Periodic Financing Request Report

Project No. 37231-043
December 2012

MFF 0009-PAK: Punjab Irrigated Agriculture Investment Program: Tranche 3

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 20 November 2012)

Currency Unit	–	Pakistan rupee (PRs)
PRs1.00	=	$0.01040691
$1.00	=	PRs96.09

ABBREVIATIONS

ADB	–	Asian Development Bank
ADF	–	Asian Development Fund
APs	–	affected persons
AWB	–	Area Water Board
CCA	–	cultivable command area
EA	–	executing agency
EARF	–	environmental assessment and review framework
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
FFA	–	framework financing agreement
FO	–	farmers organization
GDP	–	gross domestic product
ICB	–	international competitive bidding
IEE	–	initial environmental examination
JICA	–	Japan International Cooperation Agency
LARF	–	land acquisition and resettlement framework
LARP	–	land acquisition and resettlement plan
LBDC	–	Lower Bari Doab Canal
LBDCIP	–	Lower Bari Doab Canal Improvement Project
MFF	–	multitranche financing facility
NCB	–	national competitive bidding
NKBP	–	New Khanki Barrage Project
O&M	–	operation and maintenance
PCSBIP	–	Pakpattan Canal and Suleimanki Barrage Improvement Project
PFR	–	periodic financing request
PIAIP	–	Punjab Irrigated Agriculture Investment Program
PIDA	–	Punjab Irrigation and Drainage Authority
PID	–	Punjab Irrigation Department
PMO	–	Project Management Office
PMU	–	Project Management Unit
PSC	–	Project Steering Committee
RF	–	resettlement framework
RP	–	resettlement plan

WEIGHTS AND MEASURES

m	–	meters
mm	–	millimeter
km	–	kilometer
ha	–	hectare
m^3sec^{-1}	–	cubic meters per second

GLOSSARY

abiana	–	irrigation service fee
conjunctive use	–	combined use of surface and ground waters
rabi	–	crops grown during the period from about December to May
kharif	–	crops grown during the period from about June to November

NOTES

The fiscal year (FY) of the Islamic Republic of Pakistan ends on 30 June.
In this report, "$" refers to US dollars.

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APPENDIXES

SUPPLEMENTARY APPENDIXES (available on request)

TRANCHE AT A GLANCE

1. Project Name: MFF – Punjab Irrigated Agriculture Investment Program - Tranche 3 Pakpattan Canal and Suleimanki Barrage Improvement Project (PCSBIP) **2. Project Number:** 37231-043

3. Country: Pakistan **4. Department/Division:** Central and West Asia Department/Environment, Natural Resources and Agriculture Division

5. Sector Classification:

Sectors	Primary	Subsectors
Agriculture and natural resources	√	Irrigation, drainage and flood protection

6. Thematic Classification:

Themes	Primary	Subthemes
Economic growth	√	Promoting economic efficiency and enabling business environment
Economic sustainability		Natural resource conservation
Governance		Public administration (national, decentralized and regional)

6a. Climate Change Impact

Adaptation

6b. Gender Mainstreaming

Gender equity theme (GEN)	
Effective gender mainstreaming (EGM)	
Some gender elements (SGE)	
No gender elements (NGE)	√

7. Targeting Classification:

General Intervention	Targeted Intervention		
	Geographic dimensions of inclusive growth	Millennium development goals	Income poverty at household level
√			

8. Location Impact:

Rural	High

9. Project Risk Categorization: Low

10. Safeguards

Environment	**B**
Involuntary resettlement	**B**
Indigenous peoples	**C**

11. ADB Financing:

Sovereign/Nonsovereign	Modality	Source	Amount ($ Million)
Sovereign	MFF – Tranche	Ordinary capital resources	73.0
Total	Loan		73.0

12. Cofinancing:

13. Counterpart Financing: $12.43 million equivalent

14. Aid Effectiveness:

Parallel project implementation unit	No
Program-based approach	Yes

I. BACKGROUND

1. In December 2006, the Asian Development Bank (ADB) approved a $900 million[1] multitranche financing facility (MFF) for the Punjab Irrigated Agriculture Investment Program (PIAIP) to co-finance investments in the irrigation sector in Punjab. Two loans for the first project totaling $227.8 million were approved at the same time; $217.8 million equivalent from ordinary capital resources (OCR) and $10 million equivalent from the ADB's Special Fund (ADF) resources. The MFF finances investments to improve century-old irrigation infrastructure and associated facilities. It also prompts institutional reform premised on eventual farmer management of the irrigation system to raise the effectiveness and efficiency of delivering irrigation service.

2. Punjab sought to increase investment in its underperforming irrigated agriculture infrastructure and institutions. Irrigated agriculture accounts for 26% of Punjab's GDP and employs over 40% of its labor force. Irrigated cultivable agriculture covers 8.4 million hectares (ha) with a cropping intensity exceeding 120%. Fourteen barrages supply water through 22 main and link canals.[2] The Punjab's irrigation infrastructure has a worth of about $18 billion. Upgrading the irrigation system requires over $3 billion.

3. The Country Partnership Strategy (CPS) (2009-2013) prioritizes improving the irrigation infrastructure. The water resources sector roadmap identifies improving the infrastructure, institutions and agricultural productivity to drive sustainable agricultural growth. The Medium-Term Development Framework (MTDF)[3] estimated the expenditure on the irrigation sector at a rate of 32% annually since 2005. ADB's agriculture sector evaluation (2006) for Pakistan emphasizes rehabilitating water resources and irrigation. The Punjab Irrigation Department's (PID) asset management plan prioritized rehabilitation of seven barrages and five main canal systems.[4] The World Bank and Japan International Cooperation Agency (JICA) support to on-farm agricultural enhancement and institutional reforms complements ADB's activities for infrastructural improvement.[5] Punjab adheres to the sector road map and follows the reforms principles as in the MTDF. The PID already transferred management of 1.5 million ha to the farmers' organizations (FOs).

4. The Lower Bari Doab Canal Improvement Project (LBDCIP) financed under MFF tranche 1 is improving the Balloki Barrage on the Ravi River, the 200-km Lower Bari Doab Canal (LBDC), and about 1,500 kilometers (km) of distributary and minor canals that supply water to 700,000 ha vis-à-vis supporting institutional reforms, on-farm productivity and improved

[1] This amount comprised (i) up to $890 million equivalent form ADB's ordinary capital resources; and (ii) up to $10 million equivalent in Special Drawing Rights (SDR) from ADB's special funds resources (ADF). On 15 December 2011, ADB's Board of Directors approved an amendment to the MFF for Punjab Irrigated Agriculture Investment Program (PIAIP), which (i) reduced the facility amount to an amount not exceeding the equivalent of $700 million; and (ii) increased the limit on the use of ADF resources for the MFF to an amount not exceeding the equivalent of $280 million.

[2] Total canals length is 37,643 kilometers (6,429 km main canals and 31,214 km distributary and minor canals).

[3] The MTDF from 2005 to 2010 was extended to 2014, which also details out 2012 development program.

[4] Taunsa, Balloki, Jinnah, Khanki, Suleimanki, Trimmu, Panjnad and Islam barrage and Lower Chenab, Lower Bari Doab, Pakpattan, Thal and Sidhnai canals systems.

[5] The International Development Association (IDA) provided loans amounting to $88.4 million in 2003 and $250 million in 2012 for Punjab's on-farm water management and efficiency improvement. The World Bank also provided $123 million for Taunsa Barrage, $145 million for Jinnah Barrage and $100 million development policy loans. JICA continues to support Punjab Irrigation reforms and increasing water use efficiency and on-farm productivity since 2009 (Yen11,382 million for PISIP and Yen200 million for institutional reforms in Bahawalnagar Canal Circle in Bahawalpur Irrigation Zone, Lower Chenab Canal (LCC) West Circle in Faisalabad Irrigation Zone and Dera Jat Canal Circle in DG Khan Irrigation Zone).

groundwater management. Tranche 2 of the MFF financed the New Khanki Barrage Project (NKBP), which will provide irrigation water to 1.2 million ha and will benefit 568,000 farming families. ADB has now received a third periodic financing request (PFR) for $73 million for Tranche 3 of the MFF for Pakpattan Canal and Suleimanki Barrage Improvement Project (PCSBIP) (see Appendix 1). Improvement of Suleimanki Barrage will ensure reliable water supply to 1.01 million ha through its three canals[6] and will benefit more than 360,000 farming families. Pakpattan canal provides irrigation to 500,000 ha. ADB, through missions, due diligence and coordination with the Punjab Government and the other donors reached a conclusion that the proposed Tranche 3 will significantly contribute to the outputs and the outcome of the MFF.

