000
20	Crockery/Cutlery/Water Cooler/Oven etc.	LS		100,000	100,000
<b>Total:</b>					<b>6,565,000</b>
<b>Office Supplies</b>					
1	Stationery	Months	62	25,000	1,550,000
2	Maintenance and Supplies for Printer & Photocopy Machine	Months	62	25,000	1,550,000
3	Miscellaneous Items	Months	62	10,000	620,000
<b>Total:</b>					<b>3,720,000</b>
<b>Printing and Binding of Reports</b>					
1	Printing and Binding of Reports		LS	800,000	800,000
<b>Total:</b>					<b>800,000</b>
<b>Field Allowances</b>					
1	Daily Allowances for field visiting staff		LS	1,000,000	1,000,000
<b>Total:</b>					<b>1,000,000</b>
<b>Purchase of Vehicles</b>					
1	Cars (Sedan)	No.	1	2,250,000	2,250,000
2	Double Cabin	No.	4	3,000,000	12,000,000
<b>Total:</b>					<b>14,250,000</b>
<b>Telephone/Fax, Postage and Courier charges</b>					
1	Telephone Calls/ Fax	Months	62	20,000	1,240,000
2	Postage/ Couriers	Months	62	10,000	620,000
<b>Total:</b>					<b>1,860,000</b>
<b>Miscellaneous</b>					
1	Utility bills (Electricity, Water ar	Months	62	40,000	2,480,000
2	POL for vehicles	V. Months	250	30,000	7,500,000
3	Maintenance of vehicles	V. Months	250	20,000	5,000,000
4	Insurance and Registration of Vehicals	LS		500,000	500,000
5	Operation & Maintenance of Generator	Months	62	30,000	1,860,000
6	Internet / Email connection charges	Months	62	5,000	310,000
7	Miscellaneous Office Expenses	Months	62	20,000	1,240,000
<b>Total</b>					<b>18,890,000</b>
<b>Grand Total:</b>					<b>54,920,000</b>

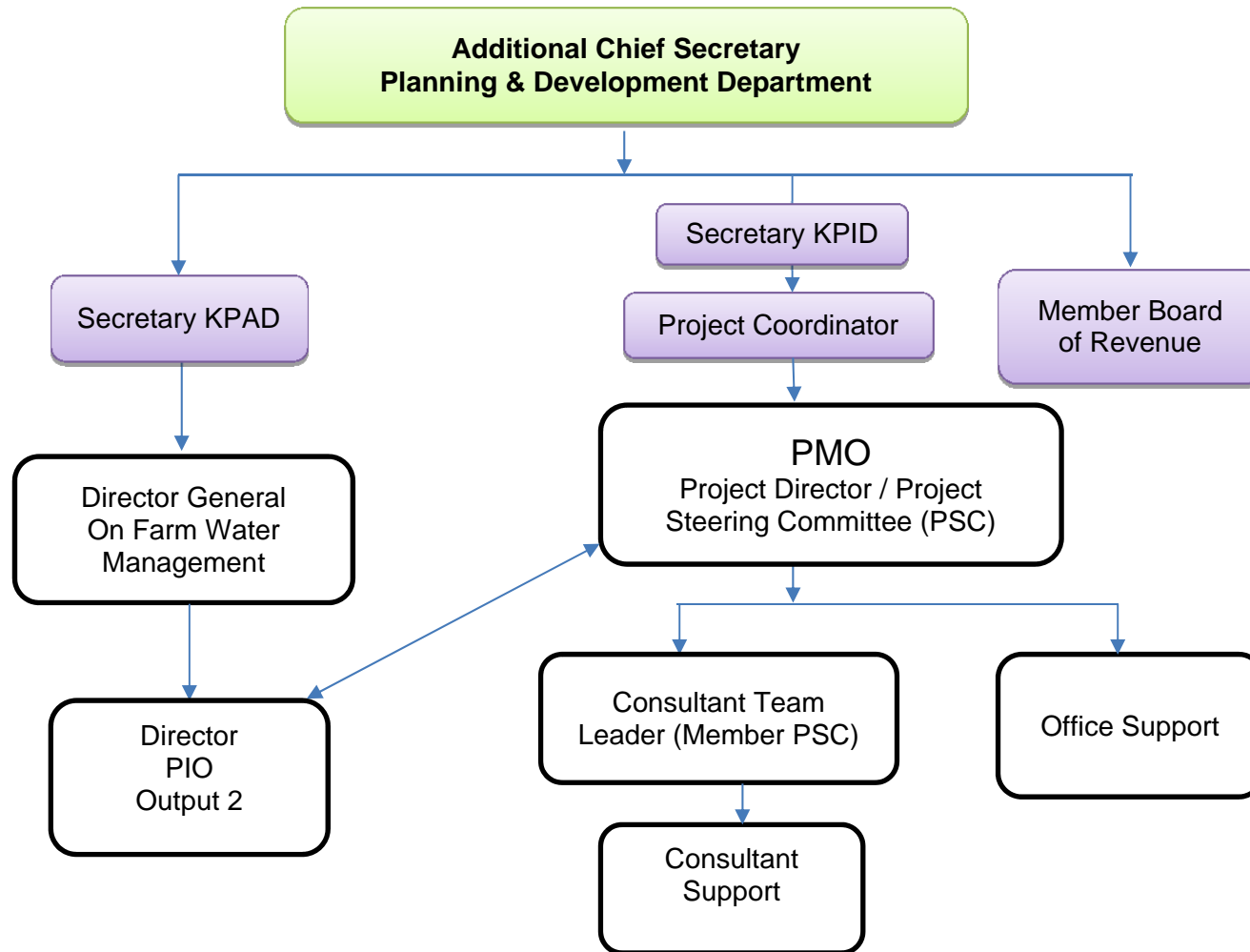
**Table 7: Details of Salary Costs of PIO for Output 2**

Position	Man-months	Gross Sallary	Total amount	Total amount (\$)
<b>ON FARM WATER MANAGEMENT.</b>				
<b>Director PIO</b>	48	175,000.00	8,400,000.00	80,000.00
<b>OFWM</b>				
<b>D. Director OFWM</b>	48	150,000.00	7,200,000.00	68,571.43
Water Management Officer (2)	96	150,000.00	14,400,000.00	137,142.86
Sub Engineers (4)	192	75,000.00	14,400,000.00	137,142.86
<b>Agriculture Extension</b>				
D. Director Agriculture Extension	24	150,000.00	3,600,000.00	34,285.71
Agriculture Officer	24	150,000.00	3,600,000.00	34,285.71
Social Mobilizer (3)	72	150,000.00	10,800,000.00	102,857.14
Accountant	48	75,000.00	3,600,000.00	34,285.71
Female Extension Workers (2)	48	150,000.00	7,200,000.00	68,571.43
Office Support Staff (Several)			6,240,000.00	59,428.57
<b>Total Sub (A)</b>	<b>600</b>		<b>79,440,000.00</b>	<b>756,571.43</b>

Table 8: Details Non-Salary Costs and Operational Costs of PIO for Output 2

Sr. No.	Description	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)	Amount (\$)
1	Rental of Office Building	Month	48	75,000	3,600,000	34,286
<b>Purchase of Furniture</b>						
1	Office Tables	No.	6	10,000	60,000	571
2	Office Chairs	No.	6	3,500	21,000	200
3	Visitor Chairs	No.	36	1,500	54,000	514
4	Conference Table	No.	1	25,000	25,000	238
5	Conference Chairs	No.	8	1,500	12,000	114
6	Computer Tables	No.	24	7,000	168,000	1,600
7	Computer Chairs	No.	18	2,000	36,000	343
8	Support Staff Tables	No.	6	7,000	42,000	400
9	Support Staff Chairs	No.	6	1,500	9,000	86
10	Drawing Cabinets	No.	5	10,000	50,000	476
11	Filing Cabinets	No.	5	8,000	40,000	381
12	Side rack	No.	6	5,000	30,000	286
13	Almirahs	No.	3	8,000	24,000	229
14	Pedestal/ Bracket fans	No.	LS	10,000	10,000	95
<b>Total: -</b>					<b>581,000</b>	<b>5,533</b>
<b>Purchase of Equipment</b>						
1	Computers with UPS	No.	21	85,000	1,785,000	17,000
2	B/W Printer / Scanner / Photocopier (A3)	No.	1	250,000	250,000	2,381
3	Printer (A-4, Black and White)	No.	3	50,000	150,000	1,429
4	Laptop	No.	3	125,000	375,000	3,571
5	Colour Printer / Scanner / Photocopier (A-3, Coloured Laser)	No.	1	500,000	500,000	4,762
6	Networking Hub	No.	1	50,000	50,000	476
7	Networking of Computers	LS	LS	150,000	150,000	1,429
8	Multimedia	No.	1	100,000	100,000	952
9	Fax Machine	No.	1	25,000	25,000	238
10	Spiral Binding Machine	No.	1	20,000	20,000	190
11	Lamination Machine	No.	1	15,000	15,000	143
12	Digital Camera	No.	5	30,000	150,000	1,429
13	Telephone Exchange	No.	1	75,000	75,000	714
14	Telephone Sets and networking	LS	LS	75,000	75,000	714
15	Heater (Gas)	No.	6	3,000	18,000	171
16	Air Conditioner Split Unit (1.5 ton)	No.	6	60,000	360,000	3,429
17	Generator	No.	1	500,000	500,000	4,762
18	Refrigerator	No.	1	50,000	50,000	476
19	Crockery/Cutlery/Water Cooler/Oven etc.	LS	LS	100,000	100,000	952
<b>Total:</b>					<b>4,748,000</b>	<b>45,219</b>
<b>Office Supplies</b>						
1	Stationery	Months	48	25,000	1,200,000	11,429
2	Maintenance and Supplies for Printer & Photocopy Machine	Months	48	25,000	1,200,000	11,429
3	Miscellaneous Items	Months	48	5,000	240,000	2,286
<b>Total:</b>					<b>2,640,000</b>	<b>25,143</b>
<b>Printing and Binding of Reports</b>						
1	Printing and Binding of Reports	LS	LS	400,000	400,000	3,810
<b>Total:</b>					<b>400,000</b>	<b>3,810</b>
<b>Telephone/Fax, Postage and Courier charges</b>						
1	Telephone Calls/ Fax	Months	48	20,000	960,000	9,143
2	Postage/ Couriers	Months	48	10,000	480,000	4,571
<b>Total:</b>					<b>1,440,000</b>	<b>13,714</b>
<b>Field Allowances</b>						
1	Daily Allowances for field visiting staff	LS	LS	1,000,000	1,000,000	9,524
<b>Total:</b>					<b>1,000,000</b>	<b>9,524</b>
<b>Purchase of Vehicles</b>						
1	Double Cabin	No.	3	3,000,000	9,000,000	85,714
2	Motorcycles	No.	4	85,000	340,000	3,238
<b>Total:</b>					<b>9,340,000</b>	<b>88,952</b>
<b>Miscellaneous</b>						
1	Utility bills (Electricity, Water and Gas)	Months	48	40,000	1,920,000	18,286
2	POL for vehicles	V. Months	340	45,000	15,300,000	145,714
3	Maintenance of vehicles	V. Months	340	25,000	8,500,000	80,952
4	Insurance and Registration of Vehicals	LS	LS	600,000	600,000	5,714
5	Operation & Maintenance of Generator	Months	48	20,000	960,000	9,143
6	Internet / Email connection charges	Months	48	5,000	240,000	2,286
7	Miscellaneous Office Expenses	Months	48	15,000	720,000	6,857
<b>Total</b>					<b>28,240,000</b>	<b>268,952</b>
<b>Grand Total:</b>					<b>51,989,000</b>	<b>495,133</b>

