Pakistan: Punjab Irrigated Agriculture Investment Program-Project 1

<table>
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<th>Project Name</th>
<th>Punjab Irrigated Agriculture Investment Program-Project 1</th>
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<td>Project Number</td>
<td>37231-023</td>
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<td>Country</td>
<td>Pakistan</td>
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<td>Project Status</td>
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<td>Project Type / Modality of Assistance</td>
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**Source of Funding / Amount**

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<td>Loan 2299-PAK: MFF-Punjab Irrigated Agriculture Investment Program Subproject 1: Punjab Irrigated Agriculture Project Preparation Facility (PFR1) Ordinary capital resources</td>
<td>US$ 217.80 million</td>
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<td>Loan 2300-PAK: MFF-Punjab Irrigated Agriculture Investment Program Subproject 1: Punjab Irrigated Agriculture Project Preparation Facility (PFR1) concessional ordinary capital resources lending / Asian Development Fund</td>
<td>US$ 10.00 million</td>
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**Strategic Agendas**

| Environmentally sustainable growth |

**Drivers of Change**

| Governance and capacity development |

**Sector / Subsector**

| Agriculture, natural resources and rural development - Irrigation - Rural water policy, institutional and capacity development - Water-based natural resources management |

**Gender Equity and Mainstreaming**

| Effective gender mainstreaming |

**Description**

The project seeks to promote economic growth, increase farm incomes and improve resource sustainability through enhanced productivity of irrigated agriculture and improved management of Punjab's water resources. Project components include (i) rehabilitation and upgrading of Baloki Barrage including the Lower Bari Doab Canal (LBDC) and BS Link Canal head regulators; (ii) rehabilitation and upgrading of the LBDC main canal and appurtenant structures as well as branch, distributary and minor canals comprising the LBDC distribution system; (iii) intensified and rationalized systematic groundwater monitoring and strengthened groundwater resource management in the LBDC command; (iv) improved on-farm water management practice and agriculture support; and (v) institutional reform and strengthening to ensure improved operation and management of the LBDC system.

The Punjab Irrigated Agriculture Project Preparation Facility (PIAPPF) will ensure that (i) forthcoming projects are expeditiously prepared to fully utilize Program resources, (ii) future projects are well designed and meet ADB guidelines, and (iii) the PIAIP is well managed.

**Project Rationale and Linkage to Country/Regional Strategy**

The infrastructure has seriously deteriorated due to (i) age (much is nearly 100 years old), (ii) no asset management planning, and (iii) chronic underfunding and ineffective implementation of O&M. The poor condition of some large infrastructure poses serious risks, yet the deteriorated system more generally means unreliable irrigation service delivery, particularly to the tail ends of the canals. Farmers have adapted to unreliable and inadequate canal water by developing private tubewells.

**Impact**

Increased agricultural production and farm income in Lower Bari Doab Canal (LBDC) command area (Okara, Sahiwal, Khanewal, Vehari, and Multan districts)

**Project Outcome**

| LBDC command area receives a sustainably improved delivery of water services and management |

**Progress Toward Outcome**

Of the ten civil works contracts two were NCB and eight ICB contracts. The works are substantially completed by 30 September 2017 except for small works. The Government of Punjab has agreed to complete the left over works from its own resources by 31 May 2018.

**Implementation Progress**

The LBDC and distribution system rehabilitated on time and within budget. A groundwater management plan and conjunctive use strategy for LBDC is operational. Farmers use improved on-farm water management practices.

Area Water Board (AWB) and Farmers Organizations (FOs) take responsibility for operations of canal systems. Due diligence of subsequent tranches Baloki Barrage rehabilitated on time and within budget.
The progress with respect to the Project Outputs as defined in the Design & Monitoring Framework is as given below:

Status of Implementation Progress (Outputs, Activities, and Issues)

**Output 1:** The LBDC and distribution system rehabilitated on time and within budget.

Progress Status:
- The rehabilitation works comprises 201 km of main canal and 2,264 km of distribution system. The 201 km of main canal have been completed under three contracts; ICB-01, -02, -03. Work of a total 2,264 km length of Distributaries & Minors has been awarded. Of the awarded R&U work on Distribution System, 2151 km has been completed while only 214 structures on 113 km is in progress. The completed 2151 km includes concrete lining and side protection over a length of 1274 km and 877 km length for R&U of earthen channels. The number of appurtenant structures were reduced from 3,500 to 2,258 after doing the revised condition survey during canal closure between Dec 2015 Jan 2016. Of the revised scope of the 1581 structures, work is completed on 214 structures on distribution system while minor repair works on remaining 23 structures of distribution system (not requiring canal closure), under contracts ICB-04, ICB-05, ICB-06A & ICB-06B are on-going.