II. ASSESSMENT OF MFF IMPLEMENTATION

5. **Physical and Nonphysical Progress**. Under Tranche 1, all the six consultancy contracts and seven out of nine civil works contracts have been awarded. The eighth civil works contract is in the process of award with the EA. Rebidding for the 9th civil works contract has been initiated. As of 25 October 2012, the total contract awards were $204 million (against projections of $220 million) and disbursements are at $55 million (against projections of $120.83 million). The physical progress is 46%, with an elapsed period of 66%. The progress on nonphysical components includes (i) establishment of 3,576 Khal Panchayats, 52 farmers organizations (FOs) and one Area Water Board (AWB) completing the decentralized farmers' management structures for operation, maintenance and management of the minor and distributary canals[7]; (ii) groundwater modeling study is on track; and (iii) on-farm demonstration plots with the FOs established. The EA updated the land acquisition and resettlement framework (LARF) for the MFF to comply with ADB's *Safeguard Policy Statement (SPS) (2009),* prepared eight land acquisition and resettlement plans (LARPs), and disclosed six LARPs. The EA established grievance redress committees and submitted internal and external monitoring reports, which are satisfactory. All the civil works are being carried out in accordance with ADB's *SPS (2009)* and the environmental assessment and review framework (EARF) (revised in 2011). The EA included an environmental management plan (EMP) in the bidding documents of all civil works contracts and observes the relevant mitigation and monitoring measures. Punjab allocated $6.9 million and is providing the required funds for resettlement activities.

6. Tranche 2 for NKBP was approved on 22 December 2011 and became effective on 17 February 2012. The bid for the ICB contract was invited following the single stage two-envelope procedure. None of the five bidders qualified. The rebidding is in process. The EA received seven bids on 15 November 2012, which are being evaluated. The EA has developed a mitigation plan to minimize the impacts of the expected delays due to rebidding. EA's submission 3 for recruitment of the consultants was already approved. A Project Management Office (PMO) already exists and additional staff is being recruited. ADB has cleared the draft LARP submitted by the EA in June 2012. In the early stages of implementation, even with the set-backs in civil works procurement, Tranche 2 implementation is on track.

7. **Compliance.** All covenants in the framework financing agreement (FFA) and the legal agreements for both Tranches 1 and 2 have been complied with, except for two. The two non-complied covenants relate to (i) establishing second generation imprest accounts for Directorate of On-Farm Water Management (DOFWM) and PIDA separate from the already established

[6] Suleimanki Barrage diverts irrigation water to Pakpattan, Fordwah and Eastern Sadiqia canals. This proposal includes rehabilitation of Pakpattan Canal only.

[7] Khal Panchayats are synonymous to water user associations at water course level with the exception that Khal Phanchayats are recognized as legal entities under Punjab law.

imprest account for PID; and (ii) legislation on a source of independent legal authority and establishment of FOs independent of the Punjab Irrigation and Drainage Authority (PIDA) Act dated 2 July 1997. ADB agreed with the Punjab Irrigation and Finance Departments assessment that the separate imprest accounts for DOFWM and PIDA are not required. As for the other covenant, Punjab's opinion is that it follows a uniform legislation for FOs for all canal circles under the PIDA. Creating a separate legal framework for LBDC will create non-uniformity among the canal circles and will cause serious problems in the implementation of Institutional Reforms in the process and consequently detrimental for sustainability of the irrigation system. A waiver to the requirement that FOs be operationally independent of the PIDA Act will be sought for ADB consideration at an appropriate time. PID updates its website regularly.[8] The safeguards related covenants are being fully complied with. The details of covenant compliance status are in Supplementary Appendix C.

8. **MFF Utilization**. There is no update to the sector roadmap and the MTDF was extended until 2014. With an initial delay mainly due to lacking in project readiness, ADB's management approved a $270 million Tranche 2 project in December 2011. The Board approved reducing the MFF amount from $900 million to $700 million and raising ceiling for ADF from $10 million to $280 million in 2011. As no additional projects under the MFF are currently planned, it is anticipated that the MFF balance amount of $87 million will be cancelled.

Tranche	Loan amount ($ million)	Approval in
Tranche 1: Lower Bari Doab Canal Improvement Project	270[a]	Dec 2006
Tranche 2: New Khanki Barrage Project	270	Dec 2011
Tranche 3: Pakpattan Canal and Suleimanki Barrage Improvement Project	73	Dec 2012
Balance MFF Amount	87	
Total	700	

[a] The Tranche 1 OCR loan was denominated in the Japanese yen. The current loan amount is $260 million equivalent as OCR and $10 million ADF. The difference of the current and the original loan amounts is due to difference of the exchange rates between the US$ and the Japanese yen.

9. **Major Challenges and the Lesson Learned.** The initial delay in the consultants' recruitment and EA's low management and procurement capacity slowed down the implementation progress. The institutional reforms—particularly formation and training of FOs — was a slow process and it took longer than the envisaged time. The project preparation was delayed initially due to the consultant's capacity and lately due to the EA's slow decision-making. ADB had a constructive dialogue with the Punjab Government and successfully resolved these problems. To avoid these challenges and based on the lessons learned from Tranche 2, the engineering design for the Tranche 3 was advanced and procurement process for recruitment of consultants and civil works contracts was already initiated under advance actions. The number of contract packages were consolidated to three—two for civil works and one for consultancy services.

III. PERIODIC FINANCING REQUEST

A. Impact and Outcome

10. The impact of the proposed project will be the improved agricultural production and farm income in Pakpattan Canal command area (Okara, Pakpattan, Vehari and Lodhran districts).

[8] The website (http://irrigation.punjab.gov.pk) discloses and updates discharge data of 24 main canal systems.

The outcome will be the improved and reliable water supplies for irrigated agriculture in Pakpattan Canal command area. The Suleimanki Barrage diverts water to one million ha through three canals and the Pakpattan Canal supplies water to 0.5 million ha. The design and monitoring framework (DMF) for Tranche 3 and a DMF for MFF are in Appendix 2.

B. Outputs

11. The project outputs will be (i) rehabilitation of Pakpattan Canal and Suleimanki Barrage completed on time and within the budget; and (ii) EA's improved project management capacity. The project outputs will be achieved through recruitment of supervision consultants, rehabilitation of main weir and canals head regulators, installation of barrage gates and rehabilitation of Pakpattan Canal, Khadir Branch canal and Pakpattan-Islam link canal and appurtenant structures.

12. The Pakpattan Canal and Suleimanki Barrage were included in the indicative list of subsequent projects under the MFF. The PCSBIP is Punjab Government's priority project and qualifies in the project selection criteria as indicated in the FFA. It is a non-revenue generating project with high direct poverty reduction content. It will improve the water delivery to 0.5 million ha and will reduce the risk of crop failure over 1.01 million ha and will 367,000 farming families (about 2.6 million people in six districts). Contribution to ADB's result framework is summarized in Appendix 3.

C. Investment and Financing Plans

13. The tranche is estimated to cost $85.43 million. This includes the base cost, contingencies, taxes and duties and financing charges during implementation (Table 1). The detailed cost estimates by expenditure category and by financier are given in the project administration manual (PAM) (Appendix 4).

Table 1: Tranche Investment Plan
($ million)

Item		Amount[a]
A.	**Base Cost**[b]	
	1. Pakpattan Canal and Suleimanki Barrage	59.96
	2. Project Management	6.39
	Subtotal (A)	**66.35**
B.	**Contingencies**[c]	15.82
C.	**Financing Charges During Implementation**[d]	3.26
	Total (A+B+C)	**85.43**

[a] Includes taxes and duties of $6.32 million to be financed from government resources.
[b] In mid-2012 prices. The Pakpattan Canal and Suleimanki Barrage comprise civil, electrical and mechanical works and project management includes costs of consultants and PMO staff and operating costs and resettlement costs.
[c] Physical and price contingencies were computed at 2.7% and 21% of the base cost.
[d] Includes interest and commitment charges. Interest during implementation for ADB loan has been computed at the 5-year forward London interbank offered rate plus a spread of 0.40%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.
Sources: ADB due diligence report based on PC-1 by the Government of Punjab.

14. The government has requested a loan of $73 million from ADB's ordinary capital resources to help finance the project. The loan will have a 25-year term, including a grace period of 5 years and a principal repayment period of 20 years, repayment by annuity 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, the interest and other charges during construction to be capitalized in the loan, and such other terms and conditions set forth in the draft loan and project agreements. Based on this, the average loan maturity is 18.31 years and, accordingly, a maturity premium of 0.2% per annum is payable to ADB. The government has provided ADB with (i) the reasons for its decision to borrow under ADB's LIBOR-based lending facility based on these terms and conditions, and (ii) an undertaking that these choices were its own independent decision and not made in reliance on any communication or advice from ADB. The financing plan is in Table 2.

Table 2: Financing Plan

Source	**Amount** ($ million)	**Share of Total** (%)
Asian Development Bank	73.00	85.5
Government	12.43	14.5
Total	**85.43**	**100.0**

Sources: ADB estimates based on PC-1 by the Government of Punjab.

D. Implementation Arrangements

15. **Executing Agency.** The PID will be the EA. The PID is already implementing ADB-financed LBDCIP and NKBP with loan amounts of $228 million and $270 million, respectively. It has recently completed three World Bank-financed projects including Taunsa Barrage (loan amount $123 million), irrigation system rehabilitation project (loan amount $200 million) and $100 million development policy loan. It is also implementing the World Bank-financed Jinnah Barrage rehabilitation project with a loan amount of $145 million and the JICA-financed $84 million Punjab irrigation system improvement project. The PID has therefore adequate experience and has built reasonable capacity to oversee ongoing investments, as well as the proposed PCSBIP under ADB financing.