Figure 2: Organization of Project Steering Committee



**Figure 3: Organization of Project Management Organization**

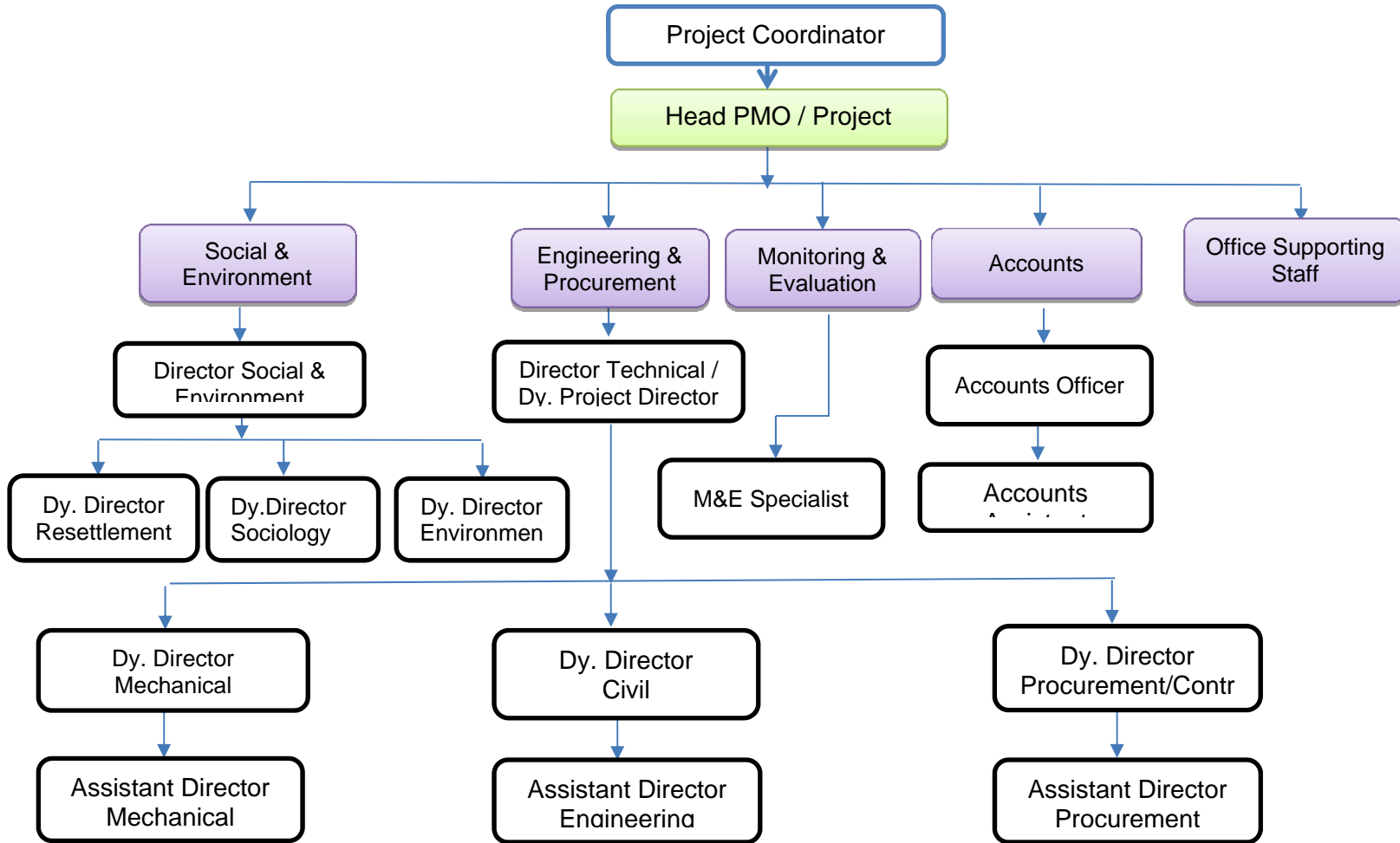
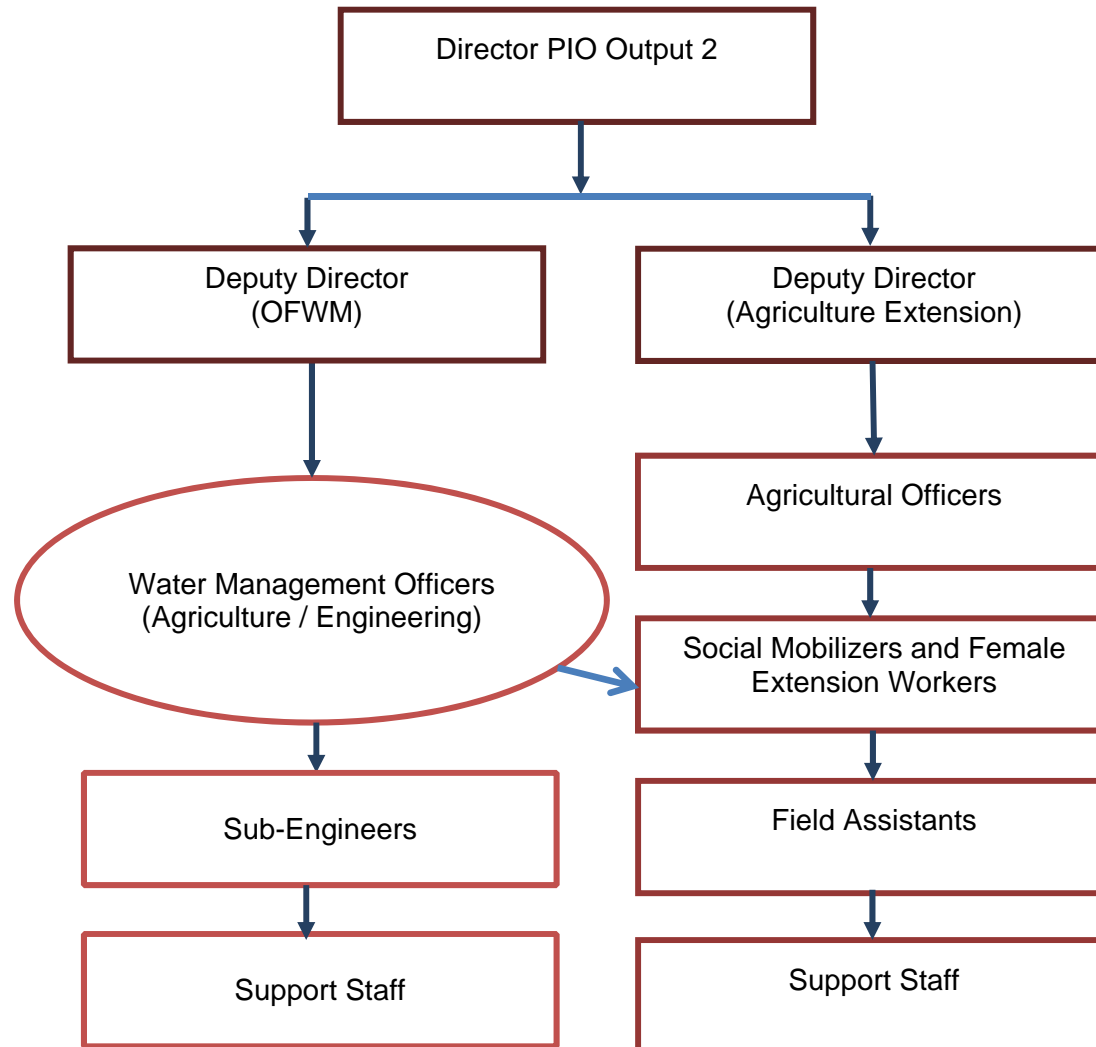


Figure 4: Organization Structure of PIO for Output 2



#### IV. COST AND FINANCING

##### A. Detailed Cost Estimates by Expenditure Category

47. Expenditure accounts project cost summary will be developed in Table 9.1 below.

**Table 9.1: Detailed Cost Estimates by Expenditure Category**  
(\$ million)

Items		Local Currency	Foreign Exchange	Total	% of Base Costs
<b>A. Investment Cost</b>					
1	Civil Works	32.624	16.004	48.628	64.0
3	Mechanical and Equipment	<b>1.588</b>	-	<b>1.588</b>	<b>2.1</b>
	a Vehicles				
	b Equipment	1.432		1.432	1.9
	c Supplies, Others	0.156		0.156	0.2
4	Social Mitigation	15.666	-	15.666	20.6
	a Indus Ambar	12.759	-	12.759	
	b Janda Boka	2.907	-	2.907	
5	Environmental Mitigation	0.095	-	0.095	0.1
6	Survey, Study and Design	0.010	-	0.010	0.0
7	Training and Workshops	0.325	-	0.325	0.4
8	Consulting Services	<b>5.298</b>	<b>0.525</b>	<b>5.823</b>	<b>7.7</b>
	a Project Management	4.974	0.525	5.499	7.2
	b Capacity Developemnt	0.325	-	0.325	0.4
	<b>Subtotal</b>	<b>55.606</b>	<b>16.529</b>	<b>72.135</b>	<b>95.0</b>
<b>B. Project Managent and Operation</b>					
1	PMO and PIO Salaries	2.829	-	2.829	3.7
2	Office Accommodation/Renovation	0.101	-	0.101	0.1
3	Vehicle and motorcycle	0.180	0.045	0.225	0.3
4	Equipment	0.098	0.024	0.122	0.2
5	Suppliers, Others	0.086	-	0.086	0.1
6	Office/Vehicle O&M	0.468	-	0.468	0.6
	<b>Subtotal</b>	<b>3.761</b>	<b>0.069</b>	<b>3.831</b>	<b>5.0</b>
<b>Total Base Cost</b>		<b>59.368</b>	<b>16.598</b>	<b>75.966</b>	<b>100.0</b>
<b>C. Contingencies</b>					
1	Physical	2.990	0.826	3.816	5.0
2	Price	9.220	0.637	9.857	13.0
	<b>Subtotal</b>	<b>12.209</b>	<b>1.464</b>	<b>13.673</b>	<b>18.0</b>
<b>D. Financing Charges During Construction</b>					
1	Interest	2.624	4.018	6.642	8.7
2	Commitment	-	0.323	0.323	0.4
	<b>Subtotal</b>	<b>2.624</b>	<b>4.340</b>	<b>6.964</b>	<b>9.2</b>
<b>TOTAL</b>		<b>74.201</b>	<b>22.402</b>	<b>96.603</b>	<b>127.2</b>

In addition, \$0.353 million is estimated as farmers' contribution to construct watercourse.

PIO = project implementation office, PMO = project management office.

Source: ADB estimates.

## B. Allocation and Withdrawal of Loan Proceeds

48. The government has requested a loan of \$86.405 million from ADB's Ordinal Capital Resources to help finance the project. The loan will have a 25-year term, including a grace period of 5 years, custom-tailored repayment method, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, a commitment charge of 0.15% per year (interest and other charges during construction to be capitalized in the loan), and such other terms and conditions as set forth in the draft loan and project agreements. Based on this, the average loan maturity is 15.99 years and the maturity premium payable to ADB is 0.10% per annum. Tables for allocation and withdrawal of Loan proceed, detailed cost estimate by financier will be provided.

**Table 9.2: Allocation and Withdrawal of Loan Proceeds**

	Category	Amount Allocated for OCR Financing [\$]	Percentage and Basis for Withdrawal from the Loan Account
		Category	
1	Civil Works	41,966,000	86.3 % of total expenditure claimed
2	Mechanical and Equipment; and Consulting Services	6,670,000	90% of total expenditure claimed
3	Social Mitigation for Janda Boka	1,701,000	58.5% of total expenditure claimed
4	Social Mitigation for Indus Ambar; Environmental Mitigation; Survey, Study and Design; and Training and Workshops	13,189,000	100 % of total expenditure claimed
5	Project Management and Operation (Office Accommodation / Renovation and O&M of Office and Vehicle)	568,000	100 % of total expenditure claimed*
6	Project Management and Operation (PMO / PIO Vehicles & Motorcycles, Equipment, Supplies, Others)	390,000	90 % of total expenditure claimed*
7	PMO and PIO (Salaries)	2,651,000	93.7% of total expenditure claimed*
8	Interest and Commitment Charge	6,964,000	100% of amount due
9	Unallocated	12,306,000	
	<b>Total</b>	<b>86,405,000</b>	

Source: ADB estimates.