Output 2: A groundwater management plan and conjunctive use strategy for LBDC is operational
- Output Indicator 1: Groundwater data base in use by PID by 2015
- Progress Status: Output achieved. Groundwater data base and model have been developed and handed over to PID, staff has been trained, and database and model are being used by PID.
- Output Indicator 2: Groundwater model in use by PID by 2015
- Progress Status: Activity completed 20 months before original schedule.
- Output Indicator 3: By 2015 PID uses guidelines for groundwater use
- Progress Status: Output achieved.
- Output Indicator 4: Farmers use improved on-farm water management practices
- Progress Status: Output overachieved. 53 Demonstration plots have been established, each plot is 40 ha. completed in Q3 2013 - two years ahead of the original project schedule. Field programs such as: Laser land leveling, Raised bed plantation, Soil nutrient profile determination, and Conjunctive use of groundwater and its treatment techniques have been completed on 30 Sep 2013.
- Output Indicator 5: Farmers Organizations (FOs) and Water User Associations (WUAs) have been formed. FOs are participating in rehabilitation and upgradation of distributory canals. They are also responsible for i) collecting water charges (Abiana) and ii) operation and management of canals.
- Progress Status: Output overachieved. Against a target of establishing one AWB, 50 FOs and 3,000 Khal Punchayats (KPs), the Project was able to establish one AWB, 53 FOs, and 3,779 KPs.

Output 3: Farmers use improved on-farm water management practices
- Progress Status:
  - 1. Tranche 2 for New Khanki Barrage approved in Q4 2011
  - 2. Tranche 3 for Suleimanki Barrage and Pakpattan Canal Improvement Project approved in Q4 2012
  - 3. Trimmu-Panjnad (Stand alone) approved in Q3 2014
  - 4. Pakpattan Distribution System for $120 million. Project is ready:
    - a. Feasibility study, detail design and PC-1 prepared
    - b. Climate change assessment study to be carried out as it became requirements now. Project is ready.
    - c. Climate change assessment study yet to be carried out.
  - 5. Thal Canal ($250 million): Project is ready:
    - a. Feasibility study, and detailed design completed.
    - b. PC-1 is under preparation.
    - c. Climate change assessment study yet to be carried out.
  - 6. Cholistan Water Resources Development Project:
    - a. Feasibility study is in progress.
    - b. Link Canals Remodeling:
      - a. Feasibility study is substantially completed.
      - b. Climate change assessment study yet to be carried out.
    - 5. Thal Canal ($250 million): Project is ready:
      - a. Feasibility study, and detailed design completed.
      - b. PC-1 is under preparation.
      - c. Climate change assessment study yet to be carried out.
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      - b. PC-1 is under preparation.
      - c. Climate change assessment study yet to be carried out.
  - 7. Link Canals Remodeling:
    - a. Feasibility study is substantially completed.

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- Progress Status: Output achieved. Groundwater data base and model have been developed and handed over to PID, staff has been trained, and database and model are being used by PID.
- Output Indicator 2: Groundwater model in use by PID by 2015
- Progress Status: Activity completed 20 months before original schedule.
- Output Indicator 3: By 2015 PID uses guidelines for groundwater use
- Progress Status: Output achieved.
- Output Indicator 4: Farmers use improved on-farm water management practices
- Progress Status: Output overachieved. 53 Demonstration plots have been established, each plot is 40 ha. completed in Q3 2013 - two years ahead of the original project schedule. Field programs such as: Laser land leveling, Raised bed plantation, Soil nutrient profile determination, and Conjunctive use of groundwater and its treatment techniques have been completed on 30 Sep 2013.
- Output Indicator 5: Farmers Organizations (FOs) and Water User Associations (WUAs) have been formed. FOs are participating in rehabilitation and upgradation of distributory canals. They are also responsible for i) collecting water charges (Abiana) and ii) operation and management of canals.
- Progress Status: Output overachieved. Against a target of establishing one AWB, 50 FOs and 3,000 Khal Punchayats (KPs), the Project was able to establish one AWB, 53 FOs, and 3,779 KPs.

Output 4: Area Water Board (AWB) and Farmers Organizations (FOs) take responsibility for operations of canal systems.
- Progress Status: Output achieved. Against a target of establishing one AWB, 50 FOs and 3,000 KPs, the Project was able to establish one AWB, 53 FOs, and 3,779 KPs.