16. **Project Management.** The PID will upgrade the existing project management unit, LBDCIP into project management office (PMO) for PIAIP similar to the existing PMO for Barrages. The PMO (PIAIP) will be responsible for the overall implementation of the project. The PMO (Barrages) will execute the Suleimanki Barrage component. The PMO teams will be strengthened by providing additional 14 staff for engineering, safeguards, procurement and financial management tasks. All the recruitments funded from the loan proceeds will be made in consultation with ADB. The implementation arrangements are summarized in Table 3 and described in the PAM.

Table 3: Implementation Arrangements

Aspects	**Arrangement**
Implementation period	From September 2012 to September 2016
Loan closing date	31 March 2017
Project management	
(i) Oversight body	The Project Steering Committee comprises Chairman Planning and Development Board, Punjab (Chair) and secretaries of Finance, Irrigation, Agriculture and Environment Departments and Member Engineering Planning and Development as committee members.
(ii) Executing agency	Punjab Irrigation Department
(iii) Project implementation unit	PMO (PIAIP) and PMO (Barrages) through dedicated PCSBIP Units of 14 staff (7 each for one unit)

Procurement	International competitive bidding	01 Canal contract (PC-ICB-01)	$35,810,000
	International competitive bidding	01 Barrage contract (SB-ICB-02)	$24,150,000
	Shopping (two packages)	05 Vehicles (Suleimanki)	$156,000
	Shopping (two packages)	06 Vehicles (Pakpattan)	$163,000
	Shopping	Equipment	$70,000
Consulting services	QCBS (90:10)	Construction Supervision – 559 person-month	$3,920,000
	Individual consultants (02)	Auditing procurement and safeguards	$50,000
Advance contracting	The government requested for advance actions for consulting services and civil works and agreed to finance the related expenses incurred before the loan effectiveness as part of its contribution to the project.		
Disbursement	The loan proceeds will be disbursed in accordance with *ADB's Loan Disbursement Handbook* (2012, as amended from time to time) and detailed arrangements agreed upon between the government and ADB.		
ICB = international competitive bidding; QCBS= quality- and cost-based selection. All procurements for services will follow *ADB's Guidelines on the Use of Consultants* (2010, as amended from time to time) and for goods and works will follow *ADB's Procurement Guidelines* (2010, as amended from time to time). Source: EA's PC-1 and project team estimates.			

17. Supervision consultants will assist the PMOs in supervising the construction activities, verifying the quantities and certifying the interim payments for the works contracts. The consultants will fill the role of the "Engineer" as defined in standard FIDIC contracts.[9] This is a simple rehabilitation work and national consultancy services have developed adequate capacity to supervise this type of works. Therefore, the consultants will be selected nationally using the quality- and cost-based selection method (QCBS; 90:10) following ADB *Guidelines on the Use of Consultants* (2010, as amended from time to time). The consultants will have a dual reporting function to the EA and ADB and will be required to field in-house staff for all core competencies.

E. Project Readiness

18. The project has a full feasibility study and detailed engineering design. Safeguards plans are in place. Significant land acquisition or resettlement is not envisaged. The PMO (Barrages) already exists. Most of the government's internal approvals have already been secured. However, due to time lag, the procurement process is to be restarted utilizing ADB's new standard large works bidding document and following a single stage two-envelope procedure and revisions in project cost. It is anticipated that the bidding will be near completion by third quarter of 2013. The procurement plan is in Appendix 5. The details of the implementation plan, procurement plan and a fund flow mechanism are in the PAM.

F. Advance Contracting

19. The government has requested advance action for contracting civil works and consulting services and agreed to bear all the related expenses incurred before the loan effectiveness as its contribution to the project. Therefore, no retroactive financing is required for this project. The EA and the government of Punjab were informed that the agreement on advance actions does not commit ADB to provide financing through the MFF.

[9] The Engineer has final approval authority for technical matters, development of bidding materials, and sign-off on contracting supervision as defined in standard FIDIC general conditions of contract.

IV. DUE DILIGENCE

20. The PID submitted the project documents including the feasibility report, detailed engineering design, initial environmental examination (IEE), updated environmental assessment review framework (EARF), updated land acquisition and resettlement framework (LARF), and draft LARP. The project team conducted an extensive due diligence on the technical proposal, investment plan and safeguard requirements. The project preparation is backed by a final design. The project team reviewed and found the final design acceptable.

A. Technical

21. The proposed PCSBIP will rehabilitate and improve the 80 years old Suleimanki Barrage to its design capacity of 425 m^3sec^{-1} and the Pakpattan Canal. Both the Barrage and the Canal are underperforming and the probability of their failure is high. Sedimentation has reduced the barrage's flood capacity from 9,203 m^3sec^{-1} to 7,100 m^3sec^{-1}. Failure of the barrage may result in no water delivery to 1.01 million ha for several crop seasons. The annual water leakages through damaged gates of the barrage now exceed 267 million cubic meters. Pakpattan Canal and its structures are badly deteriorated. PCSBIP will enhance the barrage's performance and safety, reduce the water losses and provide the system operating flexibility, thus reducing the risk of crop failure. The project's technical proposal is suitable for local conditions and PID's experience of barrages operation.

22. Punjab has agreed to an annual operation and maintenance (O&M) budget of Rs94.5 million in normal year and up to Rs200 million in a flood-year.[10] Punjab has ensured (i) an independent assessment and verification of the O&M works; and (ii) an independent audit of the O&M expenditure. The PID has an experience of performing O&M for 14 similar barrages and canal systems.

B. Economic

23. The direct beneficiaries of the project are 367,000 farming families (about 2.6 million people in six districts), mostly with very low income. The average farm size in the canal command is only 2.65 ha.

24. The economic analysis reflects the social benefits of the project. Financial prices and costs were converted to economic values, and where possible externalities were measured and included. This analysis is in accordance with ADB's guidelines for economic analysis[11] and risk analysis.[12] The mean economic internal rate of return (EIRR) is 29.1% and the range varies from 22.8% (10^{th} percentile) to 36.5% (90^{th} percentile). The detailed calculations of the economic analysis are in Appendix 6.

C. Governance

25. **Anticorruption.** ADB's *Anticorruption Policy* (1998, as amended to date) was explained to and discussed with the Government of Punjab and PID. The specific policy requirements and supplementary measures are described in the PAM. ADB reserves the right to investigate, audit

[10] Based on data from 14 barrages in Punjab, a recent estimate shows an average annual O&M requirement for one barrage varies between Rs40 million and Rs50 million.

[11] ADB. 1997. *Guidelines for the Economic Analysis of Projects*. Manila. ADB. 1999. *Handbook for the Economic Analysis of Water Supply Projects*. Manila.

[12] ADB. 2002. *Handbook for Integrating Risk Analysis in the Economic Analysis of Projects*. Manila.

and examine the records and accounts of PID directly or through its agents, any alleged corrupt, fraudulent, collusive, or coercive practices relating to the investment program and the PCSBIP. To support these efforts, relevant provisions of ADB's anticorruption policy are included in the loan and project agreements and the bidding documents for contracts under PCSBIP.

26. **Financial Management.** The project team's assessment shows that the PID's financial management and procurement capacity satisfies the ADB requirements. The PID's current financial management system is capable of (i) recording the required financial transactions and balances; (ii) providing regular and reliable financial statements and monitoring reports during project implementation; (iii) safeguarding financial assets; and (iv) subjecting the required financial documents to audit acceptable to ADB. The PMO staff is familiar with ADB's *Handbook for Borrowers on the Financial Governance and Management of Investment Projects Financed by the ADB*, August 2003. Dedicated units for Pakpattan Canal and for Suleimanki Barrage will further strengthen the capabilities to execute, manage, and monitor project implementation.[13]

27. **Disbursement Arrangements.** Loan disbursements for goods and services under major civil works and consultant's contracts will be made using direct payment methods as outlined in the *Loan Disbursement Handbook* (2012). The PID will establish an imprest account at a commercial bank acceptable to ADB, with the ceiling of 10% of the loan amount. The imprest account will be established, managed, and liquidated in accordance with ADB's *Loan Disbursement Handbook* (2012) and detailed arrangements agreed by the government and ADB.

28. **Accounting, Auditing, and Reporting.** The PID will maintain separate accounts and records for all expenditures incurred on the Project. The PMO (PIAIP) will consolidate and review the accounts, and after auditing, will submit them to the PID, Department of Finance and ADB. Project accounts will be audited annually by the Auditor General of Pakistan. The audited accounts and audit report will be submitted to ADB not later than 6 months following end of the corresponding fiscal year. The audit report will include a statement verifying that funds disbursed by ADB against statements of expenditure have been used for the purpose for which they were provided. The PMO (PIAIP) will submit a quarterly financial and physical progress reports within one month following the end of the quarter to which they relate.[14] Within 3 months of project completion, the PMO (PIAIP) will submit to ADB a project completion report quantifying physical progress and monitoring the utilization of loan funds.

29. **Project Performance Monitoring and Evaluation.** A project performance management system will be established in the PMO (PIAIP) within 6 months of loan effectiveness. The system will be tailored to project-specific requirements and prepared in consultation with the PID. A database of key benchmark indicators will be established by the PMO (PIAIP) in consultation with ADB. This will become part of the project monitoring system and will be routinely updated and monitored at least twice a year, including prior to midterm review and project completion.