### C. Detailed Cost Estimate by Financier

**Table 10: Detailed Cost Estimate by Financier**  
(\$ million)

Item		ADB OCR Loan		Government		Total Costs
		Amount	% of Cost Category	Amount	% of Cost Category	
<b>A.</b>	<b>Investment Cost</b>					
1	Civil Works	41.966	86.3	6.662	13.7	48.628
2	Mechanical and Equipment	<b>1.429</b>	<b>90.0</b>	<b>0.159</b>	<b>10.0</b>	<b>1.588</b>
	a Vehicles	-	90.0	-	10.0	-
	b Equipment	1.289	90.0	0.143	10.0	1.432
	c Supplies, Others	0.140	90.0	0.016	10.0	0.156
3	Social Mitigation	14.459	92.3	1.206	7.7	15.666
	a Indus Ambar	12.759	100.0	-	-	12.759
	b Janda Boka	1.701	58.5	1.206	41.5	2.907
4	Environmental Mitigation	0.095	100.0	-	-	0.095
5	Survey, Study and Design	0.010	100.0	-	-	0.010
6	Training and Workshops	0.325	100.0	-	-	0.325
<b>7</b>	<b>Consulting Services</b>	<b>5.241</b>	<b>90.0</b>	<b>0.582</b>	<b>10.0</b>	<b>5.823</b>
	a Project Management	4.949	90.0	0.550	10.0	5.499
	b Capacity Developemnt	0.292	90.0	0.032	10.0	0.325
	<b>Subtotal</b>	<b>63.525</b>	<b>88.1</b>	<b>8.609</b>	<b>11.9</b>	<b>72.135</b>
<b>B.</b>	<b>Project Managent and Operation</b>					
1	PMO and PIO Salaries	2.651	93.7	0.178	6.3	2.829
2	Office Accommodation/Renovation	0.101	100.0	-	-	0.101
3	Vehicle and motorcycle	0.203	90.0	0.023	10.0	0.225
4	Equipment	0.110	90.0	0.012	10.0	0.122
5	Suppliers, Others	0.077	90.0	0.009	10.0	0.086
6	Office/Vehicle O&M	0.468	100.0	-	-	0.468
	<b>Subtotal</b>	<b>3.610</b>	<b>94.2</b>	<b>0.221</b>	<b>5.8</b>	<b>3.831</b>
	<b>Total Base Cost</b>	<b>67.135</b>	<b>88.4</b>	<b>8.831</b>	<b>11.6</b>	<b>75.966</b>
<b>C.</b>	<b>Contingencies</b>					
1	Physical	3.434	90.0	0.382	10.0	3.816
2	Price	8.871	90.0	0.986	10.0	9.857
	<b>Subtotal</b>	<b>12.306</b>	<b>90.0</b>	<b>1.367</b>	<b>10.0</b>	<b>13.673</b>
<b>D.</b>	<b>Financing Charges During Construction</b>					
1	Interest	6.642	100.0	-	-	6.642
2	Commitment	0.323	100.0	-	-	0.323
	<b>Subtotal</b>	<b>6.964</b>	<b>100.0</b>	<b>-</b>	<b>-</b>	<b>6.964</b>
	<b>TOTAL</b>	<b>86.405</b>	<b>89.4</b>	<b>10.198</b>	<b>10.6</b>	<b>96.603</b>

In addition, \$0.353 million is estimated as farmers' contribution to construct watercourse.

PIO = project implementation office, PMO = project management office.

Source: ADB estimates.

#### D. Detailed Cost Estimate by Outputs/Components

**Table 11: Project Cost Summary by Outputs/Components**  
(\$ million)

		Output 1		Output 2		Total Costs
		Amount	% of Cost Category	Amount	% of Cost Category	
<b>Investment Cost</b>						
1	Civil Works	45.447	93.5	3.181	6.5	48.628
2	Mechanical and Equipment	0.000	-	1.588	100.0	1.588
	a Vehicles	0.000		0.000		0.000
	b Equipment	0.000	-	1.432	100.0	1.432
	c Supplies, Others	0.000	-	0.156	100.0	0.156
3	Social Mitigation	15.666	100.0	0.000	-	15.666
	a Indus Ambar	12.759	100.0	0.000	-	12.759
	b Janda Boka	2.907	100.0	0.000	-	2.907
4	Environmental Mitigation	0.095	100.0	0.000	-	0.095
5	Survey, Study and Design	0.000	-	0.010	100.0	0.010
6	Training and Workshops	0.000	-	0.325	100.0	0.325
7	Consulting Services	5.499	94.4	0.325	5.6	5.823
	a Project Management	5.499	100.0	0.000	-	5.499
	b Capacity Developemnt	0.000	-	0.325	100.0	0.325
	<b>Subtotal</b>	<b>66.707</b>	<b>92.5</b>	<b>5.428</b>	<b>7.5</b>	<b>72.135</b>
<b>Project Managment and Operation</b>						
1	PMO and PIO Salaries	2.062	72.9	0.768	27.1	2.829
2	Office Accommodation/Renovation	0.066	65.8	0.034	34.2	0.101
3	Vehicle and motorcycle	0.136	60.4	0.089	39.6	0.225
4	Equipment	0.071	58.4	0.051	41.6	0.122
5	Suppliers, Others	0.043	50.2	0.043	49.8	0.086
6	Office/Vehicle O&M	0.198	42.4	0.270	57.6	0.468
	<b>Subtotal</b>	<b>2.576</b>	<b>67.2</b>	<b>1.255</b>	<b>32.8</b>	<b>3.831</b>
	<b>Total Base Cost</b>	<b>69.283</b>	<b>91.2</b>	<b>6.683</b>	<b>8.8</b>	<b>75.966</b>
<b>Contingencies</b>						
1	Physical	3.464	90.8	0.352	9.2	3.816
2	Price	8.948	90.8	0.909	9.2	9.857
	<b>Subtotal</b>	<b>12.412</b>	<b>90.8</b>	<b>1.261</b>	<b>9.2</b>	<b>13.673</b>
<b>Financing Charges During Construction</b>						
1	Interest	6.029	90.8	0.612	9.2	6.642
2	Commitment	0.293	90.8	0.030	9.2	0.323
	<b>Subtotal</b>	<b>6.322</b>	<b>90.8</b>	<b>0.642</b>	<b>9.2</b>	<b>6.964</b>
	<b>TOTAL</b>	<b>88.018</b>	<b>91.1</b>	<b>8.585</b>	<b>8.9</b>	<b>96.603</b>

In addition, \$0.353 million is estimated as farmers' contribution to construct watercourse.

PIO = project implementation office, PMO = project management office.

Source: ADB estimates.

## E. Detailed Cost Estimates by Year

49. Accumulative by year project expenditures is given in Table 12.

**Table 12: Project Components by Year, Including Contingencies**  
(\$ million)

Items		Total Costs	Year-1	Year-2	Year-3	Year-4	Year-5	Year-6	Year-7
<b>A. Investment Cost</b>									
1	Civil Works	48.628	-	9.726	17.020	12.157	4.863	4.863	-
2	Mechanical and Equipment	<b>1.588</b>	-	<b>0.079</b>	<b>0.429</b>	<b>0.445</b>	<b>0.476</b>	<b>0.159</b>	-
	a Vehicles	-	-	-	-	-	-	-	-
	b Equipment	1.432	-	0.072	0.387	0.401	0.430	0.143	-
	c Supplies, Others	0.156	-	0.008	0.042	0.044	0.047	0.016	-
3	Social Mitigation	15.666	-	0.783	4.230	4.386	4.700	1.567	-
	a Indus Ambar	12.759	-	0.638	3.445	8.676	-	-	-
	b Janda Boka	2.907	-	0.145	2.762	-	-	-	-
4	Environmental Mitigation	0.095	-	0.005	0.026	0.027	0.029	0.010	-
5	Survey, Study and Design	0.010	-	0.001	0.003	0.003	0.003	0.001	-
6	Training and Workshops	0.325	-	0.016	0.088	0.091	0.097	0.022	0.010
7	Consulting Services	<b>5.823</b>	<b>0.582</b>	<b>1.165</b>	<b>1.165</b>	<b>1.165</b>	<b>1.165</b>	<b>0.382</b>	<b>0.200</b>
	a Project Management	5.499	0.550	1.100	1.100	1.100	1.100	0.350	0.200
	b Capacity Developemnt	0.325	0.032	0.065	0.065	0.065	0.065	0.032	-
	<b>Subtotal</b>	<b>72.135</b>	<b>0.582</b>	<b>11.774</b>	<b>22.959</b>	<b>18.273</b>	<b>11.333</b>	<b>7.003</b>	<b>0.210</b>
<b>B. Project Management and Operation</b>									
1	PMO and PIO Salaries	2.829	0.204	0.350	0.650	0.650	0.650	0.225	0.100
2	Office Accommodation/Renovation	0.101	0.066	0.034	-	-	-	-	-
3	Vehicle and motorcycle	0.225	0.136	0.089	-	-	-	-	-
4	Equipment	0.122	0.071	0.051	-	-	-	-	-
5	Suppliers, Others	0.086	0.009	0.017	0.017	0.017	0.017	0.005	0.003
6	Office/Vehicle O&M	0.468	0.047	0.094	0.094	0.094	0.094	0.030	0.017
	<b>Subtotal</b>	<b>3.831</b>	<b>0.533</b>	<b>0.635</b>	<b>0.761</b>	<b>0.761</b>	<b>0.761</b>	<b>0.260</b>	<b>0.120</b>
	<b>Total Base Cost</b>	<b>75.966</b>	<b>1.116</b>	<b>12.410</b>	<b>23.720</b>	<b>19.034</b>	<b>12.093</b>	<b>7.264</b>	<b>0.330</b>
<b>C. Contingencies</b>									
1	Physical	3.816	0.056	0.620	1.186	0.952	0.605	0.347	0.050
2	Price	9.857	0.145	1.610	3.078	2.470	1.569	0.965	0.020
	<b>Subtotal</b>	<b>13.673</b>	<b>0.201</b>	<b>2.231</b>	<b>4.264</b>	<b>3.421</b>	<b>2.174</b>	<b>1.313</b>	<b>0.070</b>
<b>D. Financing Charges During Construction</b>									
1	Interest	6.642	-	0.544	2.625	2.619	0.791	0.033	0.030
2	Commitment	0.323	0.100	0.090	0.050	0.020	0.020	0.043	-
	<b>Subtotal</b>	<b>6.964</b>	<b>0.100</b>	<b>0.634</b>	<b>2.675</b>	<b>2.639</b>	<b>0.811</b>	<b>0.075</b>	<b>0.030</b>
	<b>TOTAL</b>	<b>96.603</b>	<b>1.416</b>	<b>15.274</b>	<b>30.658</b>	<b>25.094</b>	<b>15.078</b>	<b>8.652</b>	<b>0.430</b>

In addition, \$0.353 million is estimated as farmers' contribution to construct watercourse.

PIO = project implementation office, PMO = project management office.

Source: ADB estimates.

## F. Contract Awards and Disbursement Projection

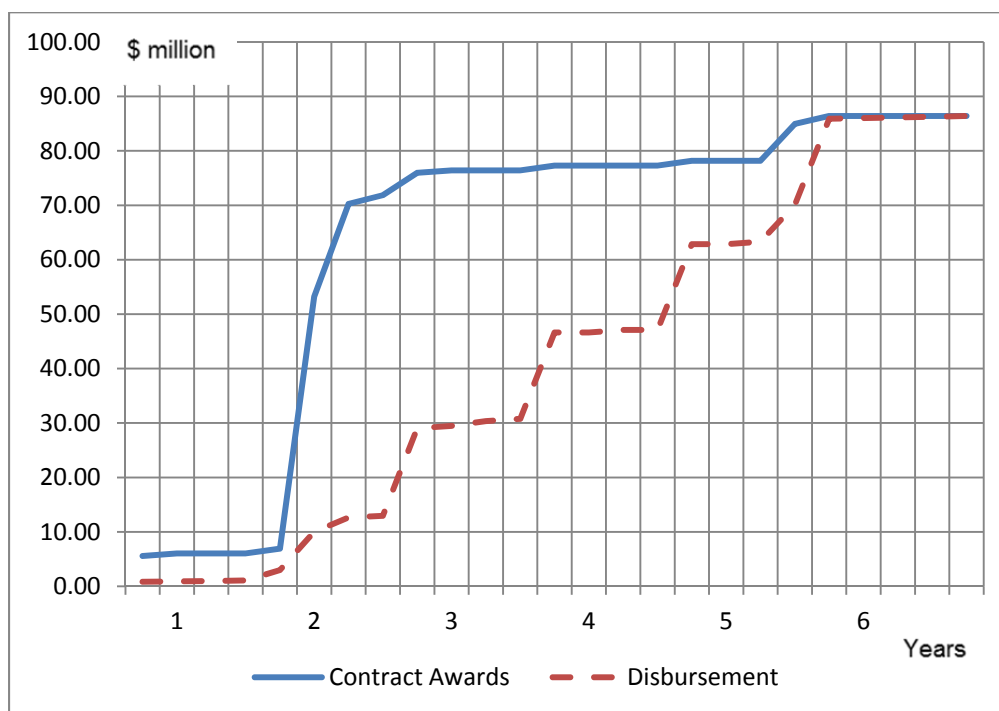
50. Projections of contract awards and disbursements will be confirmed with the executing agencies (EAs) during ADB inception mission and the PAM will be updated accordingly. The forecasted contract award and disbursement profile at project design stage is shown in Table 13.