Output 5: Due diligence of subsequent tranches
- Progress Status:
  - 1. Tranche 2 for New Khanki Barrage approved in Q4 2011
  - 2. Tranche 3 for Suleimanki Barrage and Pakpattan Canal Improvement Project approved in Q4 2012
  - 3. Trimmu-Panjnad (Stand alone) approved in Q3 2014
  - 4. Pakpattan Distribution System for $120 million. Project is ready:
    - a. Feasibility study, detail design and PC-1 prepared
    - b. Climate change assessment study to be carried out as it became requirements now. Project is ready.
    - c. Climate change assessment study yet to be carried out.
  - 5. Thal Canal ($250 million): Project is ready:
    - a. Feasibility study, and detailed design completed.
    - b. PC-1 is under preparation.
    - c. Climate change assessment study yet to be carried out.
  - 6. Cholistan Water Resources Development Project:
    - a. Feasibility study is in progress.
    - b. Link Canals Remodeling:
      - a. Feasibility study is substantially completed.
      - b. Climate change assessment study yet to be carried out.
    - 5. Thal Canal ($250 million): Project is ready:
      - a. Feasibility study, and detailed design completed.
      - b. PC-1 is under preparation.
      - c. Climate change assessment study yet to be carried out.
  - 7. Link Canals Remodeling:
    - a. Feasibility study is substantially completed.

Output 6: Baloki Barrage rehabilitated on time and within budget
- Progress Status: The work has been substantially completed except for minor works that will be completed by 31 May 2018.
- Output Indicator 1: Barrage reliably diverts up to a sanction discharge of 278 m3s-1 to LBDC by 2015
- Progress Status: Discharge capacity at Head for BS Link increased by 10,000cfs by constructing an additional Head Regulator.
Consulting Services

The IPPMU will be supported by a package of consulting services for the PIAPPF to prepare and carry out final design for the ensuing projects to be financed under MFF. This package will provide for 216 person-months of international consultants and 710 person-months of domestic specialists to prioritize investment options, prepare projects to the feasibility level, and carry out detailed design and tender document preparation. For LBDCIP, contracts for five packages of consultant services will be awarded comprising of about 333 person-months of international specialists and 1,423 person-months of domestic experts to support all facets of Project implementation. All consultants to be financed under PIAPPF, including those for LBDCIP, will be recruited in accordance with Guidelines on the Use of Consultants by Asian Development Bank and Its Borrowers, April 2006. The selection and engagement of required services will be through firms selected under quality- and cost-based selection procedures and individuals as required. The PMU will recruit NGOs for resettlement activities that will be contracted on a competitive basis acceptable to ADB.

Procurement

All procurement will be undertaken following ADB's Procurement Guidelines (April 2006) as amended from time to time. Civil works packages for the R&U of Baulkis barrage, the LBDC main canal and the bulk of the irrigation distribution system will be awarded under international competitive bidding (ICB) among suitably pre-qualified contractors. Civil works contracts costing less than $4.0 million including those for the rehabilitation and upgrading of the Jhandra and 15-L distributary and minor canals which will be awarded in two “distributary” defined civil works contracts of only medium scale (to facilitate their early construction) will not be suitable for or of interest to international contractors. Moreover, adequate domestic contracting capacity exists to successfully undertake these works at a reasonable cost; thus they will be undertaken under national competitive bidding procedures among suitably pre-qualified local contractors. Supply contracts estimated to cost the equivalent of $100,000 up to $500,000 will be awarded on the basis of limited international bidding. Minor items costing $100,000 equivalent or less will be procured under direct shopping. Since none among pre-qualified bidders submitted their bids for ICB-06, a Minor Change in Scope for Repackaging of LBDC-ICB-06 was approved to split it, in two i.e. ICB-06 (A) and ICB-06 (B) on 18 October 2012.

Responsible ADB Officer

Zafar, Asad A.

Responsible ADB Department

Central and West Asia Department

Responsible ADB Division

Pakistan Resident Mission

Executing Agencies

Irrigation Department of the Government of Punjab
Syed Mehmoond-Ul-Hassan
pd_lbdcip@yahoo.com
Canal Bank Mustafa Abad, Lahore

Timetable

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<th>Effectivity Date</th>
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Financing Plan

| Project Cost ($) | 271.40 |
| ADB              | 217.80 |
| Counterpart ($)  | 53.60  |
| Cofinancing      | 0.00   |

Loan Utilization

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Loan 2299-PAK

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Financing Plan

| Project Cost ($) | 10.00  |
| ADB              | 10.00  |
| Counterpart ($)  | 0.00   |
| Cofinancing      | 0.00   |

Loan Utilization

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