[13] Existing PMO is headed by a full time project director and comprises technical, financial, procurement, social and environment, and administrative units.

[14] In addition, the PMO (PIAIP) will prepare other such information and reports relating to the Project and its implementation as ADB may reasonably request.

D. Poverty, Social and Gender Dimensions

30. **Poverty Reduction.** Two-thirds of Pakistan's population lives in rural areas, where incidences of poverty and vulnerability are high.[15] Punjab's irrigation system supplies water to 8.4 million ha, which is a major livelihood source for more than 40 million people. The project will directly benefit about 2.6 million people. Approximately, 80% of the targeted beneficiaries are classified as poor including 50% classified as vulnerable. Women are essential part of the family labor in agriculture and food related activities. Only less than 20% of the people in the project area have access to public facilities. A summary of poverty reduction and social strategy assessment is in Appendix 7.

E. Safeguards

31. **Land Acquisition and Resettlement.** The project is category B for involuntary resettlement.[16] The LARF was updated and LARP has been prepared following the country's Land Acquisition Act 1894 and with ADB's *SPS* (2009) and disclosed. Due to the nature of works as rehabilitation of existing structures, only limited impacts on land and people have been identified.[17] The number of affected people – through dislocation or through 10% loss of their productive assets – represents less than 200. The land acquisition and resettlement cost is estimated at about $340,000.[18] Largely, non-titled persons or entities settled in the canal right of way will be affected except for temporary land lease for canal diversions. Compensation will be based on replacement values on current market rate following LARP and ADB's *SPS* (2009). The PID has an experience of resettlement on a number of ADB-financed and World Bank-financed projects ensuring full compliance with the LARP. Six LARPs under Tranches 1 and 2 were already disclosed.

32. **Indigenous Peoples.** The project area does not include communities that may be defined as indigenous people under ADB's *SPS* (2009). Consequentially, indigenous people impact classification for the project area is C.

33. **Environment.** The project is category B for environment.[19] The government conducted an environmental impact assessment (EIA) of Sulemanki Barrage and IEE of Pakpattan Canal in 2010. The EIA discussed the impacts in detail and it was disclosed in 2010. However, the upgrading scope of the barrage was significantly reduced. Due diligence and site visit by the project team indicated that the impacts have also reduced significantly and will be restricted only to the construction phase; therefore the project is now category B for environment. The project team prepared an Addendum to the Suleimanki EIA, which contains a new environmental monitoring plan (EMP) and presents an impact monitoring plan commensurate with the reduced scale of civil works. The main anticipated environmental impacts are of temporary nature.[20]

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[15] International Fund for Agricultural Development. 2010. *Project Report for Punjab Poverty Alleviation*.

[16] ADB's categorization (accessible from the list of linked documents in Appendix 8).

[17] A total of 77 households (546 persons) will be affected by the project, which includes 17 houses, 14 fixed commercial structures (i.e. shops), 55 temporary/movable structures (kiosks etc.) and 11 community hand pump wells. The other damages include 27 wood trees and loss of cultivable land due to temporary acquisition of 6.4 ha during project implementation for the construction of temporary diversion canals.

[18] This includes $200,000 for resettlement to be financed 100% from the loan and remaining $140,000 for land acquisition to be financed by the Government.

[19] ADB's categorization (accessible from the list of linked documents in Appendix 8).

[20] The impacts include (i) dust, smoke and noise; (ii) localized soil compaction; (iv) water leakage from temporary dikes; and (v) damage to flora and fauna. The provisions for mitigation measures include (i) managing the camp's wastes properly; (ii) maintaining the roads and drainage ditches in proper order; (iii) using low noise machinery;

F. Climate Impacts

34. The Indus Basin (where PCSBIP is a part) faces risks from (i) lower water flows associated with glacial recession; and (ii) flash floods resulting from both heavy monsoon rainfalls and on rare occasions glacial blockage collapses. While it is envisioned that climate-induced extreme events and variability may occur, the Suleimanki Barrage is significantly buffered by the upstream structures. The project is therefore at a low risk from climate-induced upstream impacts; and introduction of climate risk management actions are deemed unnecessary. Nevertheless, water supply augmentation from Mangla reservoir to the Suleimanki Barrage during low flow periods will alleviate risks of reduced river flows in the Sutlej River.

G. Risks and Mitigating Measures

35. The major risks and mitigation measures are summarized in Table 4 below and described in detail in the risk assessment and the risk management plan.[21]

Table 4: Summary of Risks and Mitigation Measures

Risks	Mitigation Measures
Extreme flood event delays barrage construction.	Construction of coffer dams and completing foundation work during low flow season before monsoon will be agreed with the successful bidder during contract negotiations.
Climate-induced reduction in water flows and availability for Punjab irrigated agriculture, or energy driven water releases from the reservoirs.	Augmentation of flows from Mangla reservoir Rasool-Qadirabad, Qadirabad-Balloki and Balloki-Suleimanki link canals during low flows will minimize the climate-induced reduction in water flows or shortages.
Security conditions worsen to a level that it reduces interest of international bidders.	PCSBIP area is relatively safe. The government will provide its land for the contractor's camp. The bidders will be requested to include the camp security cost in the bid.

H. Risk Categorization

36. ADB has more than 30 years of experience of working in agriculture and natural resource sector in Pakistan. The PID has implemented several irrigation and barrage projects with ADB, World Bank, JICA and other donors as an executing agency. Further, this project is not categorized as "A" for any of the safeguards and the proposed loan amount is less than $200 million. Accordingly, the project is categorized as "low risk". A list of the linked documents is presented in Appendix 8.

V. ASSURANCES

37. The government and the PID have assured ADB that the implementation of the project shall conform to all applicable ADB policies including anticorruption measures, safeguards, gender, procurement, consulting services and disbursement as described in detailed in the PAM and loan documents.

38. The government and the PID have agreed with ADB on certain covenants for the project, which are set forth in the loan agreement and the project agreement.

(iv) monitoring and strengthening temporary dikes; and (v) maintaining the borrow area leveled and useable at the completion of the contract.

[21] Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 8).

VI. RECOMMENDATION

39. On the basis of the approval by ADB's Board of Directors for the provision of loans under the multitranche financing facility in an aggregate amount not exceeding the equivalent of $700,000,000 to the Islamic Republic of Pakistan for the Punjab Irrigated Agriculture Investment Program, it is recommended that the President approve the proposed tranche as described in paragraph 14 of this report and the draft loan agreement and project agreement for the proposed tranche substantially in the forms attached to this report.

PERIODIC FINANCING REQUEST FROM THE GOVERNMENT OF PAKISTAN

44607

No. 2(5)/EA/ADB-II/12
GOVERNMENT OF PAKISTAN
MINISTRY OF ECONOMIC AFFAIRS & STATISTICS
(ECONOMIC AFFAIRS DIVISION)

Joint Secretary(ADB/Japan)
Ph # 9210085
Fax # 9202019/9210734

Islamabad, the 24th September, 2012

Asian Development Bank
6 ADB Avenue
Mandaluyong City, Metro Manila

Attn: Director General, Central and West Asian Department
Fax No. +632 632 6318

Subject: - Perodic Financing Request (PFR) for Tranche – 3 of the MFF-Punjab Irrigated Agriculture Investment Program (PIAIP).

Please refer to the Framework Financing Agreement (FFA) for the Punjab Irrigated Agriculture Investment Program (PIAIP - Program) dated 11 November, 2006 between Asian Development Bank (ADB) and the Islamic Republic of Pakistan. Expressions defined in the FFA shall have the same meanings herein.

2. Pursuant to the provisions of the FFA, the Islamic Republic of Pakistan requests ADB to process this PFR for a tranche, in the form of a loan from its ordinay capital resources (OCR). The proposed financing amounts, terms, conditions and financing plan are in an attachment 1 hereto. Description of the project for which ffinancing is hereby requested are set out in Appendix 1through 7 of Attachment 1 hereto.

3. The Islamic Republic of Pakistan hereby certifies that it is in full compliance with the understanding set out in the FFA.

With regards

Sincerely,

(Dr. Kazim Niaz)

ASIAN DEVELOPMENT BANK
RECEIVED
25 SEP 2012
PAKISTAN RESIDENT MISSION
ISLAMABAD

Project 3 Description, Estimated Cost and Financing Plan

Project Description

The project proposed for financing under the requested PFR is the proposed PCSBIP which will rehabilitate and improve the about 80 years old Suleimanki barrage and Pakpattan Canal. Both the barrage and the canal are underperforming and the probability of their failure is high. Bela formation and Oblique flows have reduced the barrage's capacity from 9,203 m^3sec^{-1} to 7,100 m^3sec^{-1}. Failure of the Suleimanki barrage may result in no water delivery to about one million ha for several crop seasons. The annual water leakages through damaged gates of the barrage now exceeds from 267 million cubic meters. The Pakpattan Canal and its structures are badly deteriorated resulting in disorder in flow regulation and high water losses from the damaged canal prism. PCSBIP will improve the barrage's flow capacity correcting the river approach to barrage, reduce the water losses and provide the system's operating flexibility thus reducing the risk of crop failure. It will benefit 366,971 farming families (about 2.6 million people in six districts) through reliable irrigation supplies. It will improve the water delivery to half a million ha and will reduce the risk of crop failure over 1.01 million ha. The technology proposed under the project is suitable for local conditions and the PID is currently operating and maintaining similar barrages throughout Punjab. The Design and Monitoring Framework is in Annex A.