**Table 13: Ordinary Capital Resources (Loan)**  
(\$ million)

Year	Projections for Contract Award					Projections for Disbursement				
	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
2016	0.00	0.00	0.00	5.55	5.55				0.84	0.84
2017	0.47	0.00	0.00	0.89	1.36	0.07	0.08	0.08	1.91	2.14
2018	46.28	17.06	1.59	4.13	69.06	7.02	2.64	0.32	16.07	26.05
2019	0.42	0.00	0.00	0.89	1.31	0.42	0.89	0.42	15.86	17.59
2020	0.00	0.00	0.00	0.89	0.89	0.00	0.46	0.00	15.76	16.22
2021	0.00	0.00	6.74	1.49	8.23	0.00	0.46	6.74	15.86	23.06
2022	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.12	0.14	0.50
Total					86.40					86.40

Source: ADB estimates.

**Figure 5: Contract and Disbursement S-curve**  
(\$ million)

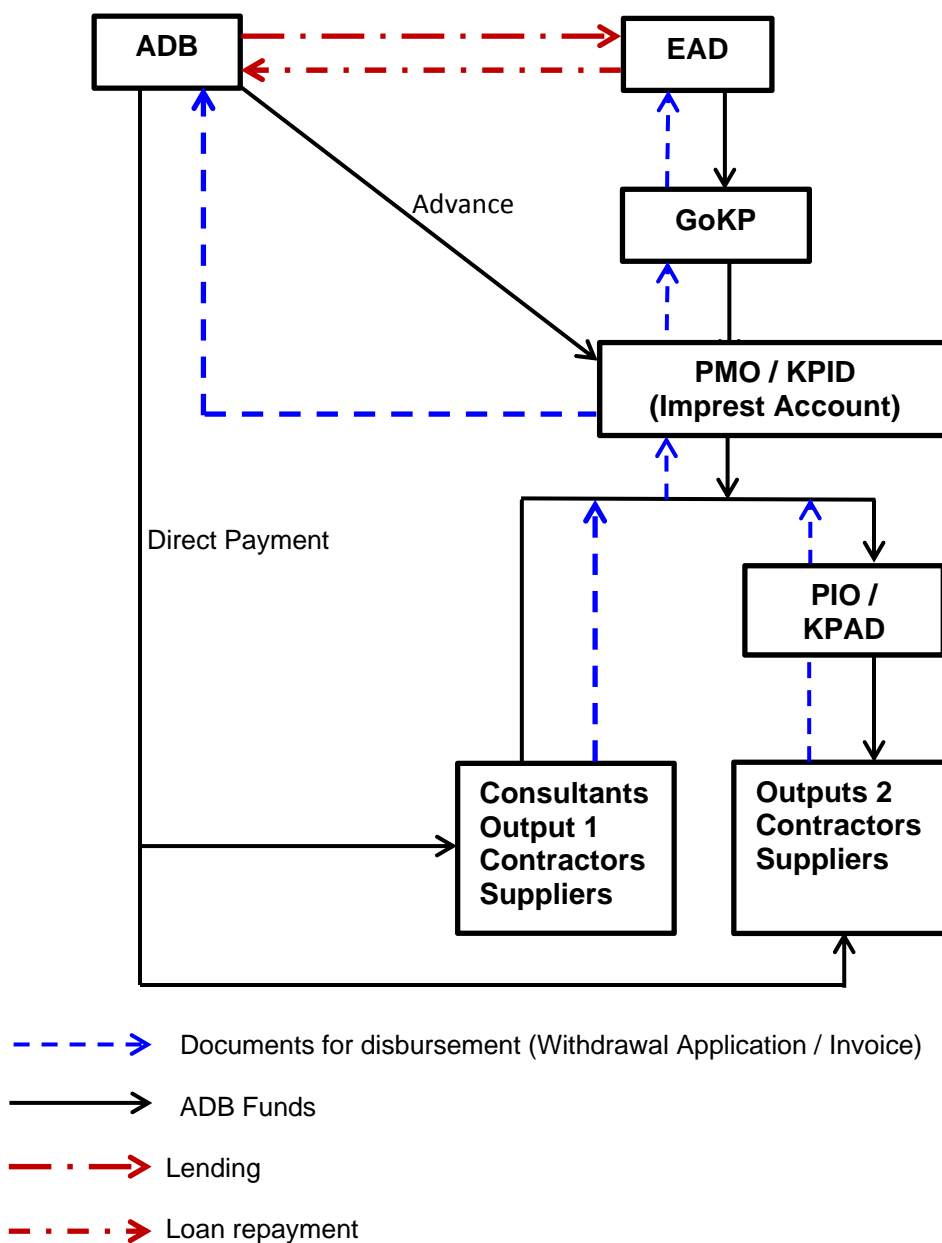


Source: ADB estimates.

## G. Fund Flow Diagram

51. The fund-flow arrangement is depicted in Figure 6.

Figure 6: Funds Flow Diagram



ADB = Asian Development Bank; EAD = Economic Affairs Division; GoKP = Government of Khyber Pakhtunkhwa; KPID = Khyber Pakhtunkhwa Irrigation Department; KPAD = Khyber Pakhtunkhwa Agriculture Department; PIO = Project Implementation Office; PMO = Project Management Office.

Source: Asian Development Bank.

## V. FINANCIAL MANAGEMENT

### A. Financial Management Assessment

52. The country public financial management (PFM) system was assessed by reviewing a public expenditure and financial accountability (PEFA) assessment completed in June 2012. Financial Management assessments (FMA) have been performed on executing and implementing agencies (EA/IA) with reference to the Guidelines for the Financial Management and Analysis of Projects,<sup>10</sup> and Financial Management Technical Guidance Note.<sup>11</sup> The assessments focus on accountability and transparency, and covers (i) internal controls, (ii) funds flow arrangements, (iii) accounting and financial reporting, and (iv) independent audit.

53. **PFM system Assessment.** The latest PEFA report indicates that overall only 13 indicators, about 42% of total indicators for PFM system of Pakistan score well. Relatively strong performance was found for budget credibility, for comprehensiveness and transparency, and for Policy-Based Budgeting, but weak in most of other dimensions. Areas which were found to be weaker include overall internal control, accounting, recording and reporting, and external scrutiny and audit.

54. **Implementation Arrangement.** A Project Steering Committee (PSC) established during the PPTA will continue to provide oversight and policy guidance for the project, review progress and make key decisions for the project. Khyber Pakhtunkhwa Irrigation Department (KPID) is the executing agency (EA) for the entire project and Implementing Agency (IA) for Output 1 of the project. A Project Management Office (PMO) under KPID will be established in Swabi to supervise the entire project design and implementation, and implement Output 1. Khyber Pakhtunkhwa Agriculture Department (KPAD) will be the IA for Output 2. A Project Implementation Office (PIO) under KPAD will be established in Swabi to implement the Output 2.

55. **Experiences with Donors.** Both KPID and KPAD have received international development financing resources in the past, including USAID, JICA, WB, and ADB. Although some staff would be experienced, accounting and finance personnel are subject to transfer every 3 to 5 years with a high probability of whole institutional memory is gone with the staff being transferred.

56. **Staffing.** To ensure a strong and capable workforce in place, the Government and ADB Fact-Finding Mission agreed to strengthen PMO's financial management by filling three positions in the PMO, including one Manager Accountant and two accountants. The PIO will also recruit one accountant. The PMO Manager Accountant is responsible for the planning, financial reporting, and funds flow arrangements. The Manager Accountant will be responsible for general supervision over its accounting and administrative functions, verification of the payment supporting documentation and withdrawal application (WA), and preparation of project financial statements according to cash-based IPSAS or NAM. All accountants will be trained with ADB policies and procedures on disbursement, and financial reporting and auditing by ADB's RETA.

57. **Planning and Budgeting.** The PMO will prepare the project's annual budgets for Government approval. During project implementation the actual expenditures are compared with planned budgeted expenditures on a monthly and quarterly basis, and reports on an analysis of variations is prepared. Significant variations in budgeted expenditure need to be approved by the Project Director prior to actual expenditure.

<sup>10</sup> ADB. 2005. *Guidelines for the Financial Management and Analysis of Project*. Manila.

<sup>11</sup> ADB. 2015. *Financial Management Technical Guidance Note*.

58. **Internal Audit.** Internal Audit Sections are available and operational in KPID and KPAD. Their duty is to support the secretaries in verifying and controlling all the financial transactions occurred within the Departments. PEFA report assessed internal audit as weak and not effective in all dimensions. There is lack of use of professional audit methods and compliance with ISPPA or any other national/international standards.

59. **Information Systems.** As information systems in government departments and agencies are not fully computerized, all financial information required under the General Financial Rule and Delegation of Powers notified by the GoKP cannot be generated through these computerized accounting systems. However, the reporting mechanism and prescriptions are available and operational although some reports are prepared manually. Financial statements of all projects EA/IA are prepared on Excel spreadsheets on monthly basis, and generally prepared in a timely manner.

60. **Project Financial Reporting.** All financial statements including mandatory monthly reports for submission to the Department of Finance will be prepared by respective EA/IA through the Budget and Accounting Systems. Financial Statements are being prepared under cash basis of accounting and are compliant with the format given by the cash basis IPSAS. New Accounting Model (NAM) was developed using modified cash basis of accounting, which required recording and reporting of liabilities and assets as notes to the financial statements. The financial statements are yet not fully compliant with cash basis IPSAS or NAM. The PMO will prepare annual project financial statements (APFS) consolidating both Output 1 and 2. The APFS for audit and submission to ADB will be prepared in line with cash basis IPSAS or NAM.

61. **External Audit.** The Director General, Audit of the KPP audits all the provincial government departments, autonomous agencies and donor funded projects in the Province. The audit is based on risk and materiality assessments in line with the new Financial Audit Manual (FAM). INTOSAI auditing standards are adopted but some aspects are only partially implemented. All donor-funded projects are audited within the time frame stipulated in the project document subject to the submission of project financial statements within a reasonable period of time.

62. **Risk Assessment and Risk Mitigation Measures.** The assessments and proposed measures are shown in Table 14.

**Table 14: Financial Management Risk**

Risk Type	Risk Description	Risk Rating <sup>a</sup>	Risk Mitigation Measures
<b>Inherent Risk</b>			
1. Internal controls	<p>Internal control for payroll controls is effective. Internal control for non-salary expenditure is less effective.</p> <p>Procurement related internal control is weak. It is strong in legal and regulatory framework, but weak in use of competitive procurement methods, public access to complete, reliable and timely procurement information, and existence of an independent administrative procurement complaint system.</p> <p>Internal audit is not effective, lack of use of professional audit methods and compliance with ISPPA or any other national / international standards.</p>	H	Capacity building is essential to improve internal control.