Cost Estimate and Financing Plan

The total cost of the project is estimated at $85.43 million inclusive of taxes duties and interest and other charges on loan during construction. The detailed cost estimate and financing plan are in Annex B.

Table 1: Summary Investment Plan for Project 3
($ million)

Item		Amount[a]
A.	**Base Cost**[b]	
	1. Pakpattan Canal and Suleimanki Barrage	59.96
	2. Project Management	6.39
	Subtotal (A)	**66.35**
B.	**Contingencies**[c]	15.82
C.	**Financing Charges During Implementation**[d]	3.26
	Total (A+B+C)	**85.43**

[a] Includes taxes and duties of $6.33 million to be financed from government resources.
[b] In July 2012 prices. The Pakpattan canal and Suleimanki barrage comprises civil, electrical and mechanical works and project management includes costs of consultants and PMO staff and operating costs and resettlement costs.
[c] Physical and price contingencies were computed at 2.7% and 21% of the base cost.
[d] Includes interest and commitment charges. Interest during implementation for ADB loan has been computed at the 5-year forward London interbank offered rate plus a spread of 0.40% effective February 2012. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

Source: ADB due diligence report based on PC-1 by the Government of Punjab.

Table 2: Summary Financing Plan for Project 3
($ million)

Source	Total	%
ADB's Ordinary Capital Resources	73.00	85.5
Government of Punjab	12.43	14.5
Total	**85.43**	**100.0**

Loan Amount and Terms

The request is for a loan amount of $73 million from the ordinary capital resources (OCR) of the Asian Development Bank (ADB). The loan will have a 20-year term including a grace period of 5 years.[1] Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount, and such other terms and conditions set forth in the draft loan and project agreements.

Period of Loan Utilization

The project is expected to be completed by 30 September 2016 and the loan closing date will be 31 March 2017.

Advance Contracting

Advance contracting is underway for procurement of civil works and consulting services.

Implementation Arrangements

The executing agency (EA) will be the Punjab Irrigation Department (PID). The PID, being the EA, will have the overall responsibility of (i) implementation; (ii) reporting on both physical and financial progress; and (iii) assuming direct responsibility for PCSBIP. The PID's existing Project Management Unit for LBDCIP will be transformed into Project Management Office (PMO) PIAIP, which will have overall responsibility of implementing the project and executing the Pakpattan Canal component. Project Management Office for Punjab Barrages (the PMO Barrages) will be responsible for the execution of Suleimanki Barrage Rehabilitation. The PMOs have implementation experience of LBDCIP, Taunsa Barrage and the ongoing Jinnah Barrage and has an implementation capacity. The PMOs will be strengthened with dedicated key engineering, safeguard, procurement and financial management staff for PCSBIP. Construction supervision consultants will assist the PMOs as the role of Engineer for the works.

Procurement and Consulting Services

The Procurement Plan is attached as Annex C. The terms of reference for the engagement of advisors under the tranche are attached as Annex D.

Confirmation of Continuing Validity

The Government of Pakistan and the Government of Punjab confirm that the understandings set out in the FFA and project and loan agreements under tranche 1 and tranche 2 have been adhered to, and

[1] ADB's new pricing structure, applicable after 1 April 2012, computes the average loan maturity period of 12.75 years for 20-year term following a straight line repayment procedure. The loans with an average loan maturity of up to 13 years will not require a maturity premium. Loans with an average loan maturity of greater than 13 years and up to 16 years will be charged a maturity premium of 10 basis points per annum. Loans with an average loan maturity of greater than 16 years and up to 19 years will be charged a maturity premium of 20 basis points per annum. The maturity premium will be added to the contractual spread of 0.4% per annum and will be applied for the life of the loan. In addition, ADB has introduced a cap on average loan maturity of 19 years. Average loan maturity is defined as the weighted average time to repay a loan.

of and Adherence to Provisions of FFA, Previous Agreements, and the Design and Monitoring Framework	remains true to-date. A report on the status of the covenants is attached as Annex E.
Readiness of the Project for Implementation	The feasibility study, detailed engineering design and PC-1 were prepared. Due diligence has been carried out to assess the technical, economic, and financial viability of the project. The concurrence of the Government and the EA on the project scope has been obtained. The land acquisition and resettlement framework (LARF) was updated and the land acquisition and resettlement plan (LARP) has been prepared. The bidding documents have been prepared and bidding process initiated. Details of implementation plan, procurement plan and a fund flow mechanism are in PAM. A request for proposal for the construction supervision consultancy package under PCSBIP has been drafted and recruitment process has started. Summaries of feasibility studies, engineering designs and economic and financial assessment are attached as Annex F.
Safeguards	**For the first PFR**. Status of compliance with ADB's safeguard requirements for Project 1 is in Annex G. **For the second PFR.** Safeguard documents including IEE and Resettlement Framework were prepared and Resettlement Plan was finalized. **For the third PFR.** Safeguard documents including IEE and resettlement plan have been prepared and are attached as Annex H and Annex I.

The Annexes A to I of the Government request report are not attached to avoid duplication. These Annexes are available on request.

DESIGN AND MONITORING FRAMEWORK TRANCHE 3

Design Summary	Performance Targets/Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
Impact Improved agricultural production and farm income in Pakpattan Canal command area (Okara, Pakpattan, Vehari and Lodhran districts).	• On an average 10% increase in cropping intensity over 500,000 ha over baseline (2011) by 2020 • On an average 10% increase in average farm income of 367,000 farming families over baseline (2011) by 2020	• Crop census data for districts by Agricultural Census Organization, Statistics Division, GoP. • PPMS	**Assumption** Governments of Pakistan and Punjab will ensure the delivery of irrigation water critical to achieving economic growth in Punjab.
Outcome Improved and reliable water supplies for irrigated agriculture in Pakpattan canal command areas	• Designed water supplies up to 156 m^3s^{-1} diverted to the canal and distribution system for at least 90% of the year by 2017 with no risk of failure compared to high risk of failure now.	• Director Regulation of PID for barrage operation data • PID's canal discharge data	**Risks** Climate-induced reduction in river flows and inter-sectoral competition for adjudication of water could result in reduced water availability for irrigation.
Outputs			**Risks**
1. Rehabilitation of Pakpattan canal and Suleimanki Barrage completed on time and within the budget	• Improved barrage eliminated the annual water leakage of 267 million cubic meter by 2017 • Improved 336 km length of canals and more than 319 appurtenant structures by 2017 • All contracts are within contingencies limits at the time of award,	• Director Regulation of PID for barrage operation data • EA's quarterly reports • EA's quarterly reports	Security conditions worsen to a level that reduces interest of international contractors in ICB bidding
2. EA's improved project management capacity	• PMO's 14 senior staff trained	• EA's quarterly reports	

Activities with Milestones	Inputs
1.1 Bid invitation, evaluation and award of ICB-01 (canal) contract (Oct 2012 to Jul 2013) 1.2 Bid invitation, evaluation and award of ICB-02 (barrage) contract (Oct 2012 to Aug 2013) 1.3 Procurement of construction supervision consultants (Oct 2012 to Jul 2013) 1.4 Resettlement plan implemented (Jun-Dec 2013) 1.5 Mobilization of contractor and establishing construction camps and laboratory (Jul-Sep 2013) 1.6 Construction/rehabilitation work in canal (Sep 2013 to May 2016) 1.7 Construction/rehabilitation work of Barrage (Aug 2013 to May 2016) 1.8 Environmental management plan implementation continues during construction period 1.9 Commissioning and operation tests (Jun 2016 to Jun 2017)	ADB - $73 million - Works - $ 50.95 million - Contingencies - $13.45 million - Consultancy - $3.38 million - PMO - $1.44 million - Vehicles and Equipment - $0.32 million - Resettlement - $0.20 million - IDI - $3.26 million Government - $12.43 million - Works - $9.01 million - Consultancy - $0.59 million - Contingencies - $2.37 million - PMO - $0.25 million

2.1 Recruitment of support project management staff (Mar-Jun 2013) 2.2 Preliminary training/mentoring by the senior staff (Apr-Jun 2013) 2.3 On-the-job and special trainings in procurement, financial management and safeguards	- Vehicles and Equipment - $0.07 million - Resettlement - $0.14 million National consultants - 874 pm

EA = Executing Agency; GoP = Government of Pakistan; IDI = interest during implementation; PID = Punjab Irrigation Department; PMO = Project Management Office.

DESIGN AND MONITORING FRAMEWORK MFF

Design Summary	Performance Targets/Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
Impact Increased agricultural production and farm income in Punjab irrigated agriculture program areas	• 10% increased in cropping intensity over 700,000 ha by 2017 • 10% increase in average farm income of 275,000 farming families by 2017	• Department of Agriculture statistics and crop data • PPMS	(A) Government of Pakistan and Punjab continue to give priority to the agriculture and natural resources sector
Outcome Punjab irrigated agriculture program areas receives a sustainably improved delivery of water services and management	• Design water supplies available in all program's distributary and minor canals throughout the year by 2017 • Tail outlets deliver design water supply throughout the year by 2017.	• Director Regulation, of PID for barrage operation data • PPMS	(A) Governments of Pakistan and Punjab will continue to see the delivery of irrigation water critical to achieving economic growth in Punjab (R) Reduced water availability for Punjab irrigated agriculture impacted by climate change effect or energy driven reservoirs releases
Outputs			
1. Irrigation infrastructure upgraded and rehabilitated	• Rehabilitated barrages (Balloki, Suleimanki, Trimmu, Khanki and Panjnad) are operational by 2017 • Rehabilitated canals and distribution systems (LBDC, Pakpatten) are operational by 2017	• EA's quarterly reports • EA's quarterly reports	(A) Government of Punjab remains committed to improve the irrigation infrastructure for improved irrigation supplies
2. Flood risks in the program area are reduced	• Flood capacity of 5 barrages on rivers Chenab, Ravi and Sutlej enhanced by 2017	• EA's quarterly reports	
3. Groundwater in the program area is used sustainably	• Government of Punjab endorsed groundwater use strategy and enforce groundwater regulation by 2017	• EA's quarterly reports	

Design Summary	Performance Targets/Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
4. Improved on-farm water management and agricultural support practices adopted in the program area	• Farmers use improved on-farm water management practices by 2017	• EA's quarterly reports	
5. Water management institutions improved	• AWB manages the main and branch canals and FOs manage operation and maintenance of distributaries and minor canals by 2017	• EA's quarterly reports	
Activities with Milestones 1. Implement canal rehabilitation component of the Tranche 1 by 2015, Tranche 2 and 3 by 2016. 2. Implement Barrage component of the Tranche 1 by 2015, Tranche 2 and 3 by 2016. 3. Implement groundwater component of the Tranche 1 by 2015. 4. Implement on-farm water management and agriculture support component of the Tranche 1 by 2015. 5. Implement institutional reform component of the Tranche 1 by 2015.		**Inputs** *Tranche 1:* ADB - $227.8 million - consulting services - $28 million - works - $176 million - vehicles & equipment $2.15 million - capacity development - $4.96 million - recurrent cost - $2.8 million Government - $53.6 million - works - $20 million - Consultants $4.23 million - vehicles & equipment $2.4 million - capacity development - $3.38 million - recurrent cost - $14.8 million - duties and taxes - $15.5 million *Tranche 2:* ADB - $270 million - consulting services - $9.1 million - civil and mechanical works - $238 million - contingencies - $52 million Government - $39 million *Tranche 3:* ADB - $73 million Government - $12.43 million.	

EA = Executing Agency; GoP = Government of Pakistan; PID = Punjab Irrigation Department; PMO = Project Management Office; PPMS = project performance management system.
DMF for the MFF was updated after ADB revised its safeguards policies and procedures (Safeguards Policy Statement, 2009)

CONTRIBUTION TO THE ADB RESULTS FRAMEWORK

No.	Results Framework Indicators	Targets	Method Used
1	Land improved through irrigation services, drainage and flood management (hectares)	1,010,000	Rehabilitated Pakpattan Canal will improve 500,000 ha and upgraded Suleimanki Barrage will ensure reliable water supply to additional 510,000 ha through Fordwah and Eastern Sadiqia canals.

PROJECT ADMINISTRATION MANUAL

(PAM is available as a separate volume)

PROCUREMENT PLAN

Basic Data

Project Name: Pakpattan Canal and Suleimanki Barrage Improvement Project	
Country: Pakistan	**Executing Agency**: Punjab Irrigation Department
Loan Amount: $73 million	**Loan Number:** 37231-043
Date of First Procurement Plan: 27 November 2012	**Date of this Procurement Plan**: 27 November 2012

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

1. Project Procurement Thresholds

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

Procurement of Goods and Works

Method	Threshold
International Competitive Bidding (ICB) for Works	Above $5,000,000
International Competitive Bidding for Goods	Above $500,000
Shopping for Goods	Below $100,000

2. ADB Prior or Post Review

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

Procurement Method	Prior or Post	Comments
Procurement of Goods and Works		
ICB Works	Prior	
Shopping for Goods	Post	
Recruitment of Consulting Firms		
Quality- and Cost-Based Selection (QCBS)	Prior	
Recruitment of Individual Consultants		
Individual Consultants	Prior	

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

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

General Description	Contract Value	Procurement Method	Prequalification of Bidders (y/n)	Advertisement Date (quarter/year)	Comments
Rehabilitation of Pakpattan canal	35,810,000	ICB	y	Q4, 2012	
Rehabilitation of Suleimanki Barrage	24,150,000	ICB	y	Q4, 2012	

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

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

General Description	Contract Value	Recruitment Method	Advertisement Date (quarter/year)	International or National Assignment	Comments
Construction supervision consultants	3,920,000	QCBS (90:10)	Q4, 2012	National	Simple rehabilitation work

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

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

General Description	Value of Contracts (cumulative)	Number of Contracts	Procurement / Recruitment Method	Comments
Vehicle (6) for Pakpattan in two packages	163,000	2	Shopping	
Vehicle (5) for Suleimanki in two packages	156,000	2	Shopping	
Equipment (computers and accessories, photocopier, generator, air-conditioner, multi-media etc	70,000	1	Shopping	
Two individual consultants for auditing procurement and safeguards	50,000	2	National/ Government procedures acceptable to ADB	

B. Indicative List of Packages Required Under the Project

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

General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Procurement Method	Domestic Preference Applicable	Comments
Goods	389,000	5	Shopping		
Works	59,960,000	2	ICB	Not applicable	

General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Recruitment Method	Type of Proposal	Comments
Consulting Services	3,970,000	3	QCBS (90:10) for firms (National)	Full Technical Proposal	

ECONOMIC ANALYSIS

A. Introduction

1. The economic analysis for Tranche 3 of the investment program was undertaken according to Asian Development Bank (ADB) guidelines, and describes the economic rationale for public intervention. The analysis quantifies the benefits and costs of the investment in Pakpattan Canal and Suleimanki Barrage Improvement Project (PCSBIP) in economic terms. A financial analysis was not conducted as there are no productivity improvements associated with project, and consequently no direct increases in farm incomes measurable from impacts such as improved crop yields. The economic analysis measures the net worth of the project to the country. Financial values are converted to economic values by removing the effects of government intervention and market distortions. The analysis reports the key investment criteria; economic internal rate of return (EIRR), economic net present value (ENPV), and economic benefit-cost ratio (EBCR).

2. Two scenarios were compared to determine the economic net benefits of the investment program: without-project and with-project. The analysis assumes that without the project the barrage will fail at some stage in the future, thereby resulting in lost agricultural income over the following several years plus incur additional capital and operating costs necessary to provide a temporary structure to restore irrigation supplies. The project will not increase agricultural production or productivity, with the primary benefit being the elimination of the income foregone associated with a barrage failure. However, these benefits are dependent upon the year of failure (due to discounting), which is unknown.

3. A risk analysis framework was used which accounts for variability in the time of barrage and canal failure without the project. A cumulative probability distribution was identified for the year of Suleimanki Barrage failure being – year (5, 10, 15, 20, 25, 30) and cumulative probability (1%, 10%, 40%, 80%, 90%, 100%). Pakpattan Canal suffers from occasional breaches in the upper, middle and lower reaches, with differing agricultural effects. For the without-project scenario the probabilities of breaches in each reach increase from year 1 to year 30 as follows: (i) upper reach – 1 in 100 to 1 in 50 years; and (ii) middle reach – 1 in 30 to 1 in 5 years; (iii) lower reach – 1 in 30 to 1 in 5 years. Under the with-project scenario the probability of barrage failure and breaches of the canal are zero. A scalar is included to reflect uncertainty in the agricultural benefits from reducing leakage losses from the canal and barrage, with a triangular probability distribution being adopted with a minimum, median and maximum (0.6, 0.8, 1.0). The project capital costs were also treated as a random variable, with a capital cost scalar included represented by the triangular probability distribution values for minimum, median and maximum (1.0, 1.1, 1.3).

4. Failure of the Sulemainki Barrage will affect the areas serviced by Pakpattan, Fordwah and Eastern Siddiqui Canals – a combined crop area of 3,656,750 ha. In the year following the barrage failure it is assumed that no water can be supplied to rabi crops. However, due to emergency measures, some water will be available to the following kharif season crops. In subsequent years, more water will become available until full production is restored within 7 years. The temporal scalars for rabi and kharif crops are given in Table A6.1. However, barrage failure does not mean all crops will be affected as about 50% of the irrigable area uses groundwater. Future crop areas were assumed to be the same as current areas for rabi season (673,904 ha), kharif season (763,238 ha), and perennial and semi-perennial crops such as sugarcane and orchards (42,694 ha). Crop yields were assumed to remain at current levels. Economic gross margins were derived for each crop type.