Risk Type	Risk Description	Risk Rating <sup>a</sup>	Risk Mitigation Measures
2. Accounting and financial reporting	<p>Accounts reconciliation is weak.</p> <p>Quality and timeliness of in-year budget reports is weak due to non-recording of expenditure at commitment level, although GFMS generates high quality information at all level of the budget.</p> <p>Quality and timeliness of annual cash FS was weak due to lack of full information on financial assets and liabilities, no consolidated financial information of independent departments, and not fully compliant with cash basis IPSAS or NAM.</p>	S	<p>A PMO will be established to ring-fence the implementation of the Project applying international standards on accounting, reporting, and auditing.</p> <p>Training on financial reporting and auditing should be provided by ADB RETA.<sup>b</sup></p>
3. External audit	<p>AGP is empowered to audit the accounts of the Federation and of the Provinces and of anybody or authority established by the Federation or a Province. INTOSAI auditing standards are adopted but some aspects are only partially implemented.</p> <p>Both legislative scrutiny of the annual budget law and external audit reports are weak.</p>	S	Capacity building on auditing should be provided by ADB RETA.
<b>Overall inherent risks</b>		S	
<b>Control risks</b>			
1. Staffing	Lack of capacity for the PMO to manage ADB funds.	S	<p>The Government will recruit accounting staff to strengthen PMO / PIO capacity.</p> <p>Training on disbursement policies and procedures, and consultant support should be provided.</p>
2. Funds flow	The fund flow risks concerns the delays of payments to contractors, which will delay project implementation activities.	M	Funds for the Project will be under control of PMO to avoid delays.
3. Accounting and financial reporting	PMO accountants may prepare project FS not fully compliant with cash basis IPSAS or NAM.	M	ADB RETA will provide training for PMO to prepare project FS following cash basis IPSAS.
4. Internal Controls and internal audit	Internal control environment in PMO and PIO needs strengthening.	H	Establishing a well-staffed and resourced internal control system is recommended.
5. External Audit	INTOSAI auditing standards are adopted but some aspects are only partially implemented.	M	ADB RETA will help build capacity for AGP.
<b>Overall control risks</b>		S	
<b>Overall risks</b>		S	

<sup>a</sup> H = High, S = Substantial, M = Moderate, L = Low.

<sup>b</sup> ADB. 2014. *Regional Technical Assistance (8697): Improving the Financial Management Capacity of Executing Agencies in Afghanistan and Pakistan*. Manila

ADB = Asian Development Bank; AGP = Auditor General of Pakistan; FS = financial statements; GFMS = Government Financial Management Information System; INTOSAI = International Organization of Supreme Audit Institutions; IPSAS = International Public Sector Accounting Standards; ISPPA = International Standards for the Professional Practice in Internal Audit; NAM = new accounting model; PIO = project implementation office; PMO = project management office.

Source: Asian Development Bank.



## B. Disbursement

63. The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2015, as amended from time to time)<sup>12</sup> and detailed arrangements agreed upon between the government and ADB. Online training for project staff on disbursement policies and procedures is available at: [http://wpqr4.adb.org/disbursement\\_elearning](http://wpqr4.adb.org/disbursement_elearning). Project staffs are encouraged to avail of this training to help ensure efficient disbursement and fiduciary control.

64. No withdrawals shall be made from the Loan Account until a qualified accounting manager and two qualified accountants are hired and deployed at the PMO. Further, prior to the first disbursement, the accounting manager and two qualified accountants and key PMO staff will be trained by an ADB individual consultant on: (i) International Public Sector Accounting Standards, (ii) preparation of guidelines on disbursements, (iii) installation of new accounting system, (iii) setting-up books including chart of accounts.

65. **Direct payment.** The procedures will generally be used for civil works contracts and consulting services, subject to the minimum value per withdrawal application (see para 68).

66. **Imprest account.** The PMO shall establish an imprest account in US Dollars for the projects at a bank, either the State Bank of Pakistan or National Bank of Pakistan. The request for initial advance to the imprest account should be accompanied by an Estimate of Expenditure Sheet<sup>13</sup> setting out the estimated expenditures for the first six (6) months of project implementation. Supporting documents should be submitted to ADB or retained by the PMO in accordance with the *Loan Disbursement Handbook* when liquidating or replenishing the imprest account.

67. The total outstanding advance of the imprest account will not at any time exceed the estimated ADB financed expenditures to be paid from the imprest account for the next 6 months.

68. The statement of expenditure (SOE) procedure, as described in the *Loan Disbursement Handbook*, will be used to reimburse eligible expenditure and to liquidate and replenish the imprest account for individual payments of up to \$100,000 equivalent. SOE records should be maintained and made readily available for review by ADB's disbursement and review mission or upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit.<sup>14</sup> Individual payments in excess of the SOE ceiling should be accompanied by full supporting documents when submitting the withdrawal application to ADB.

69. Before submitting the first withdrawal application, the Government must submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the borrower, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is set in accordance with the *Loan Disbursement Handbook*. Individual payments below the amount should be paid (i) by the PMO and subsequently claim to ADB through reimbursement or (ii) through the imprest account procedure, unless otherwise accepted by ADB.

<sup>12</sup> Available at: <http://www.adb.org/documents/loan-disbursement-handbook>.

<sup>13</sup> Available in Appendix 10B of the *Loan Disbursement Handbook*.

<sup>14</sup> Checklist for SOE procedures and formats are available at: <http://www.adb.org/documents/loan-disbursement-handbook>.

### C. Project Financial Reporting, Auditing, and Public Disclosure

70. The PMO shall (i) maintain separate accounts and records for the project by funding source for all expenditures incurred on the project; (ii) prepare annual financial statements for the project in accordance with cash-based International Public Sector Accounting Standard; (iii) have such project financial statements audited annually by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB, in accordance with international standards for auditing or the national equivalent acceptable to ADB; (iv) as part of each such audit, have the auditors prepare a report which includes the auditors' opinions on the financial statements and use of the Loan proceed,<sup>15</sup> and a management letter which sets out the deficiencies in the internal control of the project that were identified in the course of the audit, if any; and (v) furnish to ADB, no later than 6 months after the end of each related fiscal year, copies of such audited project financial statements, audit report and management letter, all in the English language, and such other information concerning these documents and the audit thereof as ADB shall from time to time reasonably request.

71. 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.

72. The Government, EA/IA, PMO have been made aware of ADB's approach to delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.<sup>16</sup> ADB reserves the right to require a change in the auditor, 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.

73. ADB shall disclose the annual audited financial statements for the project and the opinion of the auditors on the financial statements no later than 14 calendar days of ADB's confirmation of their acceptability by posting them on ADB's website. The management letter will not be disclosed.

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<sup>15</sup> Auditor's opinions shall 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; and (ii) whether loan proceeds were used only for the intended purposes of the project in accordance with ADB's Loan Disbursement Handbook and the loan and project agreements.

<sup>16</sup> ADB approach and procedures regarding delayed submission of audited project financial statements:

- (i) When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (a) 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.
- (ii) When audited project financial statements have not been received 6 months after the due date, ADB will (a) inform the executing agency of ADB's actions to 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; and (b) advise that the loan may be suspended if the audit documents are not received within the next 6 months.
- (iii) When audited project financial statements have not been received 12 months after the due date, ADB may suspend the loan.

## VI. PROCUREMENT AND CONSULTING SERVICES

### A. Advance Contracting and Retroacting Financing

74. All packages under advance contracting will be procured in accordance with ADB's *Procurement Guidelines* (April 2015, as amended from time to time) and the *Guidelines on the Use of Consultants* (March 2013, as amended from time to time). The issuance of invitations for bids, preparation and use of bidding documents under advance contracting will be subject to ADB prior review and approval. The EA has been advised that approval of advance contracting does not commit ADB to finance the project. Advance contracting will be used for recruitment of consulting services. The retroactive financing is envisaged relating to project implementation consultants package. Necessary processing to recruit the project implementation consultant (PIC) will commence by ADB on behalf of the KPID while the EA retains the responsibility for negotiating and signing the contract with the consultant, issuing the notice to proceed, and supervising the consultant's services to enable KPID to start implementing the project immediately after the loan signing.

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

75. A project procurement risk assessment of KPID was undertaken and acknowledged that the EA does not have a dedicated procurement section with a permanent cadre of procurement practitioners. The procurement officials are not familiar with conducting procurement activity under ADB procurement guidelines. However, they are familiar with applying the provincial procurement rules only. The assessment further concluded the project procurement risk as High. However, in order to mitigate the risk a project management office (PMO) fully staffed with professionals/specialist will be established for the project and all contracts under ICB and NCB procurement methods will be subject to prior review by ADB. In addition, ADB will engage upfront one individual consultant (procurement) to support the EA/IAs in capacity building in procurement.

76. The procurement of goods, works and consultant selection will be carried out in accordance with ADB's *Procurement Guidelines* (April 2015, as amended from time to time) and the *Guidelines on the Use of Consultants* (March 2013, as amended from time to time). The initial procurement plan has been prepared for the project and is set out in Part B (below) of this section. It indicates contract packages for goods, works and consulting service contract packages including review requirements. ADB bidding document for large works will be used for the only ICB contract. ADB bidding document for small works will be used for all NCB contracts. One consulting services package of project implementation consultants (PICs) valuing \$5.24 million will be procured through QCBS (90:10) method as advance contracting using retroactive financing.

### C. Procurement Plan

#### Basic Data

<b>Project Name:</b> Pehur High Level Canal Extension Project (PHLCEP)	
<b>Project Number:</b> 47024-001	<b>Approval Number:</b>
<b>Country:</b> PAKISTAN	<b>Executing Agency:</b> KPP Irrigation Department (KPID)
<b>Project Procurement Classification:</b> B	<b>Implementing Agency:</b> KPP Irrigation Department, KPP Agriculture Department
<b>Procurement Risk:</b> High	
<b>Project Financing Amount:</b> \$ 96.60 million <b>ADB Financing:</b> \$ 86.40 million	<b>Project Closing Date:</b> 30 June 2022

<b>Cofinancing (ADB Administered): NA</b> <b>Non-ADB Financing: \$ 10.20 million<sup>a</sup></b>	
<b>Date of First Procurement Plan</b> : 17 October 2016	<b>Date of this Procurement Plan:</b> 17 October 2016

<sup>a</sup> The government's contribution of \$8.99 million by way of taxes and duties in the form of cash and of \$1.21 million for part of land acquisition and resettlement cost. In addition, the beneficiaries' in-kind contribution is estimated at \$0.35 million through provision of unskilled labor force.

## 1. Methods, Thresholds, Review and 18-Month Procurement Plan

### a. Procurement and Consulting Methods and Thresholds

77. 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	Comments
International Competitive Bidding (ICB) for Works	\$15,000,000	Prior Review
International Competitive Bidding for Goods	\$2,000,000	Prior Review
National Competitive Bidding (NCB) for Works	Beneath that stated for ICB, Works	Prior Review
National Competitive Bidding for Goods	Beneath that stated for ICB, Goods	Prior Review
Shopping for Works	Below \$100,000	
Shopping for Goods	Below \$100,000	

Consulting Services	
Method	Comments
Quality and Cost Based Selection (QCBS)	(90:10) Prior Review (International)
<b>Individual Consultant Selection (ICS)</b>	

### b. Goods and Works Contracts Estimated to Cost \$1 Million or More

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

Package Number	General Description	Estimated Value (\$ M) <sup>a</sup>	Procurement Method	Review	Bidding Procedure	Advertisement Date	Comments
ICB-01	Civil and Mechanical Works of Pehur High Level Canal Extension (PHLCE)	45.45	ICB	Prior	1S2E	Q2/2017	ADB bidding documents for large works
NCB-01	Construction of Water Courses and Farm turnouts	3.53 <sup>b</sup>	NCB	Prior	1S1E	Q2/2018	ADB bidding documents for small works

<sup>a</sup> include duties and taxes and not include contingencies.

<sup>b</sup> include farmers' in-kind contribution equivalent to estimated \$0.35 million.

**c. Consulting Services Contracts Estimated to Cost \$100,000 or More**

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

Package Number	General Description	Estimated Value (\$ M) <sup>b</sup>	Recruitment Method	Review	Advertisement Date	Type of Proposal	Comments
PIC-1	Project Implementation Consultants <sup>a</sup>	5.24	QCBS (90:10)	Prior	Q2/2016	FTP	International

<sup>a</sup> ADB will take responsibility for selecting the project implementation consultant on behalf of the EA while the EA retains the responsibility for negotiating and signing the contract with the consultant, issuing the notice to proceed, and supervising the consultant's services.

<sup>b</sup> Include duties and taxes and not include contingencies.