Table A6.1: Crop area scalar and emergency costs associated with barrage failure

Year after barrage failure	Rabi crop scalar	Kharif crop scalar	Barrage emergency repair costs (PRs million)
1	1.00	0.50	500
2	0.35	0.35	30
3	0.20	0.20	30
4	0.20	0.20	30
5	0.20	0.20	30
6	0.10	0.10	30
7	0.00	0.00	0

PRs = Pakistan rupee
Source: Asian Development Bank estimates.

5. Barrage failure can occur naturally due to the high degree of erosion under the existing structure, or from a severe flood. If the failure is associated with a flood event then flooding losses of the kharif crop area (20%) can be expected.

6. Given the poor condition of the Pakpattan Canal and its associated structures, there is also a risk of failure of infrastructure (e.g. bank erosion/collapse) without refurbishment. This scenario would result in limited supplies of irrigation water being applied to rabi and kharif crops for the following season until emergency measures were able to restore supplies. Consequently, there would be an opportunity cost in terms of reduced agricultural income and increased repair costs. It is assumed that 20% of the rabi and kharif crops will be affected in the year following failure. Crop areas are expected to be restored following emergency repairs, which is estimated to cost Rs200 million.

7. The life of the project is 30 years; a discount rate of 12 percent was used for the economic analysis. The analysis uses shadow pricing and standard conversion factors to convert the financial costs and benefits into economic terms. The analysis was undertaken in constant August 2012 prices.

8. Sensitivity analysis was not undertaken as the variability in key parameters was implicitly included in the risk analysis framework. The analysis was solved by Monte Carlo simulation (10,000 iterations), and the results were reported in terms of the mean, standard deviation and percentiles.

B. Economic Values

9. The average exchange rate between $US and Pakistan PRs used was 94.50.

10. A standard conversion factor (SCF) is used to convert domestic prices to economic equivalent prices. The SCF is approximated by the weighted average of import and export tariffs with subsidies excluded. An average SCF for the 5-year period 2004-05 to 2008-09 was obtained by the formula SCF = (M+X) / [(M+Tm)-(X-Tx)] where M is CIF value of imports, X is FOB value of exports, Tm is net value of taxes on imports, Tx is net value of taxes on exports. The calculated average SCF was 0.910.

11. The economic analysis requires all inputs in the project to be charged to the opportunity cost. This applies to both skilled and unskilled labor. A shadow wage rate (SWR) factor is required to account for the fact that market wages for unskilled labor may not reflect the true

labor opportunity cost due to under-employment within the economy. An average SWR of 0.75 has been estimated from SWR values for period 1998 to 2009.

12. In Pakistan there is little underemployment of skilled workers. Therefore, the market for skilled labor is likely to be in equilibrium and the opportunity cost is reflected by the domestic market skilled labor rate.

13. Specific conversion factors are required for the adjustment of various non-traded inputs required in project costs. A specific conversion factor for cement of 0.6 was used in the calculation of investment costs.

14. Border prices of tradable commodities (e.g., wheat, rice, cotton) were computed from the latest available World Bank Commodity forecasts (December 2011). Border prices of major inputs (e.g., fertilizers, pesticides) were also derived from the same basis. All border prices were adjusted to account for transport and handling between port and market, and from market to farm-gate. The resulting values were expressed in terms of the domestic currency. The financial and economic values used in the analyses are given in Table A6.2.

Table A6.2: Financial and Economic Values

Item	Unit	Financial value	Economic value
Crops:			
Cotton[a]	PRs/kg	95.59	82.94
Rice[a]	PRs/kg	25.76	29.41
Maize	PRs/kg	25.17	23.03
Chilli	PRs/kg	88.21	80.71
Sesamum (oilseed)	PRs/kg	93.74	85.77
Melons	PRs/kg	36.33	33.24
Kharif fodder	PRs/kg	3.06	2.80
Moong (pulse)	PRs/kg	94.10	86.10
Wheat[a]	PRs/kg	27.05	47.45
Potatoes	PRs/kg	19.09	17.47
Rabi oilseeds	PRs/kg	52.47	48.01
Rabi fodder	PRs/kg	2.76	2.71
Sugarcane[a]	PRs/kg	4.81	4.25
Mango	PRs/kg	40.48	37.03
Citrus	PRs/kg	31.24	28.58
Fertilizers:			
N--(UREA) [a]	PRs/kg	54.35	77.81
P--(DAP) [a]	PRs/kg	156.00	121.09
Potash[a]	PRs/kg	74.00	93.40

[a]border prices used. kg = kilogram; PRs = Pakistan rupee
Source: Asian Development Bank estimates.

15. The project economic costs were estimated as follows: Pakpattan Canal – PRs3,944 million ($41.7 million); Suleimanki Barrage – PRs2,672 million ($28.3 million); total investment cost PRs6,615 ($70.0 million). The annual maintenance costs were estimated as Pakpattan Canal – PRs34.95 million ($0.37 million); Suleimanki Barrage – PRs59.55 million ($0.63 million); total maintenance cost PRs94.5 million ($1.0 million).

C. Economic Analysis

16. The economic analysis derived a mean EIRR of 29.1% (standard deviation 10.9), mean ENPV of PRs15,650 million (standard deviation 4,426), and mean EBCR of 3.9:1 (standard deviation 0.8). The mean results suggest that the project is economically viable; however, they do not reflect the full variability in the outcomes. The percentiles resulting from the model simulation in Table A6.3 indicate the probability of achieving certain values for the economic performance criteria. The EIRR ranges from 22.8% (10^{th} percentile) to 36.5% (90^{th} percentile). The minimum estimated EIRR exceeded the 12% threshold, indicating the project has a high probability of being economically viable.

Table A6.3: Results of Economic Risk Analysis

Percentile	EIRR (%)	ENPV (PRs million)	EBCR
0%	19.5	6,848	2.1
10%	22.8	10,833	2.9
20%	23.9	12,082	3.1
30%	24.8	13,038	3.3
40%	25.8	13,951	3.5
50%	26.8	14,893	3.7
60%	28.0	15,985	3.9
70%	29.4	17,146	4.1
80%	31.7	18,683	4.4
90%	36.5	21,351	4.9
100%	181.6	40,661	8.8

EBCR = economic benefit-cost ratio; EIRR = economic internal rate of return; ENPV = economic net present value; PRs = Pakistan rupee.
Source: Asian Development Bank estimates.

SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

Country:	Pakistan	Project Title:	Pakpattan Canal and Suleimanki Barrage Improvement Project
Lending/Financing Modality:	Tranche 3 of the Multitranche Financing Facility	Department/ Division:	Central and West Asia Department/ Environment, Natural Resources and Agriculture Division

I. POVERTY ANALYSIS AND STRATEGY

A. Links to the National Poverty Reduction Strategy and Country Partnership Strategy

The medium-term development framework (MTDF) (2005-2014) focuses on economic growth and poverty reduction through 10 strategic pillars, including removing the infrastructure bottleneck. In the IMF Country report, the poverty reduction strategy paper (PRSP)-II (2010) also emphasized the need for protecting the poor and the vulnerable people by increasing productivity and value addition in agriculture through removing the infrastructure bottlenecks, including the irrigation infrastructure in addition to other pillars of the strategy, such as macroeconomic stability, integrated energy development, industrial development, human, capital & finance development and good governance; and also empower the women and reduce gender disparities.

The ADB's country partnership strategy (CPS) for Pakistan (2009-2013) links with the country's poverty reduction strategy paper (PRSP) (2003) that includes: (i) accelerating economic growth; (ii) improving governance and devolution; (iii) investing in human capital; and (iv) targeting the poor and vulnerable. PRSP-II (2010) emphasizes on the provision of world class infrastructure, competitive advantage and harnessing potential of the people in the country's poverty targeting strategy.

The tranche 3 of the Punjab Irrigated Agriculture Investment Program is designed to decrease infrastructure bottlenecks related to deteriorating barrage systems and to improve the reliability of irrigation supplies through upstream infrastructure improvements.

B. Poverty Analysis

Targeting Classification: General intervention

1. **Key issues.** Poverty in Pakistan is predominantly a rural phenomenon and nearly two-thirds (65%) of the population lives in rural areas.[1] Not only is poverty higher among the rural population, so is vulnerability.[2] The incidence of food poverty is higher in rural areas (35%), than in urban areas (26%), both in terms of per capita incomes and consumption expenditures. The main reason for rural poverty is the highly unequal distribution of assets particularly land and access to water. Pakistan's CPS (2009-2013) indicated that the proportion of population living below poverty line fell sharply from 34.5% in FY 2001 to 22.3% in FY2006.

Despite being labeled the "bread basket" of Pakistan, Punjab has a surprisingly high incidence of poverty at 32.4% of the rural and 26.5% of the urban population.[3] While Punjab has districts producing the most food surplus in all of Pakistan, it also demonstrates high intensities of food insecurity, particularly in rural areas.[4] The population in Punjab is 70% rural, depending almost entirely on agriculture for its livelihood. Irrigated agriculture is vital to sustain the livelihood base, and surface water is an essential source,

[1] International Fund for Agricultural Development. 2010. *Southern Punjab Poverty Alleviation Project Report*. Rome.
[2] Households are considered vulnerable if they do not have the means to smooth out their expenses in response to changes in income.
[3] Government of Pakistan. 2003. *Poverty Reduction Strategy Paper*. Islamabad.
[4] World Food Program. 2005. Food Insecurity in Rural Pakistan. 2003. Sustainable Development Policy Institute.

particularly in areas suffering from marginal quality groundwater. In Punjab, irrigated agriculture accounts for 28% of the province's GDP, employs over 50% of labor force and contributes a major share of rural livelihood. The province's irrigation system provides irrigation water to 8.4 million ha; cropping intensity of about 122%, and is the largest in Pakistan, but due to deterioration caused by aging, neglect and inadequate resources, it requires rehabilitation or replacement of major hydraulic structures.