**d. Goods and Works Contracts Estimated to Cost Less than \$1 Million and Consulting Services Contracts Less than \$100,000 (Smaller Value Contracts)**

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

Goods and Works								
Package Number	General Description	Estimated Value (\$ M) <sup>a</sup>	Number of Contracts	Procurement Method	Review	Bidding Procedure	Advertisement Date	Comment
NCB-02	Supply and Installation of high efficiency irrigation systems	1.43	1	NCB	Prior	1S1E	Q1/2018	ADB bidding documents for Goods
NCB-03	Precise Land Leveling	0.1	1	NCB	Prior	1S1E	Q1/2018	ADB bidding documents
NCB-04	Vehicles	0.250	1	NCB	Prior	1S1E	Q4/2016	ADB bidding documents
Shop-01	Office Renovation	0.07	1	Shopping	Post	RFQ	Q4/2016	ADB RFQ template
Shop-02	Agricultural inputs (commodities)	0.130	multiple	shopping	Post	RFQ	Q1/2018	ADB RFQ template
Shop-03	Equipment/Furniture	0.124	multiple	shopping	Post	RFQ	Q4/2016	ADB RFQ template

<sup>a</sup> include duties and taxes and not include contingencies.

## **D. Consultant's Terms of Reference**

81. Detailed terms of reference for the project implementation consultant are provided in Annex 1.

## **VII. SAFEGUARDS**

### **A. Environmental Safeguard**

82. The project is categorized A for environment. The KPID shall ensure that the design, construction, operation and maintenance of project's facilities to be financed under the PHLCE are carried out in accordance with Asian Development Bank's (ADB) Safeguard Policy Statement (SPS, 2009), the applicable laws and regulations in Pakistan, and the environmental impact assessment (EIA) and its environmental management plan (EMP). KPID shall ensure that potential adverse environmental impacts arising from the project are minimized by implementing all the mitigation and monitoring measures in the EMP. KPID shall ensure that:

- (i) The EMP is to be updated into a site specific EMP based on surveys of the alignment once the detailed design is available and prior to the implementation of civil works;
- (ii) KPID has sufficient resources to implement and record the implementation of the EMP;
- (iii) The contractor prepares and submits to KPID and ADB a site specific environmental management plan (SSEMP) prior to commencing any construction works. The SSEMP will be tailored to the environmental impacts of the site and the specific project activities as planned by the contractor;
- (iv) The contractor is responsible for the day to day implementation of the SSEMP with KPID's PMU Environment Specialists visiting regularly to confirm implementation;
- (v) KPID, with the help of a construction supervision consultant, will submit to ADB semi-annual environmental reports for the project within 1 month of the close of each half of the calendar year during project implementation, and the reports will include a review of the progress on environmental measures in the EIA and EMP, monitoring of such measures, problems encountered and remedial measures taken;
- (vi) The detailed engineering design and civil works and other contracts for the project incorporate applicable environmental measures identified in the EIA and the EMP;
- (vii) The KPID PMU will establish and implement the Grievance Redress Mechanism, (GRM) as described in the EIA, prior to construction. All complaints will be recorded in the complaints register on site and will be addressed through the procedures set up in the GRM;

83. Should any change in scope take place KPID will inform ADB and a due diligence on environment will be carried out. Should any additional study be required it will be conducted, or the EIA updated as required by SPS 2009. If there are any unanticipated environmental impacts, they would be reviewed and a corrective action plan will be prepared by the contractor for implementation under the supervision of KPID PMU's Environment Specialist with assistance, as required by the supervision consultant.

### **B. Social Safeguards**

84. The project is categorized A for involuntary resettlement. A draft LARP has been approved by ADB and disclosed. The KPID shall ensure that the draft LARP will be updated based on the detailed design and approved final alignment in accordance with Asian Development Bank's (ADB) Involuntary Resettlement Safeguards, and the Pakistan Land Acquisition Act, following the

notification under Section 4 of the LAA. KPID shall ensure that the updated LARP will not involve any lowering of the standards and entitlements provided in the approved draft LARP and is based on an updated assessment of impacts, follow-up meaningful consultation with DPs, and valuation of affected assets.

85. Preparation and disclosure of a final/ implementation-ready LARP approved by ADB and reflecting final impacts, DP list and official compensation rates; and (b) mobilization of the External Resettlement Monitor (ERM) are conditions for the civil works contract award. Likewise, KPID will ensure that notice-to-proceed with civil works in the irrigation section with LAR impacts will only be issued after full implementation of the compensation program described in the final LARP including the full delivery of compensation to the DPs and (b) preparation/submission of a compliance report by the external resettlement monitor. The PMO will be responsible for the preparation, implementation and monitoring of the final LARP, with support from its Project Implementation. Specifically, the PMO will:

- (i) Coordinate with the BOR in the conduct of detailed measurement surveys (DMS) and oversee the conduct census of all DPs and socioeconomic surveys;
- (ii) Ensure that calculation of compensation and assistance follows the policy provisions in the LARP;
- (iii) Conduct of regular consultations with DPs in preparing and implementing the LARP;
- (iv) Prepare the final LARP for ADB review, including any subsequent update or corrective actions in case of emerging or unforeseen impacts, as required;
- (v) Disclose the final LARP to the DPs after translating the summary of LARP in local language (Urdu/ Pashtu) to make it more understandable.
- (vi) Ensure the formation and orientation of the Grievance Redress Committee (GRC) for the community complaints resolution, and help facilitate the resolution of grievances;
- (vii) Effectively implement the LARP, including the livelihood restoration activities;
- (viii) Explore the possibility and facilitate land swapping and land consolidation to assist DPs in improving the viability of their remaining plots;
- (ix) Ensure the submission of semi-annual internal and external monitoring reports to ADB for review and disclosure and follow-up on issues noted and recommendations in the monitoring reports;
- (x) Inform ADB of any change in scope and alignment that would involve a change in the land acquisition and resettlement impacts or any emerging LAR issues during construction and propose the necessary corrective actions for ADB review;

86. The project is screened as category C project for indigenous peoples planning requirement under SPS 2009. KPID shall ensure that project does not have any indigenous peoples' impacts within the meaning of the Safeguard Policy Statement (2009). And if during design review or implementation, any change to the scope, location with prior approval of ADB, causes to have any such impacts, KPID shall take all steps required to ensure that the Project complies with the applicable laws and regulations of Pakistan and the ADB's Safeguard Policy Statement 2009.

### **C. Prohibited Investment Activities**

86. Pursuant to ADB's Safeguard Policy Statement (2009) (SPS),<sup>17</sup> ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the SPS. EAs will ensure that the Project is in compliance with applicable national

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<sup>17</sup> Available at: <http://www.adb.org/documents/safeguard-policy-statement>.

laws and regulations and will apply the prohibited investment activities list to the Project financed by ADB.

### VIII. GENDER AND SOCIAL DIMENSIONS

87. Social and gender dimensions as detailed in the attached summary of social and poverty reduction (Attachment 9) will include (i) preference to local labour during construction work through instructions in contracts and bidding documents; (ii) participation of small farmers and access to project benefits will be ensured through the formation of WUAs, membership criteria of WUAs will ensure equal opportunity for the small farmers to participate. WUAs will also ensure equitable distribution of water and that the concerns of marginalized farmers are addressed; (iii) to address the mobility concerns of the local people design canal construction work will include features like foot and road bridges etc.; and (iv) gender action plan (in Table 15) ensuring women's participation and benefits has also been developed. All these provisions will be tracked through the project's monitoring and evaluation system.

88. Targets/indicators highlighted in the GAP and other social/pro-poor provisions will be part of project's regular monitoring and reporting systems developed by PMO. Deputy Director Social and Gender hired at PMO will be responsible for the implementation of GAP, monitoring and reporting against social and gender targets. Female Extension Workers hired at the PIO level will work in close coordination with the Deputy Director Social and Gender and will be responsible for imparting training to female farmers and documenting the social and gender impacts. Deputy Director Social and Gender will also assist in conducting consultations and interaction with the civil society and local community organizations as and when required.

**Table 15: Gender Action Plan**

Project Outputs	Actions	Indicators	Timeline	Responsibility
Output 1: Available water for agriculture-use increased in project areas	Conduct separate consultations with women groups during the design stage of the sub-projects to address their concerns (related to mobility, privacy, access to water and other gender impacts)	20% of the total consultations are carried out with women groups	Yr-I-II	Director Social Safeguards and Deputy Direction Social and Gender at PMO
Output 2: Water-use skill and farm management capacity increased in project areas	Impart skill training to women farmers in improved agriculture techniques for increased food security and income generation. For example:  Off-season vegetables; kitchen gardening, tunnel farming and; advance agriculture technologies  Provide free inputs like plants, seeds and fertilizers to women for practicing their skills Hire female staff (as extension workers/trainers) at PIO for imparting training to women Conduct pre and post training	One Over 2,500 households (about 30% of total estimated number of beneficial households) trained in profitable farming system with at least 10% women beneficiaries (baseline 2014: 0)	Yr II-V	On-farm agriculture extension Department with the support of Deputy Director Social and Gender at PMO and female extension workers at PIO



	<p>assessments to assess the level of knowledge and skills of women Document case studies on good practices and gender impacts</p>	<p>Two female extension workers hired to impart training to women farmers (baseline: 0)</p> <p>Case studies prepared on good practices and gender impacts</p>		
<p>Gender – inclusive resettlement land acquisition and compensation plans</p>	<p>Facilitate women specifically (elderly, single and women without male support) in preparation of requisites for compensation</p> <p>Open bank accounts of women in their name and ensure transparency of transferring compensation allowance</p> <p>Provide priority to vulnerable women/women headed families in compensation provision</p> <p>Ensure that women are aware about the amount of compensation provisions</p> <p>Include gender disaggregated data in the monitoring and evaluation system</p> <p>Ensure that women specific concerns and priorities are considered in resettlement process.</p>	<p>No. of women facilitated (in preparing documents such as ID cards and opening of bank accounts etc.)</p>	<p>Yr I-II</p>	<p>Social Safeguards Unit established at PMO with the support of Deputy Director Social and Gender and Female Social Organizers</p>
<p>Establishment of Project Management Office</p>	<p>Placement of Deputy Director Social and Gender at PMO Incorporate gender-disaggregated data and reporting in PPMS Encourage employment opportunities for women in the project</p>	<p>One Deputy Director Social and gender hired in PMO</p> <p>Project reports include updates on GAP indicators</p> <p>No. of women staff hired by the project</p>	<p>Yr I-V</p>	<p>EAs and IAs</p>

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

89. The EA will be responsible for monitoring project progress and evaluating project outputs. Monitoring and evaluation shall be in accordance with the design and monitoring framework (DMF) and EA will be responsible for regular reporting both to the Project Steering Committee and ADB.

### A. Project Design and Monitoring Framework

**Table 16: Design and Monitoring Framework**

<b>Impacts the Project is Aligned with:</b> Irrigated agriculture area increased in KPP, and food security ensured for the decade 2010–2020 in KPP. <sup>a</sup>			
<b>Results Chain</b>	<b>Performance Indicators with Targets and Baselines</b>	<b>Data Sources and Reporting Mechanisms</b>	<b>Risks</b>
<b>Outcome</b> Increased agricultural production in the project areas	By December 2023: a. Cropping intensities increased to 151% (2014 baseline: 52%) in total project area of over 8,727 ha  b. Crop yield increased by 222% (maize), 139% (oilseeds), 145% (rapes and mustard), and 166% (wheat) (2014 baseline) <sup>b</sup> in total command area	a.–b. KPAD district agricultural statistics through PMO complemented by M&E systems	Increases in agricultural water demand and flood risk due to climate change impact.
<b>Outputs</b> 1. Available agricultural water in project areas increased	By December 2022: 1a. Water availability in IAA (7,411 ha) increased to 119 million m <sup>3</sup> per year (2014 baseline: 51 million m <sup>3</sup> ) <sup>c</sup>  1b. Water availability in the JBMA (1,316 ha) increased to 20 million m <sup>3</sup> per year (2014 baseline: 9 million m <sup>3</sup> ) <sup>c</sup>  1c. M&E system using satellite remote-sensing technology to assess irrigation efficiency, crop growing, water productivity, and abiana fully operational (2014 baseline: 0)  1d. A guideline and sustainable plan for PHLCE O&M fully operational (2014 baseline: 0)	1a.–c. PMO and KPID data	Internal control for non-salary expenditure is less effective, internal audit is not effective, and lack of use of professional audit methods and compliance with international standards for internal audit.  Lack of experience of agency in international competitive bidding contracts.
2. Water-use skill and farm management capacity improved in project areas	By December 2022, 2a. 100% of project areas fully irrigated (2014 baseline: 0%)  2b. 100% of on-farm irrigation canals fully operated and maintained by WUAs (2014 baseline: 0%)	2a.–d. Project implementation office through PMO and KPAD data	No dedicated procurement unit and insufficient staff, and no fully functional PMO.