More than one million ha irrigated area and about 366,931 farming families (2.6 million populations of five districts) are on risk due to 80-year old Suleimanki Barrage and canals. Once failed, it will take several years to recover, which means loss of several crops more poverty over a large area and population.

The project will rehabilitate the 80 years old Suleimanki Barrage and Pakpattan Canal on river Sutlej. It will avoid the risk of failure, add safety of the Barrage through introduction of new technology for reducing uplift pressures, eliminate the water losses through gates and will reduce the canal water losses to a design limit. The proposed project will ensure reliable supplies to 1.01 million ha through Pakpattan, Fordwah & Eastern Sadiqia Canals. The dependable irrigation water supplies will contribute directly to reduce poverty by providing employment opportunities to local people through providing regular water supplies to their crops and increase the agricultural production and ultimately enhance the household well-being and income.

2. **Design features.** The project has effects on poverty reduction. It will provide more reliable upstream water supply, which will result in more reliable water availability at distributaries and farm levels.

II. SOCIAL ANALYSIS AND STRATEGY

A. Findings of Social Analysis

Key issues. The proposed project will ensure reliable supplies to 1.01 million ha. The primary beneficiaries of the project will be about 367,000 farming families (2.6 million populations of five districts) of Pakpattan, Fordwah & Eastern Sadiqia Canals command area through reliable water supplies. The total area and population of these districts is about 145,173 square kilometers and 13.06 million, respectively. The project will provide employment opportunities and therefore will contribute to the household well-being and income.

In the project area, most of the people had access to asphaltic roads, electricity and telecommunication. Majority of the households' had installed their own hand pumps for getting the drinking water. However, some water supply schemes were also available in the project area. A major proportion of the houses in the project area were mix of mud and cement. However, the population settled along the embankment had limited access to health facilities, for which, they have to travel to nearby towns. Of the total farming families (367,000), 84% were the small farms having an average size of land holding up to 5 ha, while 11% and 5% were medium (>5 – 10 ha), and large farms (> 10 ha), respectively. Small farmers (84%) had 49% of the total land, while the remaining 51% of the total land was owned by the medium and large farm size categories (16%). Thus, majority of the farmers (84%) in the project area depend on subsistence farming.

Many factors, including unequal distribution of landholding, sub-division of land, inequitable access to infrastructure and social facilities, less household income, poor health/nutrition, limited education facilities, poor living standard, limited alternatives of livelihood except agriculture/farming and ultimately low level of living standard and gender inequity, affect poverty levels. This project has indirect impact on poverty reduction by securing availability of irrigation water, which is crucial for agricultural production and as such, the livelihood of the communities in the project area.

1. Who are the potential primary beneficiaries of the project? How do the poor and the socially excluded benefit from the project? During the construction phase, will the villages settled nearby expect to benefit from increased jobs related to construction?

- The project will create job opportunities for the neighboring communities during construction phase and upgrading and rehabilitation of Pakpattan Canal and Suleimanki Barrage will ensure sustainable

irrigation supplies, which will contribute to stabilize crop yield, sustained production and increased income.

2. What are the potential needs of beneficiaries in relation to the proposed project?

- The EA needs to ensure that the contractors comply with the National Labor Laws and Regulations including core labor standards and the construction operation should not damage the existing tracks, water supply pipeline or other communal or individual utilities.

3. What are the potential constraints in accessing the proposed benefits and services, and how will the project address them?

- None

B. Consultation and Participation

4. Stakeholders, beneficiaries, and people in the project area have been consulted, and will continue to be consulted during project implementation. A participatory and consultative methodology was adopted to undertake social analysis during the project preparation. It involved (i) initial field reconnaissance discussions with project stakeholders; (ii) focus group discussions with women in core subproject areas; (iii) detailed household survey with male respondents in core subproject areas; (iv) key informant interviews; and (v) detailed survey questionnaires of households directly affected by land acquisition and civil works. During project implementation, the participation of stakeholders will be supported and deepened with the assistance of key project staff and the consultants. Dedicated resettlement staff will be part of the project management office to ensure that resettlement activities are addressed according to SPS (2009).

5. What level of C&P is envisaged during the project implementation and monitoring?

☒ Information sharing ☒ Consultation ☐ Collaborative decision making ☐ Empowerment

6. Was a C&P plan prepared for project implementation? ☒ Yes ☐ No

C&P strategy is included in the resettlement plan and will be used during the implementation of the resettlement plan. An amount of $350,000 has been allocated for the implementation of LARP and a dedicated safeguards unit in PMOs with the assistance of the supervision consultants will be responsible for the implementation of LARP.

C. Gender and Development **Gender Mainstreaming Category:** No Gender Elements

In Pakistan, about 80% of rural women are engaged in agriculture compared to 60% of rural men. It is worth mentioning that women's work is getting harder and more time-consuming due to ecological degradation and economic crisis. Women contribute to household income through farm and non-farm activities but women's work as family labor is grossly under-reported. Women participate in all operations related to crop production such as sowing, transplanting, weeding and harvesting, as well as in post-harvest operations such as threshing, winnowing, drying, grinding, husking, and storage (including making mud bins for storage). Rehabilitation of Suleimanki Barrage and Pakpattan canal system will provide reliable irrigation supply and is an upstream work. It will indirectly benefit to the women, but specific benefit benefits to the women have not been envisaged except for the women with land entitlement.

1. **Key actions.** No action for tranche 3

☐ Gender action plan ☐ Other actions or measures ☒ No action or measure

The gender specialist consultant based in PRM will be involved in review missions to monitor if the women are provided with equal opportunities on the project activities and if there is no wage discrimination as compared with men for the same activity are exercised during project implementation. However, the strong involvement and capacity development of the farmer’s organizations in Tranches 1 and 2, namely their active participation in O&M will continue to be implemented and further assessed, especially if women farmers were successfully included in the O&M and decision making of the farmers organizations. The gender specialist consultant will continue to assess the implementation progress of tranches 1 and 2 gender and social development features.

III. SOCIAL SAFEGUARD ISSUES AND OTHER SOCIAL RISKS			
Issue	**Significant/Limited/ No Impact**	**Strategy to Address Issue**	**Plan or Other Measures Included in Design**
Involuntary Resettlement	Limited	The LARP was prepared and disclosed to the affected persons (APs). A total of 77 households (546 persons) will be affected by the project, which includes 17 houses, 14 fixed commercial structures (i.e. shops), 55 temporary/movable structures (kiosks etc.) and 11 community hand pump wells. The APs will be compensated with cash on replacement cost and/or PID's land for land, if available in the adjacent area and acceptable by the APs.	☒ Resettlement plan ☒ Resettlement framework
Indigenous Peoples	No impact	No indigenous people in the project area	
Labor ☒ Employment opportunities		Provisions in the bidding documents are made that the contractors ensure to (a) comply with applicable labor laws (b) not to differentiate between men and women for payment for a work of equal value, (c) not to employ child labor, and (d) prefer local poor and disadvantage persons as unskilled labor.	☒Other action
Affordability	No impact	No specific activity	☒ No action
Other Risks and/or Vulnerabilities ☒HIV/AIDS ☐Human trafficking ☐Others (conflict, political instability, etc.)		The EA will ensure that NGOs disseminate information on risks of sexually transmitted infections, including HIV/AIDS, to the employees, workers and local communities in the surrounding areas.	☒Other action

IV. MONITORING AND EVALUATION
Are social indicators included in the design and monitoring framework to facilitate monitoring of gender and social development activities and/or social impacts during project implementation? ☐ Yes ☒ No

Sources:

1. Pakistan Country Partnership Strategy (2009-2013).
2. Poverty Reduction Strategy Paper-II (2010).
3. Initial Social Assessment for Pakpattan Canal and Suleimanki Barrage Improvement Project.
4. Draft Land Acquisition and Resettlement Plan (LARP).

LIST OF LINKED DOCUMENTS

(i) Risk Assessment and Risk Management Plan
(ii) ADB's Involuntary Resettlement and Indigenous Peoples Categorization
(iii) ADB's Environment Categorization
(iv) Updated EARF disclosed. http://www.adb.org/projects/documents/punjab-irrigated-agriculture-investment-program-earf
(v) Updated LARF disclosed. http://www.adb.org/projects/documents/punjab-irrigated-agriculture-investment-project-piaip-larf
(vi) IEE disclosed. http://www.adb.org/projects/documents/punjab-irrigated-agriculture-investment-program-tranche-3-suleimanki-barrage-and-pakpattan-canal-iee
(vii) Draft LARP disclosed. http://www.adb.org/projects/documents/punjab-irrigated-agriculture-investment-program-piaip-suleimanki-barrage-larp