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
	<p>2c. Over 4,000 households (about 50% of total estimated number of beneficial households) trained in improved water-use skills (2014 baseline: 0)</p> <p>2d. Over 2,500 households (about 30% of total estimated number of beneficial households) trained in profitable farming system with at least 10% women beneficiaries (2014 baseline: 0)</p>		
<p><b>Key Activities with Milestones</b></p> <p>1. Available agricultural water project areas increased</p> <p>1.1 Construct JBMA irrigation system (Q1 2018–Q3 2019).</p> <p>1.2 Construct IAA irrigation system (Q1 2018–Q4 2020).</p> <p>1.3 Develop M&amp;E system for JBMA and IAA irrigation system (Q2 2021).</p> <p>1.4 Complete training of KPID and KPAD staff on the use of the M&amp;E system (Q4 2021).</p> <p>1.5 Complete PHLCE asset inventory (Q4 2020).</p> <p>1.6 Develop a guideline and sustainable plan for PHLCE O&amp;M (Q2 2021).</p> <p>1.7 Complete training to KPID on the use of the rule and O&amp;M plan (Q4 2022).</p> <p>2. Water-use skill and farm management capacity improved in project areas</p> <p>2.1 Establish 20 WUAs in JBMA (Q1 2018–Q1 2019).</p> <p>2.2 Establish 86 WUAs in IAA (Q1 2019–Q3 2020).</p> <p>2.3 Construct 20 watercourses with farmers' participation in JBMA (Q4 2018–Q3 2019).</p> <p>2.4 Construct 86 watercourses with farmers' participation in IAA (Q1 2019–Q4 2020).</p> <p>2.5 Undertake WUAs training for efficient O&amp;M and their organizations (Q1 2018–Q4 2022).</p> <p>2.6 Establish 100 demonstration plots (Q3 2019–Q4 2020).</p> <p>2.7 Conduct farmer field schools and farmers' training in demonstration plots (Q3 2019–Q4 2022).</p> <p>Procurement management</p> <p>3.1 Mobilization of the project implementation consultant (Q1 2017).</p> <p>3.2 Complete detailed engineering design for the major civil works contract (Q3 2017).</p> <p>3.3 Initiation of the bid process of the major civil works contract (Q3 2017).</p> <p>3.4 Contracts for the major civil works contract (Q1 2018).</p>			
<p><b>Inputs:</b> Asian Development Bank: (ordinary capital resources loan) \$86.405 million, Government: \$10.198 million Beneficiaries: \$0.353 million (in-kind)</p>			
<p><b>Assumptions for Partner Financing</b> not applicable</p>			

ha = hectare, IAA = Indus and Ambar area, JBMA = Janda Boka–Malikabad area, KPAD = Khyber Pakhtunkhwa Agriculture Department, KPID = Khyber Pakhtunkhwa Irrigation Department, M&E = monitoring and evaluation, m<sup>3</sup> = cubic meter, O&M = operation and maintenance, PHLCE = Pehur High Level Canal Extension, PMO = project management office, Q = quarter, t = ton, WUA = water users' association.

<sup>a</sup> Government of KPP. 2009. *Comprehensive Development Strategy 2010–2017*. Peshawar.

<sup>b</sup> Wheat (1.384 t/ha), maize (1.058 t/ha), oilseeds: karif season (1.436 t/ha), and rapeseed and mustard (0.768 t/ha) in 2014.

<sup>c</sup> Baseline data include effective rainfall only.

Source: Asian Development Bank.

## B. Monitoring

90. **Project Performance Monitoring.** The EA will develop comprehensive project performance monitoring system and closely monitor the progress of project activities, outputs, and outcomes based on the project performance monitoring system in accordance with the DMF. In particular, the project performance monitoring system will assess the following outputs and indicators (i) progress of planned activities according to the milestones; (i) progress in achieving each project output and project outcome according to the performance targets and indicators indicated in the DMF, and (iii) social and economic benefits with focus on the poor and women.

91. Information and data gathered during project implementation period will be analyzed and measured against the targets, and published regularly on the project website.

- (i) Submit quarterly progress reports, covering progress and achievements during the period against milestones and indicators in the DMF; and
- (ii) Produce a project completion report at the last year of project implementation, outlining the achievements and lessons learned.

92. All project assurances including policy, legal, financial, economic, physical, environmental, gender, and other safeguard measures will be monitored through a quarterly progress reports, and twice a year, during ADB loan review missions.

93. ADB will also monitor the progress of achievement of each output and outcome based on performance indicators with targets, and each activity based on milestones indicated in the DMF through a project management information system (i.e., e-Ops).

94. **Compliance monitoring.** All project assurances including policy, legal, financial, economic, physical, environmental, gender, and other safeguard measures will be monitored through quarterly progress reports and twice a year during ADB loan review missions.

95. **Safeguards monitoring.** The PMO will submit to ADB an Environmental monitoring report that will provide an overview of the implementation of the EMP and the Site Specific EMP. The PMO environment specialist (deputy director) will prepare the biannual environmental monitoring report with the assistance of the national and international Environmental Specialists of the PMO. The consultants will supervise functioning of the project's Environmental Management System including implementation of the EMP and inputs into quarterly progress reports that will be submitted to ADB. The contractor's environment specialist will be responsible for the day to day implementation of the EMP and SSEMP in the field, the contractor will prepare monthly environmental reports for submission to the PMO environment deputy director.

96. The PMO Deputy for Resettlement will oversee the internal resettlement monitoring of the LARP implementation, with support from the PIC Safeguards Team. External resettlement monitoring and compliance reporting will be conducted by an independent external monitoring agency (EMA) or individual external monitor to be hired by the PMO. Internal and external resettlement monitoring reports will be submitted on a semi-annual basis to ADB for review and disclosure. All monitoring reports will also be disclosed to the displaced persons including the preparation of corrective action plan (s).

97. **Gender and social dimensions monitoring.** The Deputy Director Social and Gender at the PMO will be responsible for monitoring the implementation of the gender action plan and for the preparation of the semi-annual monitoring reports that will be submitted to ADB.

## C. Evaluation

98. **Inception Mission.** ADB will conduct an inception mission within three months of loan signing to assess project readiness and implementation arrangements including establishment of PMO, PIOs, opening of an imprest account, progress of recruitment of three consulting services, status of the development of the project performance monitoring system, and progress of advance procurement actions.

99. **Review Mission.** ADB will field review missions at least once a year to (i) assess the progress of project activities and outputs and effectiveness of implementation arrangements, (ii) monitor the implementation of GAP and safeguard compliance with ADB Safeguard Policy Statement (2009), (iii) review compliance with loan agreements and related matters, (iv) follow up on decisions and actions agreed during previous review missions, and (v) resolve any project implementation issues that may arise.

100. **Midterm Review Mission.** ADB will conduct a midterm review in the third year of project implementation. The midterm review will (i) assess the project performance and achievement against targets and milestones in the DMF; (ii) review the initial outcomes, benefits, and impact of the project, and (iii) identify gaps, if any, and recommend necessary changes to strengthen implementation arrangements or modify project design.

101. **Project Completion Review Mission.** ADB will field a project completion review mission upon physical completion of the project to commence preparation of ADB's project completion report. The mission will (i) assess the project performance against all targets, indicators, and benchmarks (including any revised at the midterm review); (ii) evaluate initial benefits and outcome of the project across outputs, and (iii) identify any incomplete activities and agree on the necessary actions.

## D. Reporting

102. The EA through the PMO will submit to ADB the following reports: (i) quarterly progress reports in a format consistent with ADB's standards; (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, (d) progress of the gender action plan; (e) issues concerning environment and social safeguards; and (f) updated implementation plan for next the 12 months.

103. The EA, through the PMO shall submit a government's project completion report within 6 months of physical completion of the project. The government's project completion report will evaluate the performance and achievements of the project against the indicators, expected benefits, and outcome, and should include information on (i) project implementation, and (ii) the use of loan fund to ADB.<sup>18</sup>

## E. Stakeholder Communication Strategy

104. Project information will be strategically disseminated through media at main milestones including loan signing, contract awards and project completion. Grievance redress mechanism will be established at the PMO, by phone and email, and through public consultation events.

<sup>18</sup> Project completion report format is available at: <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>.

**Table 17: ADB Public Communications Strategy**

<b>Project Documents</b>	<b>Means of Communication</b>	<b>Responsible Party</b>	<b>Frequency</b>	<b>Audience(s)</b>
Project data sheet (PDS)	ADB's website	ADB	Initial PDS posted on the website no later than two weeks after approval of the concept paper; updated at least twice a year	General Public
Environmental Impact Assessment	ADB's website	ADB	Post fact-finding mission and 120 days before Board Approval of the project	General Public, project-affected people in particular
Draft Land Acquisition and Resettlement Plan	ADB's website brochures	ADB	Post fact-finding mission	General Public, project-affected people in particular
Final Land Acquisition and Resettlement Plan	ADB's website brochures	ADB KPID	After detailed design and approval by ADB	General Public Project-affected people
Reports and Recommendations of the President	ADB's website	ADB	Posted on the website within two weeks of Board approval of the loan	General Public
Legal Agreement	ADB's website	ADB	Within two weeks of loan signing (early disclosure unless Borrower agrees to)	General Public
Initial Poverty and Social Assessment	ADB's website	ADB	within 2 weeks of approval of Concept Paper	General Public
Summary of Poverty Reduction and Social Strategy	ADB's website	ADB	Within two weeks of loan signing (early disclosure unless Borrower agrees to)	General Public
Project Administration Memorandum	ADB's website	ADB	Posted on the website within two weeks of Board approval of the loan	General Public
Social and Environmental Safeguard Monitoring Reports	ADB's website	ADB	Within 1 month after each 6 month monitoring period	General Public, project-affected people in particular
Audited project financial statements and the auditors' report	ADB's website	ADB	No later than 14 calendar days of ADB's confirmation of their acceptability	General Public
Project Completion Report	ADB's website	ADB	Within two weeks of circulation to the Board for information	General Public
Evaluation Report	ADB's website	ADB	Within two weeks of circulation to Management and the Board	General Public

Source: Asian Development Bank.

## X. Guidance Note to Develop Plan for Sustainable O&M of PHLCE

### A. GENERAL

105. The PHLCE system will require O&M arrangements with sustainable O&M plan and its operational guideline. The Janda Boka canal is a contour canal which irrigates area to its left side. The Indus-Ambar canal mostly runs along the ridge line. Both systems are lined irrigation system and will require routine maintenance and inspection of canal lining and associated structures. In addition, the system includes syphons and cross-drainage structures. Proper inspection and maintenance of these structures and performance assessment of the PHLCE system will need to be carried out based on the proper asset inventory and sustainable O&M plan and its guideline. Moreover, the O&M arrangements need to incorporate the monitoring and evaluation (M&E) system to be developed using satellite remote sensing technology to assess irrigation performance, agriculture production, and abiana (water-use charges).

### B. MANAGEMENT AUTHORITY

106. Currently two modes of Irrigation System O&M are in vogue in Pakistan: (i) Systems managed by Irrigation Department; and (ii) Systems managed by Farmer's Organization under supervision of Area Water Board and the Provincial Irrigation and Drainage Authority. The above systems differ in institutional aspects of operation as to who will operate, maintain the system and who will collect *abiana*. However, the main operational requirements for the successful implementation of the irrigation project remain the same. In addition to the problems arising from the security situation, the main operational constraints facing O&M of water resources infrastructure in KPP are associated with lack of funding, inadequate cost recovery, capacity constraints, limited stakeholder participation, poor awareness and information.

107. The institutional arrangement for O&M of PHLCE is expected to be consistent with that of the adjoining PHLC irrigation System. It was originally planned in 1997-1998 to shift KPID's responsibility for O&M of all main irrigation and drainage schemes to the newly established North Western Frontier Province Irrigation and Drainage Authority. At the main canal level, self-accounting Area Water Boards (AWB) was to be formed and Farmer Organizations (FOs) were to be formed at distributary/minor canals level. It was agreed that initially a pilot system approach will be followed and based on its success the system would be extended to other areas. In KPP, Swat Canal AWB was formed while FOs were to manage infrastructure at distributary and minor level. However, the management of distributaries and minors in PHLC command was not transferred to the FOs and the PHLC is operated and maintained by the Swabi Irrigation Circle of KPID.

108. Irrigation management and abiana collection was transferred to 6 distributaries. The arrangement did not prove successful and the performance of FOs was poor due to lack of training and capacity building, transforming of official records, poor performance of FOs in recovery of water charges and maintenance of channels under their jurisdiction together with limited support of Government in empowering the FOs. Due to these reasons the model of reforms implemented under Frontier Irrigation and Drainage Authority Act 1997 is heading towards failure. Accordingly there is a need to revisit the original model and amend the same in consultation with KPID, farmer's community and other stakeholders.

109. As per Comprehensive Development study (CDS) the minimum requirements for maintenance of the KPP irrigation system ranged between PRs600 million and PRs900 million per year in the five years prior to 2008-2009. The budget allocation in the five year period varied between PRs160 million and PRs300 million. Against this, the abiana collection is reported to have ranged between PRs170 million to PRs205 million, which shows a big gap in O&M expenditure and revenue from abiana collection.<sup>19</sup> Because of the shortfall in funding for routine maintenance, the KPID relies on funding from the development budget for large rehabilitation projects, to rescue the infrastructure from disrepair. This is an unsustainable situation and the gap between expenditure on O&M and revenue collections needs to be narrowed down. CDS recognizes that this is not usually the most efficient way of keeping the system in operation.

110. The Swat Canal AWB is the only AWB in KPP established in 2000 for the O&M of the main irrigation and drainage schemes covering the irrigated area of 180,000 ha as a pilot case. Similarly, Swabi Irrigation Division was declared as pilot project in the jurisdiction of Swat Canal AWB Mardan. It was to become financially self-sufficient in about 7 years, which did not happen and Swat Canal AWB is financially and institutionally still dependent on the KPID. Depending on its success, other AWBs were to be created. The chairman of the Swat Canal AWB is the Superintending Engineer Northern Irrigation Circle Mardan of the KPID.

111. The performance of the FOs in terms of O&M of the irrigation system as well as revenue collection had been poor. The FOs were required to deposit 60% of the abiana with the AWB and retain 40% for O&M of the distributary canals, which did not happen. The six FOs had not deposited 65.37 % of the AWB share. Also the FOs did not carry out proper O&M of their distributaries/minor canals.

112. The KPID is also responsible for the collection of abiana in the remaining part of the province. The flat rate abiana is fixed according to area; PRs250/acre for food crops (wheat, maize and rice) and PRs300/acre for non-food crops (PRs 617.5/ha for food crops and PRs741/ha for non-food crops). As per CDS total assessment value increased from about PRs200 million in 2002-2003 to PRs341 million in 2007-2008, an increase of 20% in real terms. The actual collection of abiana has however varied from 50% to 60% of the assessed value.

113. Considering above, the PHLCE project needs to be managed by KPID as the AWB is not functioning well. Due to current weak capacity of existing FOs the construction and O&M of distributaries and minor levels of the PHLCE also need to be executed by KPID because it is unlikely that FO(s) can take up the responsibility of construction of distributary/minor canals and conduct proper O&M of newly constructed PHLCE distributaries and minors. Considering the foregoing, farmer's management of irrigation system is not envisaged for PHLCE project. However, farmers' WUAs will be formed at water course level which will be responsible for participation in construction and maintenance of watercourses. Formation of these WUAs will be facilitated by KPAD (OFWM Directorate). The abiana will be collected by KPID and the WUAs will provide support in abiana collection.

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<sup>19</sup> It should be noted that collected abiana are to be transferred to KPP Revenue Department and all collected revenues from various sectors are redistributed to required expenditures including O&M budget allocation for KPP irrigation systems.



### C. STAFFING REQUIREMENTS

114. **Staff Requirements for KPID.** KPID already has staff and an office place in the Swabi District to manage irrigation schemes under PHLC and Upper Swat Canal. For the PHLCE project, following additional staff is envisaged under Executive Engineer Swabi Irrigation Circle.

**Table 18: Staff Requirement for irrigation Department**

Staff Category	Estimated No.
Executive Engineer Swabi Irrigation Circle (Existing post)	
SDO PHLCE	1
SEN I.Ambar	1
SEN J.Boka	1
SEN Mechanical	1
Zilladar	1
Partwari	9
Beldar	15
Gauge Readers	7
Draftsman	1
Clerk	1
Assist. Revenue Clerk	1
Driver	1
Office Boy / Messenger	1

SDO = Sub-Divisional Officer, SEN = Sub-Engineer.

115. **Staff Requirement Watercourse Level.** Watercourses are farmer's property and would be maintained by farmer's themselves through WUAs.

116. **Staff Requirements of KPAD.** Field studies reveal that presently limited agriculture extension services are available in the district. The un-irrigated areas are rarely visited by the extension staff. Therefore, recommendations are made to enhance agriculture extension activities as soon as the irrigated agriculture is developed in the PHLCE command area. Information regarding agricultural research, extension, input supply centers and marketing facilities accessible to the farming communities in the project area have been collected. It is recommended to improve agriculture extension services for transfer of technology to the farming communities especially in the new command area for achieving the projected agriculture production in command area.

117. The executive district officer, Agriculture, with the help of district directors of different fields of agriculture is responsible for managing the extension activities in the district. The district directors are responsible at district level. Other specialists provide technical guidance. Agriculture officer is responsible at Circle, while field assistant is responsible at Union Council level. Estimated staffing required for mobilization of farmer's in the command areas and supervising construction of on farm works is proposed in the table below.

**Table 19: Estimated Staffing for Agriculture Department**

<b>Position</b>	<b>Number of Staff</b>
<b>Agricultural Extension</b>	
Agriculture Officer	1
Social Mobilizer	1
Field Assistant	3
Computer Operator	1
Non-Technical Support Staff	Several
<b>On Farm Water Management</b>	
Water Management Officer	1
Agriculture engineers	2
Agronomist	1
Social Mobilizers	3
Sub Engineers	3
Work Supervisors	2
Non-Technical Support Staff	Several

118. The agriculture officer will be a regular employee of the Agriculture Extension Services whereas the remaining staff will be recruited through Project Implementation Consultants (PIC). Similarly, the water management officer will be a regular employee of the OFWM Directorate and the remaining staff will be recruited through the PIC out of the provisional sum for capacity building. For the implementation phase, 30 person-months of input of each of above staff are estimated. After completion of project implementation the Agriculture Extension Services in KPAD will provide the extension services in the project Area.

#### **D. MAINTENANCE STANDARD**

119. The KPID estimates the O&M requirements of different systems either on need basis or at 1.50% of the project cost. However, budgetary releases by KPP Finance Department for O&M are often less than the demands. Similar is the case with PHLC and the O&M allocations were less than the demand/requirement. As per PC-1 for PHLC Project, annual O&M requirements were PRs10.5 million for PHLC and Topi Area at 1993 price levels. The O&M budget releases for PHLC have varied from PRs7.8 million in 2005 to PRs8.60 million in 2015. In real terms the budget releases have significantly declined and are not adequate for desired level of O&M of the System while it was confirmed that the O&M of the PHLC has been somewhat carried out with reasonable manner. Reasonable O&M with limited fund was realized mainly because of the canal design with less O&M requirement and considerably less sediment load along canals as source of water is Tarbela Dam compared to other systems where water is drawn from rivers.

120. Based on experience of consultants engaged under the project preparatory technical assistance, following maintenance standards are recommended.

Embankment Inspection	Repair at least 20% of service road up to designed level.
	Grade road surface 6 times per year.
	Prohibit public access to non-paved inspection roads (the Highway Department must provide alternate roads or take over maintenance).
Embankment Slope,	Repair at least 20% of total length up to design level.

Outside (includes 1.2 m of road shoulders).	Fill all rain cuts before start of rainy season.
	Remove all trees and bushes, establish turfing where feasible and control weed growth to facilitate inspection of seepage on outside slopes.
Embankment Slope, Inside	Cut weeds as necessary to allow visual inspection of canal prism.
	Remove all trees and bushes interfering the waterway
Structures	Inspect all gates, gate hoists and steel accessories annually and repaint, repair or replace as needed during the canal closure period.
Lined Canals	Inspect lining and repair wherever required. Remove all weeds and bushes.
Valves and Accessories	Inspect all valves and accessories along pressure pipe for proper functioning. Repair or replace as needed during canal closure period
Cross Drainage	Inspect all cross-drainage points of pressure-pipe and irrigation network during canal closure and also before the arrival of flood season. Repair damaged stone apron, check drainage culverts and remove obstructions where required before the next flood season.
Watercourses	Inspect all watercourses during closure and perform maintenance of lining and repair any damages.

121. Based on above recommended maintenance standard, the maintenance cost of PHLCE excluding establishment cost (i.e. salary cost of O&M staff and other costs including running and maintenance of office and other related expenses) is estimated at about Rs 53.2 million (\$ 506,959) per year. After adding the cost of establishment the total O&M budget for PHLCE will be Rs 65.5 million (\$623,810).

## E. COST RECOVERY

122. Cost recovery for O&M is desired to be based partially on abiana collection. However, it is recognized that the current rate of abiana is too low for meeting the O&M costs. Thus besides increasing the abiana, the government will need to further allocate sufficient funds for O&M of the system as part of annual budget (i.e. Annual Development Program). As provided in the loan covenants for PHLCE project, adequate funds satisfactory to ADB will be allocated for O&M of the PHLCE irrigation system. The current estimate of the O&M requirement is \$630,000 in 2016. The EA assured to reassess and reconfirm the adequacy of the amount of O&M fund to be allocated by the KPP Government during the project implementation based on the estimated amount, and its results will be reviewed by ADB during its midterm review mission. The government of KPP also assured to fully implement O&M plan to be developed after completion of physical works.

123. The current level of recovery of abiana in PHLC command is less than 50% of the assessed amount. There is a need to increase the recovery of abiana. The increase in abiana collection is possible if KPID has full support of the Swabi district administration. In Punjab during Development Policy Loan of the World Bank the *abiana* collection in non-FO areas for 2005-06 was 47% in Kharif and 58% of the assessed amount in Rabi. On intervention by the Chief Secretary who instructed the district administration to assist in abiana collection the *abiana* collection performance in non FO areas improved to 70%<sup>20</sup> of the assessed amount in 2006-07. While in the FO areas there was a downward trend. Collection performance of FOs for *Rabi*<sup>21</sup> 2005 was 78%, and 79% in *Kharif*<sup>22</sup> 2006 which declined to 63.6% in *Kharif* 2007 and 63.56% for *Rabi* 2007-08 it was 59.02%.

<sup>20</sup> Ref Implementation Completion Report of Punjab Irrigation Sector Development Policy Loans December 25, 2010.

<sup>21</sup> Winter crop season (November – March).

<sup>22</sup> Summer crop season (April–October).

## **XI. ANTICORRUPTION POLICY**

124. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project.<sup>23</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 agencies 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>24</sup>

125. To support these efforts, relevant provisions are included in the loan agreement and the bidding documents for the project. The Government, through KPID will ensure that the anticorruption provisions acceptable to ADB are included in all bidding documents and contracts including provisions specifying the right of ADB to audit and examine the records and accounts of the executing agencies and all contractors, suppliers, consultants, and other service providers as they relate to the project.

126. The EA will provide updated information on the project on their websites, including information on the performance of the project, business opportunities, bidding process and guidelines, outcome of biddings and summary progress reports of the project.

## **XII. ACCOUNTABILITY MECHANISM**

127. 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>25</sup>

## **XIII. RECORD OF PAM CHANGES**

128. 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.

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<sup>23</sup> Available at: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>.

<sup>24</sup> ADB's Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>.

<sup>25</sup> For further information see: <http://www.adb.org/Accountability-Mechanism/default.asp>.